

From Ambition
to Execution





Contents

About this Report	3
Avantium at a Glance	4
Company Highlights 2022	5
Key Financials 2022	6
Key Events 2022	7
Message from the CEO	8
Who We Are	10
Our Business Units	11
Our Technologies	12

Management Board Report	16
How We Create Value	17
Value Creation Model	18
The World Around Us	20
Stakeholders and Materiality	22
Our Strategy	24
The Value We Created in 2022	27
Financial Performance in 2022 (including Going Concern)	54
Investor Relations and Share Performance	58
Risk and Opportunity Management	61

Governance	74
Management Team	75
Supervisory Board	77
Report of the Supervisory Board	78
Remuneration Report 2022	84
Corporate Governance	106

Financial Statements 2022	111
Other Information	158
Articles of Association Governing Appropriation of Profit	158
Independent Auditor's Report	159

Sustainability Statements	169
Sustainability Strategy	170
Sustainability Governance	170
Boundaries	170
Scope	171
References	174

Supplementary Information	176
GRI Content Index	177
Glossary	181





About This Report

ESEF Reporting Package

This is the PDF version of the Annual Report 2022 Avantium N.V. This version has been prepared for ease of use, and does not contain ESEF information as specified in the Regulatory Technical Standards on ESEF (Delegated Regulation (EU) 2019/815). The official ESEF reporting package is available on our website at www.avantium.com/at-a-glance/#key-financials.

Scope of the Annual Report

This Annual Report covers Avantium N.V., including all our consolidated entities as stated in 'Note 2.2.1 subsidiaries'. Our financial and non-financial results are presented in one report and relate to all consolidated entities for the period of 1 January until 31 December 2022, unless stated otherwise.

Reporting Guidelines

Integrated reporting and transparency have become increasingly important over the past few years. As such, Avantium prepared this Annual Report in line with the IIRC Integrated Reporting (IR) framework.

For the non-financial information included in this report, we followed the Global Reporting Initiative (GRI) Standards (GRI 1: Foundation 2021). A GRI content index shows where in the Annual Report information can be found.

The consolidated financial statements of Avantium N.V. have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. The consolidated financial statements have been

prepared under the historical cost convention unless otherwise stated.

Reporting Structure

This Annual Report outlines how Avantium creates value for our stakeholders in the long term. Our value creation model is presented at the beginning of the report, showing how our vision, mission and actions create a positive impact for our direct value chain and beyond. We present the cohesion of the different elements of our strategy, material topics, sustainability targets, KPIs and related risks and of the UN's Sustainable Development Goals.

Assurance

Currently, the financial data and related information included in the financial statements are covered by external assurance. Although we further enhanced our non-financial reporting to increase alignment with our strategic focus, we opted not to seek external assurance for non-financial information at this time.

Audience

This report is intended to inform stakeholder groups that have an impact on or are impacted by our business. This includes partners, investors and shareholders, employees and society as a whole. It aims to give our stakeholders a balanced overview of our activities and Avantium's ability to create sustainable long-term value. Additional disclosures are available on our website www.avantium.com

Safe Harbor Statement

This Annual Report may include forward-looking statements. Other than reported financial results and historical information, all statements featured in this Annual Report, including, without limitation, those regarding our financial position, business strategy and management plans and objectives for future operations, are forward-looking statements. These forward-looking statements are based on our current expectations and projections about future events and are subject to risks and uncertainties that could cause actual results to differ materially from those expressed in the forward-looking statements. Many of these risks and uncertainties relate to factors that are beyond Avantium's ability to control or estimate precisely, such as future market conditions, the behaviour of other market participants and the actions of governmental regulators. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report and are subject to change without notice. Other than as required by applicable law or the applicable rules of any exchange on which our securities may be traded, we have no intention or obligation to update forward-looking statements.



Avantium at a Glance



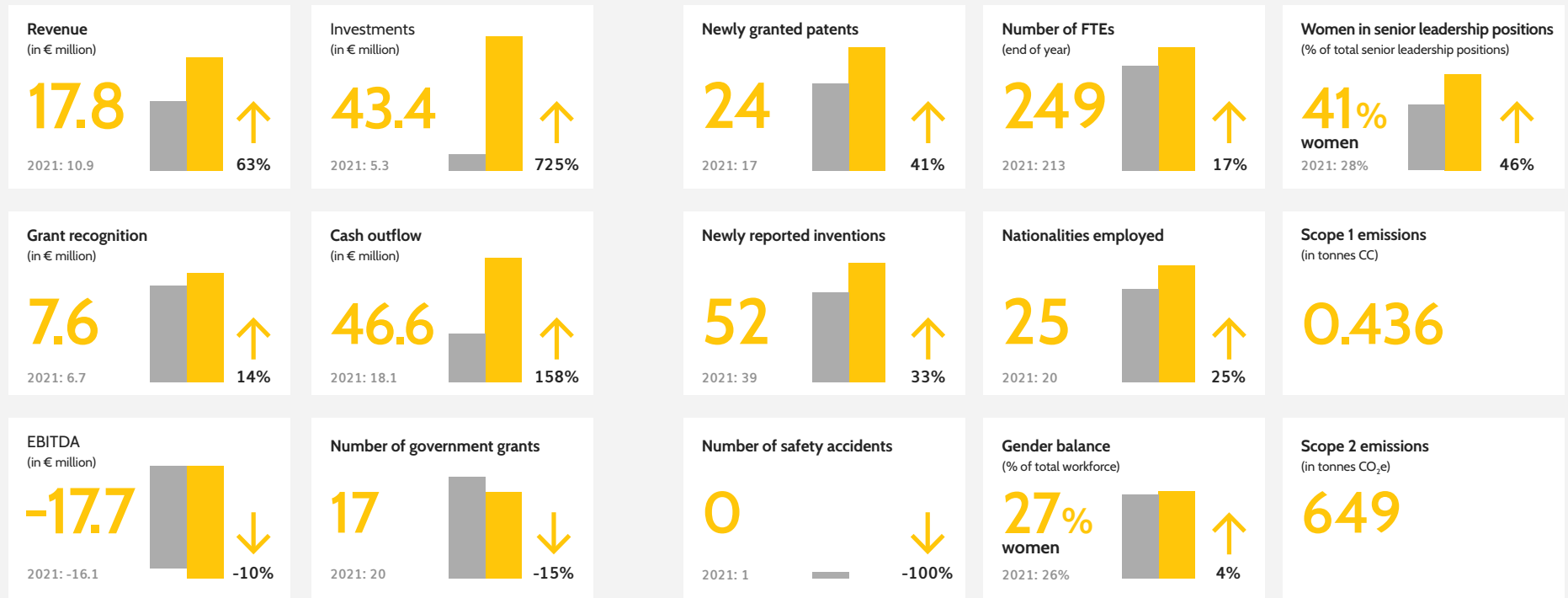
Company Highlights 2022	5
Key Financials 2022	6
Key Events 2022	7
Message from the CEO	8
Who We Are	10
Our Business Units	11
Our Technologies	12



Company Highlights 2022

Financial information

Non-financial information





Key Financials 2022

(€1,000)	2022	2021	% change
Revenues	17,826	10,917	63%
Other income from government grants	7,626	6,686	14%
Net operating expenses	(43,138)	(33,687)	28%
EBITDA	(17,687)	(16,084)	10%
Depreciation, amortisation and impairment charge	(8,578)	(7,837)	9%
Finance costs - net	(2,448)	(495)	394%
Loss for the financial year	(31,554)	(24,416)	29%
Cash flow from operating activities	30,150	11,806	155%
Cash flow from investing activities	(23,399)	(3,932)	495%
Cash flow from financing activities	54,762	24,830	121%
Net cash flow	29,959	8,288	261%
Cash position	64,870	34,911	86%
Segment revenues			
R&D Solutions	11,301	10,029	13%
Renewable Chemistries	100	500	-80%
Renewable Polymers	6,056	388	1461%
Support	369	—	100%
Total segment revenue	17,826	10,917	63%
Other income from government grants			
R&D Solutions	279	279	—%
Renewable Chemistries	3,536	3,610	-2%
Renewable Polymers	3,660	2,683	36%
Support	150	114	32%
Total segment other income	7,626	6,686	14%



Key Events 2022

March

- Avantium announces its 2021 financial results.
- A Retail Investor Day takes place at Avantium's YXY Technology pilot plant in Geleen.
- Avantium reaches Financial Close for its Flagship Plant.

April

- Avantium raises €45 million via a public offering of shares.
- Sukano signs an offtake agreement to develop master-batches for PEF.
- The First Piling Ceremony takes place for the Flagship Plant in Delfzijl.
- The EPBP endorses PET/PEF recycling for three years.



June

- Avantium launches its PEF Textile Community.
- Carlsberg signs an offtake agreement for PEF. Carlsberg launches consumer testing of its PEF-containing Fibre Bottle.

October

- Avantium Catalysis becomes Avantium R&D Solutions, expanding its focus to R&D for sustainable chemistry.
- A life-cycle assessment shows Avantium's plant-MPG™ has a significantly lower carbon footprint in comparison with its incumbents.

January 2023

- Boudewijn van Schaik takes over from Bart Welten as Chief Financial Officer.
- Henkel signs an offtake agreement for FDCA for adhesives to be used in electronics applications.

January February March April May June July August September October November December January February

January

Avantium shareholders give the green light for the construction of the Flagship Plant for FDCA.



May

The EU awards Avantium's Volta Technology a €3 million grant.

August

- Avantium announces its half-year financial results.
- AmBev signs an offtake agreement for PEF for use in soft drink bottles.
- LVMH signs an offtake agreement for PEF for use in its cosmetics packaging.

December

Monosuisse signs an offtake agreement for PEF for making industrial fibres.



February 2023

- Yap Chie Cheung becomes Managing Director of Avantium Renewable Chemistries.
- Avantium enters into its first industrial technology licence agreement and an offtake agreement with Origin Materials to accelerate the mass production of FDCA and PEF.



Dear Stakeholder,

If 2021 was a decisive year for Avantium, 2022 was a year of transformation. I am delighted to be able to report that our transition from a research and development (R&D) company into a commercial organisation is well underway. In what was certainly a highlight for our company – and, I know, for many of our stakeholders – our FDCA Flagship Plant began to materialise in 2022. We have now quite literally laid the foundations upon which we will turn our ambitions into reality.

Building a Better Future

Avantium is building something unique: the world's first commercial plant for furandicarboxylic acid (FDCA), the key building block for our plant-based, fully recyclable plastic: polyethylene furanoate (PEF). We are therefore moving closer to bringing both a new monomer and a new polymer to the market.

This is not something that happens every day, especially when these products have the potential to revolutionise sustainability. I am certain that all my colleagues and all Avantium's partners are as proud as I am of our progress. Exciting as it was, however, to watch our FDCA Flagship Plant start to take shape in 2022 (see page 28), the facility itself – due to become operational in 2024 – is not Avantium's end goal; rather, it is a stepping stone towards executing our technology licensing strategy. In turn, this will expand the reach and impact of PEF and enable us to realise our ambitious business goals. I am therefore pleased to report a strong start to 2023, thanks to February's [landmark announcement](#) of our partnership with the US-based Origin Materials. Avantium will provide an industrial technology license for our YXY® Technology to Origin, with this agreement giving Origin access to relevant parts of Avantium's process technology to enable the conversion of CMF (chloromethylfurfural) derivatives made from sustainable wood residues into FDCA at a facility with an annual capacity of 100 kilotonnes. We expect our partnership with Origin to accelerate the mass production of FDCA and PEF – supporting



Message from the CEO

Tom van Aken

“2022 was a year of transformation, pivoting from an R&D company into a commercial organisation”

the global transition to large-scale sustainable materials made from non-fossil sources.

As well as our first license deal, Avantium Renewable Polymers signed eight new FDCA and PEF offtake agreements with major brand names for a range of applications in 2022 and early 2023 (see page 29). These agreements are the best possible validation of the market potential of PEF, the next-generation sustainable and circular plastic – and I believe we are only just scratching the surface of what PEF can achieve. Our focus for 2023 is therefore to attract more brand owners and pursue additional offtake agreements and licensing deals.



Progress in Our Pipeline

Turning to our other business units, I am pleased to report a positive year across the board. In Avantium Renewable Chemistries, we put Ray Technology™ back on track after a difficult 2021 and began preparing to scale-up our plants-to-glycols technology (see page 30). We also received the results of life-cycle assessments (LCAs) on Avantium's plant-based mono-ethylene glycol (plantMEG™) and plant-based mono-propylene glycol (plantMPG™), demonstrating their significant sustainability benefits versus fossil incumbents. At our Dawn Technology™ pilot biorefinery, we continued our work on new feedstocks such as waste textiles (see page 32). Meanwhile, Volta Technology, our carbon capture and utilisation (CCU) platform, went from strength to strength: in 2022, we successfully operated two demonstration units in real-world conditions and used a third to explore opportunities for producing carbon-negative plastic from CO₂ (see page 32).

Elsewhere, Avantium Catalysis not only saw its revenues return to growth, but also underwent a transformation of its own: now called Avantium R&D Solutions, this business unit adopted a new growth strategy in 2022, focusing on sustainable chemistry solutions for customers (see page 33). We are confident that this new direction, which has been positively received by our stakeholders, marks a logical and exciting step forward for the business.

Overcoming Obstacles

We achieved all this in spite of challenging global circumstances in 2022. The outbreak of war in Ukraine caused not just a humanitarian crisis but also a wave of turmoil that rocked European markets and supply chains, and inevitably had a significant impact on Avantium. High inflation created a difficult backdrop to the start of our FDCA Flagship Plant construction project; nevertheless, I believe we handled the situation in 2022 well, with construction progressing well, even if material costs have been higher than anticipated.

Very significantly, however, we successfully raised €45 million in the midst of the economic turbulence in April – an exceptional achievement given the state of the financial

markets. This capital, which will help us develop the next-generation technologies in our portfolio, proves that investors see Avantium as an attractive investment opportunity in a chemistry landscape which we are helping to make greener than ever.

Sustainable by Nature

We are proud to be part of this ever-greener landscape. Even five years ago, we at Avantium often had to convince potential partners and other actors that we must de-fossilise the chemical industry and pivot from fossil feedstocks to circular materials. Today, the need for change is clear to everyone.

The question now is how fast we can achieve the transition. Much of the answer depends on the willingness of the chemical industry to respond to calls from brands and consumers for more sustainable feedstocks and circular products. At Avantium, these solutions are in our DNA. Our vision of a fossil-free world sits at the heart of all we do, and our technologies and products are designed to revolutionise the chemical industry and reshape a broad range of high-value markets – from packaging to fibres and beyond.

Changing Ourselves; Changing Our World

As we turn our plans into action, pivoting away from pure R&D and becoming a commercial business, the company itself is also changing. In Avantium Renewable Polymers, for example, we recruited more colleagues with engineering and manufacturing backgrounds in 2022, in preparation for commissioning our FDCA Flagship Plant. It is encouraging to see that, despite the competitive labour market in our sector, Avantium continues to attract the highest calibre of talent. For me, this proves the appeal of our vision, the strength of our purpose and the power of our reputation as an innovative company where people can make an impact, contributing to progress towards a fossil-free world.

What has not changed is Avantium's culture. We strive to provide an inclusive and welcoming place to work for people from a diverse array of backgrounds – counting 25

nationalities among our employees in 2022 – where we celebrate our differences, promote collaboration and support colleagues to feel safe and empowered. It was a pleasure to be able to spend more time with each other in person in 2022 after so many months of separation due to the COVID-19 pandemic.

We did, however, have to say farewell to our Chief Financial Officer, Bart Welten, who retired from his role on our Management Board at the end of the year. I would like to thank him for his outstanding work during a critical time for our company and wish him all the best. I am also delighted to welcome his replacement, Boudewijn van Schaik, as we write the next chapter of Avantium's story. In addition, there were some personnel changes to our Supervisory Board in 2022, with Cynthia Arnold and Trudy Schoonenberg stepping down. I wish to thank them both for their very valuable contributions. In early 2023, we nominated Dirk Van Meirvenne and Peter Williams to replace them, and with the appointment of two new members, the Supervisory Board will be back to full strength, ready to help us navigate the journey ahead.

Leading the Way Together

That journey may not be easy, but it will certainly be worthwhile. I am confident that with the support of our stakeholders, we can realise our ambitious goals. I want to thank our talented and dedicated employees for a year of outstanding achievements in difficult circumstances, and am also grateful to our FDCA offtake partners and investors for their belief, patience and support as we drive our exciting business forward.

By working together to commercialise our technology solutions, we can help tackle climate change, reduce plastic waste and accelerate the transition to a circular, bio-based economy. We believe that our efforts will not only create long-term, sustainable value for all our stakeholders, but also, ultimately, help realise the vision of a fossil-free world.

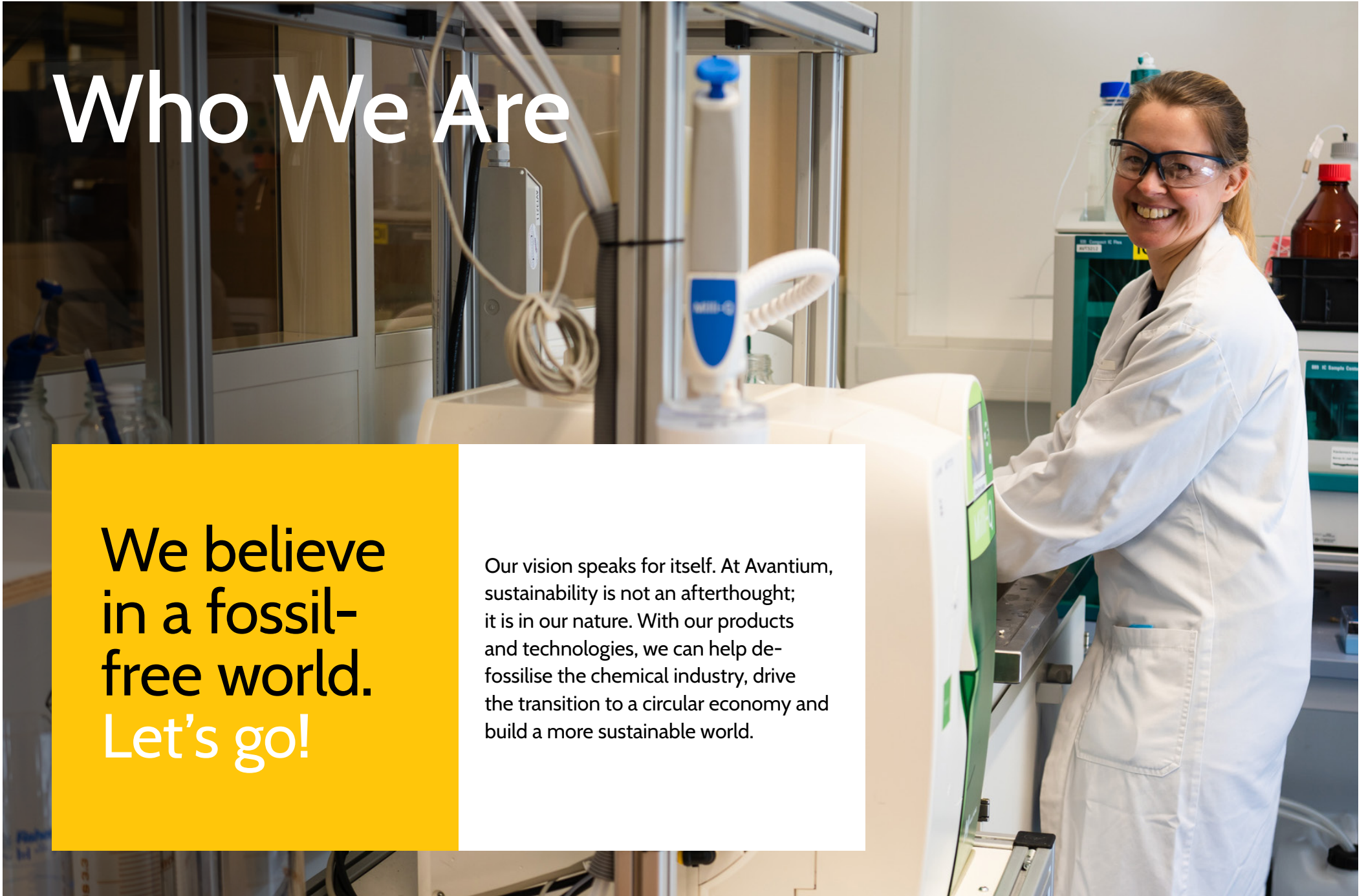
Tom van Aken
Chief Executive Officer



Who We Are

We believe
in a fossil-
free world.
Let's go!

Our vision speaks for itself. At Avantium, sustainability is not an afterthought; it is in our nature. With our products and technologies, we can help defossilise the chemical industry, drive the transition to a circular economy and build a more sustainable world.





Our Business Units

Avantium's three business units are all united by a common goal: to provide innovative solutions for the sustainability challenges the chemical industry must urgently confront. They are supported by our small Corporate Technology team, which works on early-stage developments with promising links to Avantium's lead technology programmes.

Avantium Renewable Polymers

Our proprietary YXY® Technology produces FDCA, the main building block of the high-performance plant-based plastic PEF. We are on track to start up the world's first commercial FDCA plant in 2024, when we will bring PEF to our customers in a wide range of high-value applications. The FDCA Flagship Plant is a stepping stone towards executing our technology licensing strategy.



From Plants to Plastics

End markets

Packaging, film, textiles and other applications (e.g., masterbatches and adhesives)

Avantium Renewable Chemistries

Avantium Renewable Chemistries works on viable above-ground sources of carbon feedstock, making the need for fossil feedstock a thing of the past. We use plant- and air-based sources as the raw materials for innovative new technologies and products. The unit is home to three lead programmes: Ray, Dawn and Volta Technologies.

Innovative Technologies to De-Fossilise the Chemical Industry

End markets

Packaging, textiles, solvents and coolants.
Chemical feedstocks
Bio-asphalt
CO₂-based chemicals and polyesters

Avantium R&D Solutions

In line with our new strategy for this business unit (formerly Avantium Catalysis), we apply our expertise in advanced catalytic R&D to a carefully selected range of sustainable chemistry segments. As well as providing custom-made R&D units to customers, we will continue to offer our existing systems and services, supporting a more sustainable chemical industry.

R&D for Sustainable Chemistry

Specialisms

Products (Flowrence, Batchington)
R&D services
Custom-made R&D units in four markets:
Green hydrogen, Chemical plastic recycling, Adsorption, and Chemical conversion



Our Technologies

YXY® Technology

Our lead technology converts industrial sugars into furandicarboxylic acid (FDCA), a key ingredient for making the polymer known as polyethylene furanoate (PEF).

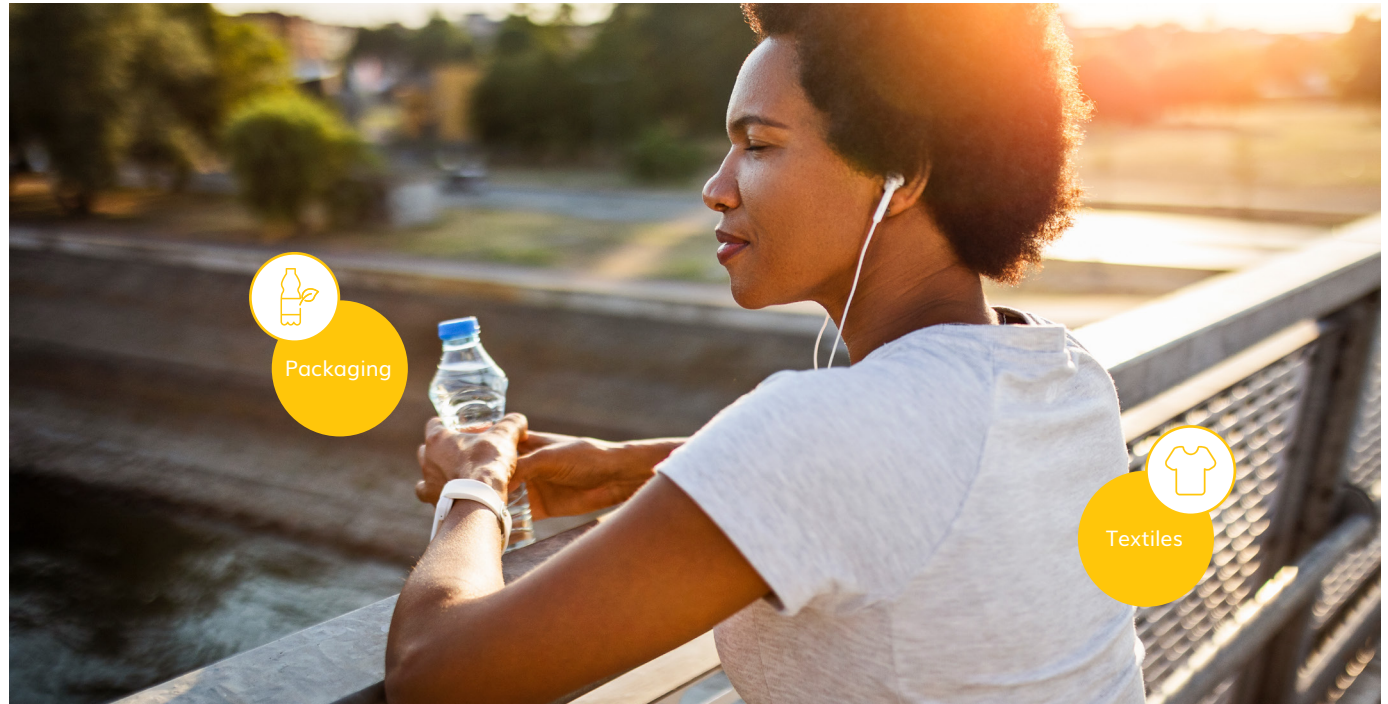
A Next-Generation Polymer

PEF is 100% plant based, and outperforms traditional packaging materials such as conventional plastic, glass and aluminium. It has superior barrier properties (meaning longer food and drink shelf lives), higher mechanical strength (enabling thinner packaging), higher heat resistance and a lower processing temperature (needing less energy).

PEF is fully recyclable. Furthermore, a 2021 life-cycle assessment (LCA) for single-layer PEF and multilayer PET/PEF bottles showed a significant reduction in greenhouse gas (GHG) emissions of around 35% over the life cycle of the bottles compared to bottles made from polyethylene terephthalate (PET) (for details, see our [corporate website](#)).

Realising the Potential of PEF

PEF has huge potential in the packaging, film and textile sectors, which are growing markets already worth over US\$200 billion per year. Construction is underway on our FDCA Flagship Plant in Delfzijl, the Netherlands. Meanwhile, we are working to optimise XYX® Technology, grow our operational capabilities and prepare for the commercial launch of PEF, planned for 2024.



Our Product: FDCA

FDCA is the key building block for the high-performance plant-based plastic PEF. For a long time, an economically viable way to manufacture FDCA remained out of reach, leading to it being labelled ‘the sleeping giant of the chemicals industry’ – but that has all changed with the development of Avantium’s XYX® Technology. As a monomer, FDCA can realise exciting opportunities to create a wide range of useful and sustainable polymers. The most important of these is PEF – a 100% plant-based and recyclable polyester made with FDCA and plant-based mono-ethylene glycol (MEG). In the future, we will explore other FDCA-based polyesters,

co-polyesters, polyamides, polyurethanes and coating resins.

Waking the Sleeping Giant

We believe we can now fully unlock the potential of this product to shape the value chain of PEF. Having built the first-ever Pilot Plant for FDCA back in 2011, we are now constructing the world’s first full-scale plant, where we will use plant sugars to produce 5 kilotonnes of FDCA per year. We expect to start operations at our FDCA Flagship Plant in 2024.

The business model of the FDCA Flagship Plant is based on sales of FDCA and PEF to offtake partners. In addition, we intend to sell technology

licenses to industrial partners who are expected to build production capacities of (over) 100 kilotonnes per annum based on the knowledge and experience derived from our operation of the FDCA Flagship Plant. In early 2023, we entered into an industrial technology license agreement with the US-based Origin Materials, under which we grant Origin a non-exclusive license to use certain parts of Avantium’s proprietary XYX® Technology process (including certain patent rights) to enable the conversion of CMF (chloromethylfurfural) derivatives made from sustainable wood residues into FDCA at a 100-kilotonne-per-annum-scale facility.



Ray Technology™

Our proprietary Ray Technology™ also has an important role to play in PEF production. PEF's other essential building block, alongside FDCA, is mono-ethylene glycol (MEG), traditionally made from fossil sources. With Ray Technology™, however, we can turn industrial sugars into plant-based MEG in a single step process. As a core component of PEF and PET, this plantMEG™ can accelerate the transition to the fully green and circular production of plastic materials and textiles.

Our Product: plantMEG™

With Ray Technology™, Avantium has found a way to produce MEG from plant-based feedstocks, rather than fossil sources. We call this plant-derived compound plantMEG™, and we see it as a key stepping stone towards a greener materials industry.

MEG is a fundamental chemical building block for textiles like clothing and household upholstery, plastic packaging and de-icing products and coolants. With such a wide range of end applications – and a market with a compound annual growth rate of 4.8% between 2005 and 2022 – it is vital that we make the production of this commodity more sustainable.

A More Sustainable Way Forward

Demand for MEG is projected to grow to 50 million tonnes by 2040. With more than 99% of this MEG currently made from fossil sources, it is more important than ever to reshape the market with our disruptive Ray Technology™.

LCA results from 2021 show that, using beet sugar, Ray Technology™ can produce plantMEG™ with up to 83% lower CO₂ emissions than traditional fossil-based methods.

Ray Technology™ also produces plantMPG™ (plant-based mono-propylene glycol), a versatile chemical intermediate. The LCA study from 2022 showed a similar lifetime emissions reduction of up to 81% for plantMPG™ versus its incumbents (for details, see our [corporate website](#)). Crucially, with Avantium's far more sustainable alternatives, there is no compromise on quality or performance.



Planting the Seed for plantMEG™

Following the successful commissioning of our Ray Technology™ demonstration plant in 2020, we want to go further. By 2025, we plan to take a Final Investment Decision on the scale-up to an industrial-scale facility and rolling out the technology licensing business model. To this end, we have joined

forces with Cosun Beet Company, planning to jointly construct and operate the first commercial plant for producing plant-based glycols using Ray Technology™.

A Green Game-Changer

Ray Technology's single-step catalytic process means that plantMEG™ is competitive with fossil-based

alternatives. Moreover, plantMEG™ is also identical to the petroleum-based incumbent in performance and quality. In view of such clear benefits, and not forgetting its significantly lower carbon emissions, we believe plantMEG™ is the game-changer we need to shape a greener future.



Dawn Technology™

Dawn Technology™ is Avantium’s biorefinery technology and the second of the three Renewable Chemistries technologies. A radically improved and modernised upgrade on a 100-year-old method, Dawn Technology™ converts non-food plant-based feedstocks – like forestry and agricultural residues – into industrial sugars (as used in our YXY® Technology and Ray Technology™) and lignin (an energy-dense co-product).

A Bio-Based Technology

As the only viable alternative to fossil-based feedstocks, biomass is an essential solution to a fossil-free industry and a bio-based economy. The resulting industrial sugars can replace petroleum as a carbon source, which in turn makes them excellent raw materials for sustainable chemical and industrial processes.

The global demand for alternative feedstock streams and conversion technologies is on the rise. As we continue to develop, optimise and scale up this technology, we are blazing a trail towards a collective greener future for our industry.

Valorising Our Products

Since opening our pilot biorefinery in 2018, we have worked to optimise the technology, test new feedstocks and ensure Dawn Technology™ is economically scalable.



Our Products: Industrial Sugars and Lignin

If the chemical industry is to successfully make the switch to plant-based feedstocks, new sources of carbon will be required to meet global product demands. Industrial sugars, such as those produced by Dawn Technology™, are an ideal solution, as they can be used in place of petroleum-based feedstocks as the starting material for any product.

A Climate-Friendly Co-Product

In our biorefining process, lignin is the mass remaining after the sugars have been removed from the raw material. With an energy content up to 40% higher than the original wood chips, lignin is an extremely efficient material for energy generation. We are also exploring other high-value applications for this underused polymer, including water purification and bio-asphalt. Asphalt is

traditionally made using bitumen, derived from crude oil, so replacing this bitumen with lignin would deliver crucial CO₂ savings for the road construction industry.

Dawn Drive, the first-ever test road made from bio-asphalt using Avantium lignin, continued to perform well in real-world conditions in 2022 (see page 32).



Volta Technology

Our fourth proprietary technology, and another member of the Renewable Chemistries family, Volta Technology takes a different approach in our quest for a circular economy. Where our other technologies use plant sources as their raw materials, Volta Technology uses electrochemistry to harness the power of air-based CO₂.

By using carbon from the air, our technology converts a waste greenhouse gas into a raw material for a broad range of intermediate and final chemical products, such as formic acid, oxalic acid and glycolic acid. The latter two are key building blocks for polyesters and other materials, allowing for the production of CO₂-negative plastics.

A Cleaner, Greener Approach

Avantium's cutting-edge electrocatalytic platform unlocks CO₂ as a new carbon source for the chemical industry, enables cleaner processes through its use of electrons as reagents and allows industrial parties to reduce their CO₂ emissions. By not only capturing CO₂ that would otherwise contribute to global warming but also using it to make products that would traditionally be made from fossil carbon, Volta Technology means we can set our sights on a circular future sooner.

Going Mobile

As one of the world's most advanced carbon capture and utilisation (CCU) technologies, Volta Technology shows enormous promise. In the short term, we remain focused on proving the value of Volta Technology through our three mobile demonstration units, two of which were successfully deployed at industrial sites in Europe in 2022.



Our Products: CO₂-Based Chemicals and Polyesters

Through the electrochemical conversion of CO₂, Avantium can produce formic acid and oxalic acid, as well as derivatives including glycolic acid. These high-value chemicals have a wide range of applications. The polylactic glycolic acid (PLGA) co-polymers we are developing with the support of Avantium's Corporate Technology team, for example, show

enhanced barrier properties against both oxygen and moisture compared to most other polymers.

Avantium is also developing a new family of proprietary oxalic acid-based polyesters (PISOX) with an unprecedented combination of properties: engineering plastics with outstanding mechanical and thermal properties that are also fully marine degradable, even at low temperatures

in the dark. There are currently no materials on the market offering this combination of valuable properties. What is more, when renewable energy and non-fossil CO₂ is used as the feedstock, these PISOX materials are unique in having a negative carbon footprint. They are therefore able to offset residual emissions and accelerate our quest for net-zero emissions.



Management Board Report

How We Create Value	17
Value Creation Model	18
The World Around Us	20
Stakeholders and Materiality	22
Our Strategy	24
The Value We Created in 2022	27
Financial Performance in 2022	54
Going Concern	56
Investor Relations and Share Performance	58
Risk and Opportunity Management	61

How We Create Value

Avantium creates value by focusing on developing and commercialising technologies to accelerate the transition from fossil-based to renewable and circular plastics. We manage risk and strive to transform our capital resources to create value for the environment, society and our investors.

Our capital lies in the talent and expertise of our employees, our intellectual assets portfolio and innovative processes, our feedstocks and sources, our laboratories and plants, our partnerships with industry leaders and our cash position, grants and investments. Our value creation model shows how our vision, mission and actions create a positive impact on our direct value chain and beyond.



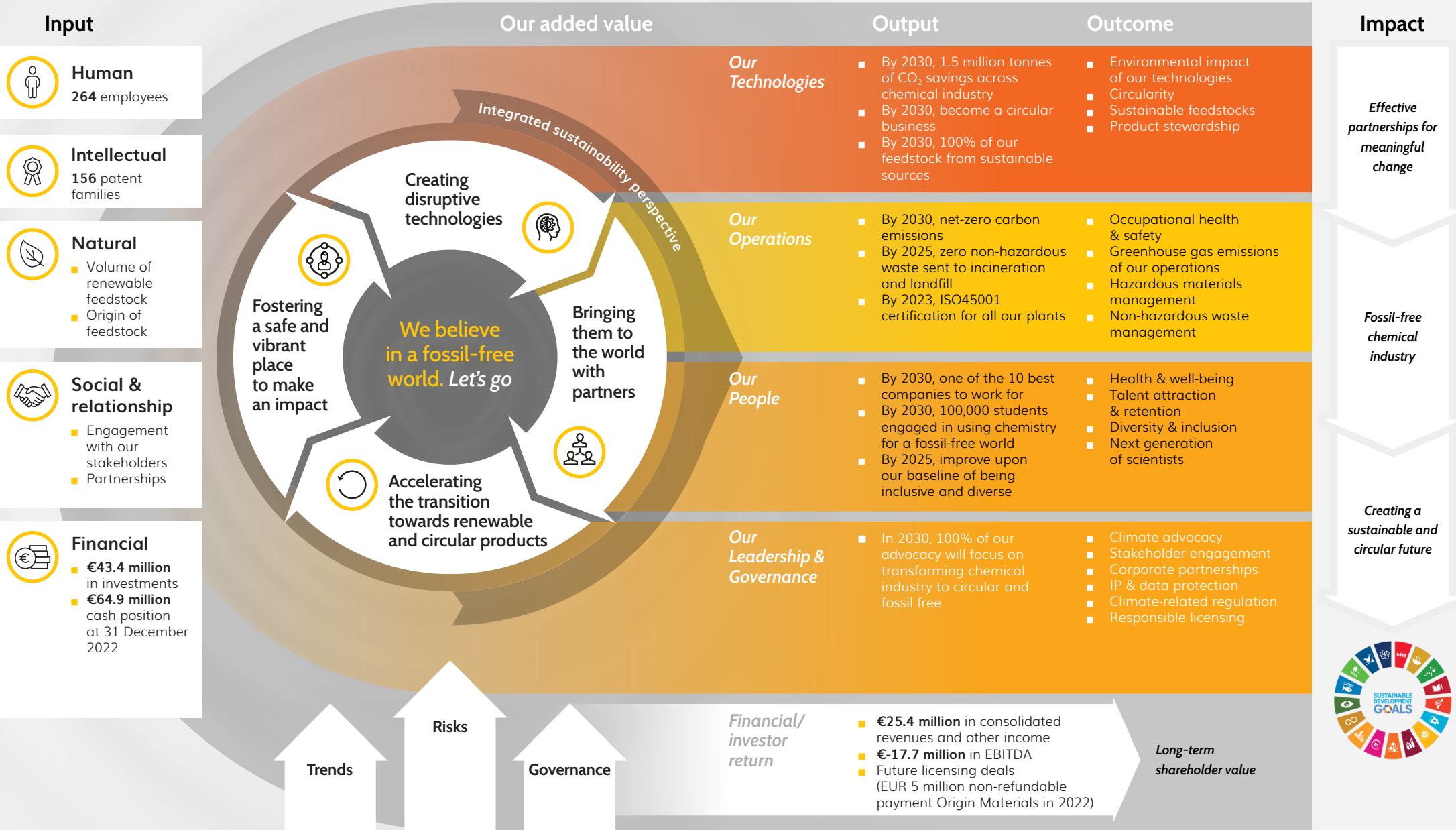
Tom van Aken (CEO Avantium), Mark Brantley (Group President EMEA & APAC Worley) and Cas Köning (CEO Groningen Seaports) press the button to start the first piling of the FDCA Flagship Plant

Value Creation Model - Overview





Value Creation Model - Insights



The World Around Us

Despite COVID-19 loosening its grip on many parts of the world in 2022, any optimism was countered by the outbreak of war in Ukraine and its broader impacts in Europe and beyond. But even during a year of humanitarian and economic crisis, efforts to address the ever-worsening climate emergency could not be abandoned.



Environment on the Agenda

No matter what other challenges we face as a society, the environmental breakdown remains our biggest threat.

From storms in southern Africa and Japan, to floods in Pakistan and Australia, to heatwaves and wildfires across Europe and the USA, extreme weather events continued to devastate huge swathes of our planet in 2022. Today, it is undeniable that the frequency and severity of such occurrences are caused by decades of unchecked, unsustainable human behaviour. As these events worsen, so do their secondary impacts: there is evidence that [diseases such as cholera](#) are already spreading more freely among affected communities, reversing years of progress. Meanwhile, human actions – including resource overconsumption, pollution and the perpetuation of the linear

economy – are also [destroying environments and threatening biodiversity](#).

Some promising shoots of progress emerged during the year: at the COP27 climate summit, private sector leaders pledged to work towards limiting global heating to 1.5°C, while an agreement reached at the COP15 biodiversity summit will see governments taking steps to prevent further biodiversity loss. Elsewhere, member states of the United Nations Environmental Assembly (UNEA) agreed to begin negotiations on a [global plastics treaty](#) that will consider the entire plastic life cycle, promoting sustainable production and recycling. At Avantium, we welcome this commitment and support the development of a collaborative approach to tackling the global plastic problem.



Answering the Call for Sustainable Plastic

After all, the problem is not plastic itself – a material with valuable properties in all kinds of applications – but the way we make, use and dispose of it. Bio-based feedstocks, for example, are used to make [only 1%](#) of the enormous quantities our society produces. Around [400 million tonnes](#) of plastic waste are created every year. And the plastic life cycle also contributes significantly to global greenhouse gas emissions ([1.8 billion tonnes in 2019](#), with that number expected to more than double by 2060).

With plastic production expected to keep rising, we need change. [Recycling alone is not enough](#): we need upstream innovation to loosen the grip of single-use plastics on our society. Decoupling the industry from fossil feedstocks and ensuring the circularity of plastic products are two essential steps for protecting our planet and its people – and the sooner the better.

However, 2022 was another year in which progress in the plastics industry was slower than in others. More bans on single-use plastics and further regulations on recycled plastic content are important, but a true transition requires the current level of political engagement to go further and faster. Introducing new solutions is just one part of the answer: for a real sustainability transformation, we must also create a roadmap for phasing out the materials we need to replace (in the same way that, for example, the energy industry is phasing out coal). Otherwise, innovative and sustainable

solutions will forever compete against cheap and well-established fossil alternatives.

The first step, however, is to make those innovative, sustainable solutions available – and that is where Avantium comes in, making our technologies based on plant- and air-carbon sources viable on an industrial scale. Our solutions can support global brand owners to fulfil their net-zero pledges by 2050.

Given that an estimated [44% of plastic](#) is used in packaging applications, it is clear that plant-based and recyclable plastic like Avantium's high-quality PEF has an extremely valuable part to play in de-fossilising the chemical industry. Fortunately, public awareness of the plastic problem is growing – and the louder the demand from consumers for more sustainable plastics, the more pressure is placed on retailers, and in turn on plastic producers, to reject fossil incumbents in favour of bio-based alternatives. With our disruptive technologies and game-changing products, we are answering the call.

Conflict and Costs

Against this backdrop, society confronted other challenges in 2022. Like the rest of the world, Avantium was appalled by the outbreak of conflict in Ukraine in February and remains horrified by the ongoing violence in the region. With many hundreds of thousands of lives estimated to have been lost, and millions more uprooted, the human toll continues to mount up into 2023. During 2022, the impact of the war was also felt by many more people across Europe and further afield, with already-high energy prices spiking and inflation rates soaring. At Avantium, these pressures were relevant not only for our colleagues as they navigated rising costs in their everyday lives, but also for our business as we began realising our scale-up plans.

The impact was especially clear in relation to the construction of our FDCA Flagship Plant, much of the purchasing for which

took place in early 2022, just as war took hold in Ukraine. As a company operating within a global value chain, we are unavoidably affected by developments in our ecosystem and in the global markets. While, however, the challenging economic environment and related supply chain disruption led to increased costs and some delays during the year, we worked to mitigate these issues as best we could through prudent planning, internal efficiency projects and open dialogues with suppliers and other partners – showing the value of collaboration when it comes to tackling major challenges. What is more, in April, at the height of the market turmoil caused by the crisis, Avantium successfully raised €45 million in new capital, demonstrating our investors' trust in our strategy and belief in our mission.

Of course, challenging times often act as a catalyst for change. The energy crisis in particular stands as yet further proof of the need to work together to [reduce our reliance](#) on finite fossil feedstocks and deliver viable commercial alternatives. Consequently, as awareness grows, Avantium's two-fold mission to attract talent in a fast-changing global labour market and to convince industry partners of the importance of our sustainability objectives becomes easier. While the landscape of 2022 may have been difficult to navigate, we therefore head into 2023 better placed than ever to execute our strategy, bring our sustainable solutions to the market and help chart a course to the fossil-free chemical industry our world needs.



Stakeholders and Materiality

It is essential that we maintain an ongoing dialogue with our stakeholders concerning the strategy, developments and activities of Avantium. We define our stakeholders as those individuals, groups or organisations that can affect or be affected by our business. We create value for our stakeholders by working towards our mission to transition the chemical industry to renewable feedstocks and to secure a sustainable future for all. We also work with our ecosystem of strategic, commercial and financial partners, expert suppliers and service providers and academia to drive better results.

Our Stakeholder Groups

We recognise six stakeholder groups: employees; partners and customers; shareholders; suppliers and contractors; governments and authorities; and society. The varied interests and variable expectations of these stakeholder groups determine Avantium’s strategy, and each group is affected by Avantium’s business activities and performance in a different way.

Employees

Our employees and their talents and motivation are our biggest competitive advantage. We provide a safe and vibrant workplace where everyone can thrive and contribute to our goals. We aim to be a magnet for the best people from a diverse array of backgrounds. Safety is always our number-one priority; we strive for an incident- and accident-free environment.

Partners and Customers

An integral part of Avantium’s strategy and commercialisation roadmap is our collaboration with partners throughout the entire value chain. We bring our technologies to the market in collaboration with like-minded companies who complement our skills and knowledge and increase our chances of success.

We bring forward innovative solutions that benefit our customers and help them achieve their sustainability goals. We conduct dialogues with our partners and customers in order to explore common ground for building partnerships and create ecosystems for our innovations around the world. With a global customer base that includes industry leaders, we are well placed to provide tailored services and deliver meaningful results.

Shareholders

Our shareholders rely on Avantium to successfully execute its strategy and create maximum value. By monetising our innovative technologies and bringing our game-changing products to market, we are able to deliver this value to our shareholders, for example through partnerships and licensing. We also develop and capitalise on our extensive intellectual assets portfolio. Our Avantium R&D Solutions business unit generates revenue and profits by providing extensive service projects and highly advanced catalyst testing systems.

Suppliers and Contractors

Our suppliers and contractors are integral as partners in the efficient and seamless scale-up of our technologies and in delivering on our customer commitments. We are committed to a responsible and sustainable supply chain.





Governments and Authorities

Governments and regulation authorities develop and implement legislation and associated regulations that can significantly affect Avantium. Moreover, European, national and local governments and authorities provide subsidies and grant permits. We therefore engage regularly with these bodies.

Society

Avantium also considers a range of other stakeholders when conducting business. We align our business strategy and sustainability goals with the needs of broader society, looking beyond our direct value chain. We also engage with students at schools and universities, sharing our expertise and exciting the next generation about sustainable and renewable chemistry (for full details, see the Our People section). We have an active dialogue with local communities, industry associations, media and non-governmental organisations (NGOs).

Materiality

Avantium's 2022 materiality assessment identified and prioritised the sustainability topics and issues that are most material to our business and stakeholders, in line with the GRI Standards, the Sustainability Accounting Standards Board (SASB) and the UN Sustainable Development Goals (SDGs).

Avantium's leadership, colleagues and key internal and external partners (including business partners, NGOs and investors) rated these topics according to (i) the level of risk and opportunity they present to Avantium's business and (ii) the extent to which they influence our impact on society and the environment. This informed the finalisation and prioritisation of the key topics.

See the Sustainability Statements section (page 176) for more details on our materiality assessment.



We make sure to maintain ongoing dialogues with our stakeholders about our strategy, developments and activities



Our Strategy

Avantium’s overarching strategy is founded on the four pillars of our mission: creating disruptive technologies, bringing them to the world with partners, accelerating the transition to renewable and circular products and providing a safe and vibrant place to make an impact.

Our goal is to be a world leader in renewable and sustainable chemistry technology solutions and to commercialise them through partnerships and licensing. To achieve this, Avantium’s strategy centres on our extensive portfolio of renewable technologies with a focus on sustainable polyesters.

An integral part of Avantium’s strategy and commercialisation roadmap is close collaboration with strong partners throughout the entire value chain. We work with companies who share our values and want to build a better world for future generations. This helps us develop innovative solutions that deliver sustainability benefits to customers and beyond.

Divesting our technologies to a suitable party

How

Licensing our disruptive technologies to third parties

What

We embed our safety culture in everything we do, striving to be accident and incident free. We attract talent from all over the world, creating a workplace where people both are inspired and inspire each other to work on technologies that can make a significant positive impact to our collective future.

We invent novel renewable chemistry processes to make chemicals and materials from renewable sources or feedstocks. We select opportunities that have the potential to be game-changers in the circular economy.



We have a continuous pipeline of proprietary disruptive technologies and we use our core expertise in high-throughput experimentation to test our ideas. Our focus is on the polyester value chain, as its broad reach provides the largest potential to transition the chemical industry to fossil free. We are experts at relating small-scale R&D to large-scale processes and we use this knowledge to bring our technologies to commercial scale.

We are not in this alone; nor do we do it alone. We bring technologies to market in collaboration with like-minded partners from all around the globe. Partner selection and engagement is core to our activities as we work together for global deployments and a positive environmental impact.

Applying our technologies in our production plants or through partnerships



Our Business Model

We have multiple strategic routes for monetising our innovative proprietary technologies. These include (i) licensing them to third parties, (ii) applying them in our production plants, partnerships or joint ventures and (iii) divesting them to third parties. Licensing is especially important: as well as being the most capital-efficient way to commercialise our technologies, we believe it is the fastest way to bring our sustainable solutions to market.

Our management processes allow us to manage risk and increase shareholder value. We know we must manage, plan and allocate our resources in the way that best serves all Avantium's stakeholders while enabling us to fulfil our objectives.

Business Unit Strategies

Avantium Renewable Polymers

Avantium Renewable Polymers is responsible for developing and commercialising YXY® Technology, which catalytically converts plant-based sugars into furandicarboxylic acid (FDCA), the main building block of polyethylene furanoate (PEF): a 100% plant-based, fully recyclable plastic material with significant performance benefits and a significantly lower carbon footprint than fossil-based plastics.

The Avantium Renewable Polymers strategy can be broken down into four parts: (i) to continue developing the market for PEF by working with partners to generate global demand, (ii) to prove the technology at commercial scale at our FDCA Flagship Plant, which is on track to become operational in 2024, (iii) to ensure global availability of PEF via technology licenses and (iv) to maintain our technology leadership regarding our YXY® Technology through ongoing research and key partner collaborations.

Avantium Renewable Chemistries

In Avantium Renewable Chemistries, we aim to develop and commercialise Ray Technology™, Dawn Technology™ and Volta Technology.

For Ray Technology™, Avantium has formed a partnership with Cosun Beet Company, with the aim of accelerating the commercial potential of plantMEG™ and plantMPG™ and take further steps towards the scale-up to a commercial facility. We intend to form a joint venture that will acquire a Ray Technology™ license from Avantium. As part of its licensing business model, Avantium will continue to develop and license its Ray Technology™ globally.

Avantium runs a pilot biorefinery based on Dawn Technology™ in Delfzijl, the Netherlands, producing industrial sugars and lignin from forestry and agricultural residues. We see industrial sugars made from second-generation, non-food biomass as imperative to a successful future bio-economy.

As well as creating technologies that use plant-based carbon sources, Avantium aspires to develop materials using carbon dioxide (CO₂) as a feedstock. Our Volta Technology, a carbon capture and utilisation technology, is an electrocatalytic platform that converts CO₂ into chemical building blocks and high-value products. For Volta Technology, the focus is on finding industrial partners that are interested in scaling up our demonstration units for further on-site testing before we commercialise the technology.

Avantium R&D Solutions

Avantium R&D Solutions (formerly Avantium Catalysis) is our revenue-generating business. In 2022, we adopted a new strategic direction in response to the growing industry demand for R&D solutions in sustainable chemistry.

Accordingly, we have extended our offering to target four emerging markets in sustainable chemistry – green hydrogen, chemical plastic recycling, adsorption and sustainable chemical building blocks – providing R&D units and services in these four fields to existing customers while also planning to grow our business with new customers. Meanwhile, we continue to provide our proprietary advanced catalysis R&D systems and services to customers worldwide. The extended offering means this business unit is now more fully aligned with Avantium's overarching sustainability purpose: to help transition the chemical industry to sustainable and circular solutions.

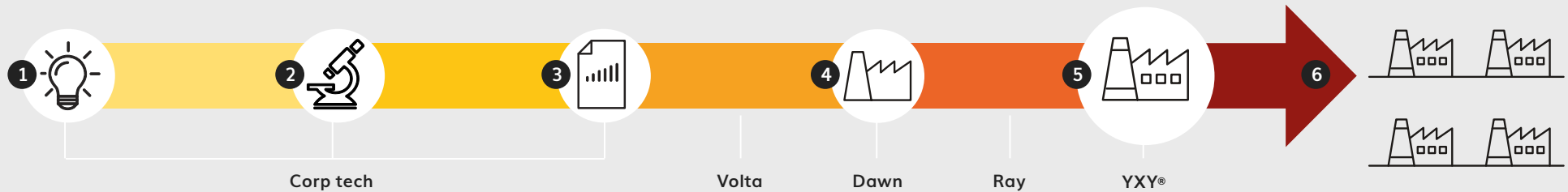


Our Innovation Funnel

Our development activities use a stringent stage-gate process to manage the innovation funnel from ideation to business launch, as outlined below. Our strategic aim is to advance our technologies to the point of selling products and licensing our technologies to industrial parties who are expected to build industrial-scale production capacities.

Innovation Funnel

Avantium's innovation funnel is used to assess and decide on the ideas to pursue as well as to enable the appropriate allocations of resources towards projects at the various phases of development. It consists of six stages.



1 Ideation

In the ideation stage, our chemists and engineers share new developments in a safe and stimulating environment. We use 19 criteria to assess the likelihood of technical and commercial success and we evaluate the strategic fit of the idea for Avantium.

2 Feasibility

The highest-scoring ideas progress to the feasibility stage, where we conduct 'proof of concept' laboratory experiments. We write 'invention disclosures' to accurately and methodically record ideas for further development. We also perform a pre-market analysis and seek external validation.

3 Development

The most promising projects will progress to the development stage. Here, we prepare a preliminary business case as well as a budget and operational plan for the new technology. We also identify partners with whom we could take the technology further. Based on a comprehensive project plan, resources are allocated and the plan is executed. Significant stage gates are held with the Management Team, which decides if the new technology will advance to the pilot stage or if other options are more appropriate.

4 Pilot Plant

In the pilot stage, we develop a Pilot Plant design. When we have secured financial investment, our Supervisory Board reviews the Management Team's recommendation to build the Pilot Plant. Once it is approved, the new proprietary technology is then tested and demonstrated at the Pilot Plant. The objective is to scale up the novel technology from laboratory to demonstration size, to further optimise the technology and validate applications.

5 Flagship Plant

Once successful, we proceed – on a stand-alone basis or in partnership – to the Flagship Plant stage, where we begin production at commercial scale. First, we embark on the engineering phase, with the concept development (process design package) followed by the front-end-engineering and design (FEED) stage of the Flagship Plant. Construction starts once a Final Investment Decision is taken, based on three pillars: (i) technology readiness including engineering, (ii) commercial coverage and (iii) financing.

6 Industrial Take-Off

Once the Flagship Plant is operational and the technology validated, Avantium can license its technology to industrial partners for broader scale deployment and market adoption.



From breaking ground at the site of our new FDCA Flagship Plant to implementing a new strategy for Avantium R&D Solutions, 2022 was a year of transformation for our company. Across our technologies, operations, people and leadership, we continued to deliver long-term value with a positive impact on our various stakeholders.

Our value creation model shows how we act to bring to life our ultimate vision: a chemicals industry decoupled from fossil feedstocks. It also illustrates how our sustainability ethos is interwoven into every aspect of our work. Through our actions, we aim to create value for all our stakeholders – from employees and investors to partners, customers and society.

In this chapter, we report on our progress in 2022, beginning with the year's highlights for each of Avantium's three business units. Using the four pillars of our Chain Reaction 2030 sustainability plan – Technologies; Operations; People; Leadership and Governance – as our compass, we then explore the value we created in 2022 in relation to our specific

sustainability targets, taking into account our progress on the topics we have identified as being most material to our business (for more details on this process, see Stakeholders and Materiality).

We remain committed to making a positive contribution to the United Nations Sustainable Development Goals (SDGs), which governments worldwide have adopted with the aim of ending poverty, protecting the planet and ensuring prosperity for all by 2030. Both in this chapter and under Sustainability Statements, we report on our SDG contribution in relation to each material topic.

Business Highlights

Within our three business units, we made further strategic progress towards the commercialisation of our proprietary technologies in 2022.

Avantium Renewable Polymers

YXY® Technology

For XYX® Technology and our lead product FDCA, 2022 was the year when our plans to build a FDCA Flagship Plant began to actually materialise. Having confirmed our positive Final Investment Decision for the world's first FDCA Flagship Plant in December 2021, and having received the support of Avantium's shareholders at an Extraordinary General Meeting in January 2022, we reached Financial Close on 31 March 2022, paving the way for construction to begin.

Upon Financial Close, our engineering partner Worley and investment partner Bio Plastics Investment Groningen (formerly the Groningen Consortium) became minority shareholders in Avantium Renewable Polymers. They now hold a combined share of 22.6%, while Avantium N.V. retains 77.4% of the equity. Avantium Renewable Polymers received a €20 million cash investment from Bio Plastics Investment Groningen at Financial Close. Worley's €10 million equity investment in Avantium Renewable Polymers is structured as (i) an investment in kind and (ii) a 50%–50% risk-sharing mechanism for the engineering, procurement and construction (EPC) phase of the FDCA Flagship Plant.



Our FDCA Flagship Plant began to materialise in 2022

The risk-sharing agreement ensures that costs incurred beyond the agreed EPC contract will be shared between Avantium and Worley, excluding any changes to the scope of the FDCA Flagship Plant design.

On Financial Close, Avantium also entered into a €90 million Debt Facilities Agreement with a consortium of Dutch banks, comprising ABN AMRO Bank, ASN Bank, ING Bank and Rabobank, as well as with the Dutch government-backed impact investment fund Invest-NL. Each bank has committed €15 million as a bank loan. Invest-NL has committed €30 million debt. The Debt Facilities Agreement has multiple tranches. In November 2022, the first drawdown of €15 million on the Debt Facilities Agreement took place.

Building a Sustainable Future for Plastic

Having reached Financial Close, attention turned to our construction site at Chemie Park Delfzijl. In April, we held our First Piling Ceremony, inviting Bio Plastics Investment Groningen and Worley, FDCA and PEF customers, local representatives, grant and debt providers and other stakeholders to celebrate this landmark occasion. By the end of 2022, more than 700 piles had been driven into the ground and the civil works had been completed, including installing the foundations, floors, piping, roads and walls. In addition, a significant portion of the steel construction and storage tanks have already been erected. Despite the challenges posed by global supply chain disruption and inflation during the year, construction is progressing well, thanks to close constructive interactions with contracting partners and a careful programme of procurement and technical mitigation measures. After a thorough review of the project execution



plans and the expected delivery and installation of equipment, the timeline of mechanical completion for the FDCA Flagship Plant is now expected to be in the first quarter of 2024. In 2022, Avantium announced that it anticipates that the FDCA Flagship Plant CAPEX will be materially higher, due predominantly to inflation as well as scope changes.

At our Pilot Plant in Geleen, our technical and innovation teams continued to enhance our proprietary YXY® Technology, which underpins the future success of our FDCA Flagship Plant. At our Pilot Plant in Geleen and laboratories in Amsterdam, our process technology development teams began preparing the first engineering package for licensee facilities with capacity up to 100 kilotonnes. In February 2023, we announced that we entered into non-exclusive industrial technology license agreement with Origin Materials, providing Origin access to relevant parts of Avantium's YXY® Technology to enable the conversion of Origin-produced CMF (chloromethylfurfural) derivatives into FDCA at a 100 kilotonnes per annum scale facility. This will enable the use of second generation, renewable feedstocks for the production of FDCA and PEF. The license agreement marks a key step in opening up new revenue streams and bringing our commercialisation strategy to fruition.

In 2022, we also held several successful PEF polymerisation trials (using our FDCA and plantMEG™) at the site of our partner Selenis in Portugal.

Putting PEF into the Hands of Consumers

On the commercial side, Avantium secured eight new offtake agreements for FDCA and PEF in 2022 and early 2023, taking the total to 13. Our new customers include LVMH Group (cosmetics packaging), Sukano (masterbatches), Carlsberg (drinks packaging), AmBev (soft-drink bottles), Monosuisse (industrial yarns), Henkel (adhesives), Origin Materials (sustainable chemicals and materials) and an undisclosed brand owner. The signing of the agreement with Brazilian brewing company AmBev marks Avantium's first offtake commitment in South America, adding to our existing customer base across North America, Europe and Asia.

Avantium and its PEF offtake community also took further steps towards bringing more sustainable plastics to the world. In March, LVMH Beauty, part of LVMH Group, became the first luxury cosmetics company to join the PEference consortium, supporting the commercial introduction of PEF to the cosmetics market. Over the summer, Carlsberg tested 8,000 of its PEF-lined Fibre Bottles in a real-world setting for the first time: an exciting development. With AmBev also planning to use PEF in the packaging for soft drinks, we see this as proof of the trust our customers have in our product. In a key regulatory development, meanwhile, Avantium was awarded a three-year endorsement for PEF by the European PET Bottle Platform (EPBP) in April. This allows the recycling of multilayer PET/PEF packaging in the European bottle recycling market.

Furthermore, our agreement with Monosuisse means we are now primed to enter a significant new sector: fibres. PEF, in its capacity as a plant-based polyester fibre, is an extremely promising solution for this high-volume market, which is confronting major sustainability challenges. To support progress in this area, Avantium also launched a new PEF Textile Community in June 2022, together with Antex (a producer of yarns made from PEF) and four other partners who will use Antex's yarn to develop PEF fabric applications in different market segments, including industrial fibres, sportswear and fashion clothing. With all members committed to environmentally friendly processes and technologies, we aim to collaborate with and learn from one another to further develop the application of PEF in the textile industry.

From Development to Execution

The year's developments – at our FDCA Flagship Plant and beyond – are all part of a major transition for Avantium Renewable Polymers, as we move from pure R&D to commercial execution. Nevertheless, our core technology and innovation efforts remain at the heart of what we do. The life-cycle assessment (LCA) results we received for PEF in February 2022 clearly show its potential to contribute to curbing global warming, making the commercialisation of YXY® Technology more important than ever.

We are in the process of moving from pure R&D to commercial execution





To support this, we began strengthening our organisation and capabilities in 2022, especially in relation to the running of our full-scale FDCA Flagship Plant. As well as working on plans and procedures for commissioning, safety and more, we also made a strong start in hiring the new colleagues we need. Given the high level of competition for talent in the north of the Netherlands, which is a hub for chemistry initiatives, we believe this proves Avantium's attractiveness as a sustainable employer.

In this area, as in the entire Avantium Renewable Polymers ecosystem, we anticipate further strong progress in 2023 – meaning that, in 2024, we will be fully prepared to introduce our game-changing PEF to the market and start realising our vision of a more sustainable plastics industry.

A Complementary Breakthrough

Researchers at the Industrial Sustainable Chemistry group of the University of Amsterdam, led by Chief Technology Officer Gert-Jan Gruter and including a number of PhD students, made an important PEF-related breakthrough during the year. The team successfully solved the longstanding challenge of incorporating isosorbide, a glucose-derived monomer, into polymers like PEF and PET to produce polyethylene-co-isosorbide furanoate (PEIF) and polyethylene-co-isosorbide terephthalate (PEIT). These are more rigid and have a higher glass transition temperature than conventional plastics, making them better suited to reuse and refill applications as part of a circular economy. Polymers based on plant-derived isosorbide like PEIF and PEIT also have promising barrier and mechanical properties that can outperform common fossil-based materials.

This exciting project, the results of which were published in November in the journal Nature Communications, was supported by LEGO as part of its search for non-fossil alternative plastics. We plan to continue exploring the isosorbide route as a path to stronger and more sustainable plastics such as PEIF and PEIT, which have interesting business potential in their own right.

Avantium Renewable Chemistries

Ray Technology™

Avantium has restarted the Ray demonstration plant as operations were temporarily paused during 2021 due to an accident. The technology programme is back on track, our operations are on stream and working well. We remain excited about the potential of our plant-based glycols technology and of our two key products: plantMEG™, a core building block for polyesters such as our plant-based PEF, and plantMPG™, the applications of which include functional fluids and unsaturated polyester resins.

Securing the Foundations for Commercialisation

For the first few months of the year, operations remained on hold while we continued our extensive post-accident safety analyses, changed the design of the demonstration plant, and worked to strengthen our safety systems, training and procedures at the site. In the second quarter of 2022, we restarted the Ray demonstration plant. With the plant running successfully throughout the rest of the year, we gathered key data that we can now feed into the engineering plans for our planned Ray Technology Flagship Plant.

This commercial plant is planned to be constructed as part of a Joint Venture with the sugar manufacturer (and feedstock supplier) Cosun Beet Company. The spike in prices of sugar, energy and hydrogen in 2022, caused us to re-examine the long-term Ray business case, and both parties remain fully committed to moving forward with our goals, which we see as a key stepping stone on the journey towards a more sustainable chemical industry. We are still in the process of selecting the optimal site in Northwest Europe for the construction and operation of a Ray Flagship Plant. Together with Cosun Beet Company, we recruited a Commercial Director in 2022 who confirmed our conviction that Ray Technology™ is perfectly positioned to serve the plant-based glycols sector, a strong and growing market that is increasingly looking to adopt more sustainable solutions. We



In 2022, we gathered key data that we can now feed into the engineering plans for our planned Ray Technology Flagship Plant



have also initiated further action to explore new partnerships using other feedstock sources and targeting markets outside of Europe.

Validating the Sustainability Potential of Our Products

Following the publication of the [ISO-certified LCA results for plantMEG™](#) in February 2022, Avantium released the similarly exceptional results of our [ISO-certified LCA for plantMPG™](#) in October. Compared to incumbent MPG production routes, plant-based MPG using beet sugar from the Cosun Beet Company generates 50–81% fewer greenhouse gas emissions over the cradle-to-grave life cycle of the product. PlantMPG™ also strongly outperforms its counterparts on water use (up to 99% less) and non-renewable primary energy demand (up to 82% less).

The LCA results for both plantMEG™ and plantMPG™ show the significant potential of Ray Technology™ to help lower the industry's carbon footprint and contribute to a reduction in global warming. These validations are further motivation for Avantium to commercialise our innovative technology, via a licensing approach, as quickly and widely as possible. We are confident that we are now better placed to realise this goal after the progress we made in 2022.



We began strengthening our organisation and capabilities in 2022, especially in relation to the running of our full-scale Flagship Plant



Dawn Technology™

In 2022, we continued optimising our biorefinery technology: a promising solution for de-fossilising the chemical industry through the conversion of agricultural and forestry residues to sugars and other fractions for the production of high-value chemicals and materials. In parallel, we kept working to identify new feedstocks and ensure all co-products can be strategically valorised. Meanwhile, under the European grant programme IMPRESS, we explored options for making Dawn Technology™ economically scalable. This included the successful completion of the conceptual process design and process economics, in partnership with an external engineering company.

Turning to Textiles

We made further progress on new feedstock testing during the year, a focus that will continue in 2023. We are especially interested in waste textiles, and, in particular, cotton/polyester blends, which make up the highest volume of non-recyclable waste textiles. Avantium's Dawn Technology™ converts cotton (cellulose) into glucose, liberating the polyester for recycling.

To this end, a MIWATEX consortium led by the University of Amsterdam's Industrial Sustainable Chemistry department (headed up by Gert-Jan Gruter) was awarded a €1 million Dutch research council (NWO) grant in June 2022 to develop a new pathway towards circularity in textiles. The consortium aims to upcycle mixed cotton/polyester textile waste into high-quality molecular building blocks for the production of chemicals and polymers. Two PhD students from the University of Amsterdam (Avantium's long-time research partner) began working on the project in November as members of Avantium's Corporate Technology department. A third student will research the related consumer psychology, looking at whether consumers are willing both to sort their waste textiles and to buy textiles containing recycled components.

¹ Grant number 101058578 provided by the Horizon Europe Framework Programme.

Proving Our High-Performing Bio-Asphalt

As well as making valuable industrial sugars, Dawn Technology™ produces lignin as a high-value co-product. This organic polymer has several exciting sustainability applications in heavily carbonised industries, including energy and construction.

Avantium and CHAPLIN XL consortium member Roelofs opened Dawn Drive, made from bio-asphalt containing lignin produced by Dawn Technology™, in 2021. In 2022, the road continued to perform well, both in the real-world conditions of Groningen and in [LCA testing](#). Lignin-based asphalt has a substantially lower carbon footprint than its fossil-based counterpart; moreover, we are continuing to evaluate whether our bio-asphalt also delivers energy savings during processing. In 2023, we will keep working with Roelofs and other partners to investigate the impact of different feedstocks (for example, hardwood versus softwood) and identify the next step for our promising collaboration.

Volta Technology

It was another exciting year for Volta Technology, our carbon capture and utilisation (CCU) solution. In the plastic industry, unlike the energy sector, there is no alternative to carbon – and with CO₂ being one of the only non-fossil carbon sources available, it is crucial we develop the means to make this a viable alternative feedstock. We took important steps towards this ambition in 2022, focusing on the conversion of CO₂ to formic acid, oxalic acid and glycolic acid. Not only do these chemicals have high market value, but they also, when made via CCU, have strong sustainability potential in a wide range of polymer and other material applications.

From OCEAN to WaterProof

2022 was the last year of the R&D programme OCEAN, funded by the European Union in collaboration with companies and academic partners across Europe, through which Avantium worked with partners to develop a Volta Technology demonstration unit to produce formate. This

mobile unit – containing the largest cell of this type of technology anywhere in the world – was installed at an RWE power plant in Germany in January 2022 and operated successfully until the close-out in October. Indeed, the cell's performance exceeded all expectations, converting CO₂ at a rate of 250–500 g/hour for more than 1,000 hours. Meanwhile, we are preparing for the next phase of Volta Technology – namely, the step up to pilot scale which will be achieved by adding more cells and linking them together.

We also deployed a second CCU unit in 2022, this time at a Titan cement plant in Greece, using waste CO₂ to make formic acid that can then be added into the cement to improve its quality. The success of this unit is particularly encouraging as it produces formic acid in a more cost-efficient way, hosting two chemical reactions in a single cell (a process known as paired electrolysis). Cost-efficient technologies like this will be a key factor in promoting the uptake of more sustainable solutions in the chemical industry.

In May, Avantium was awarded a €3 million grant by the EU Horizon Europe programme as part of our involvement in the WaterProof consortium.¹ This four-year programme, which aims to demonstrate the full value chain of a closed carbon cycle, will see us use our proprietary Volta Technology to convert CO₂ from wastewater purification and waste incineration into formic acid. This formic acid can then be used to make new consumer products. Through this project, we intend to further strengthen our business case for Volta Technology as a viable and profitable commercial technology.

The Carbon-Negative Polymers of the Future

Our third Volta Technology demonstration unit converts CO₂ into oxalic acid. In a proprietary second, separate process step, this is then turned into glycolic acid. Avantium believes this approach holds significant promise. By combining this glycolic acid with some lactic acid, we can produce polylactic-co-glycolic acid (PLGA), a polymer with valuable characteristics: it has an excellent barrier against oxygen and moisture, has good mechanical properties and is both home compostable and marine degradable.

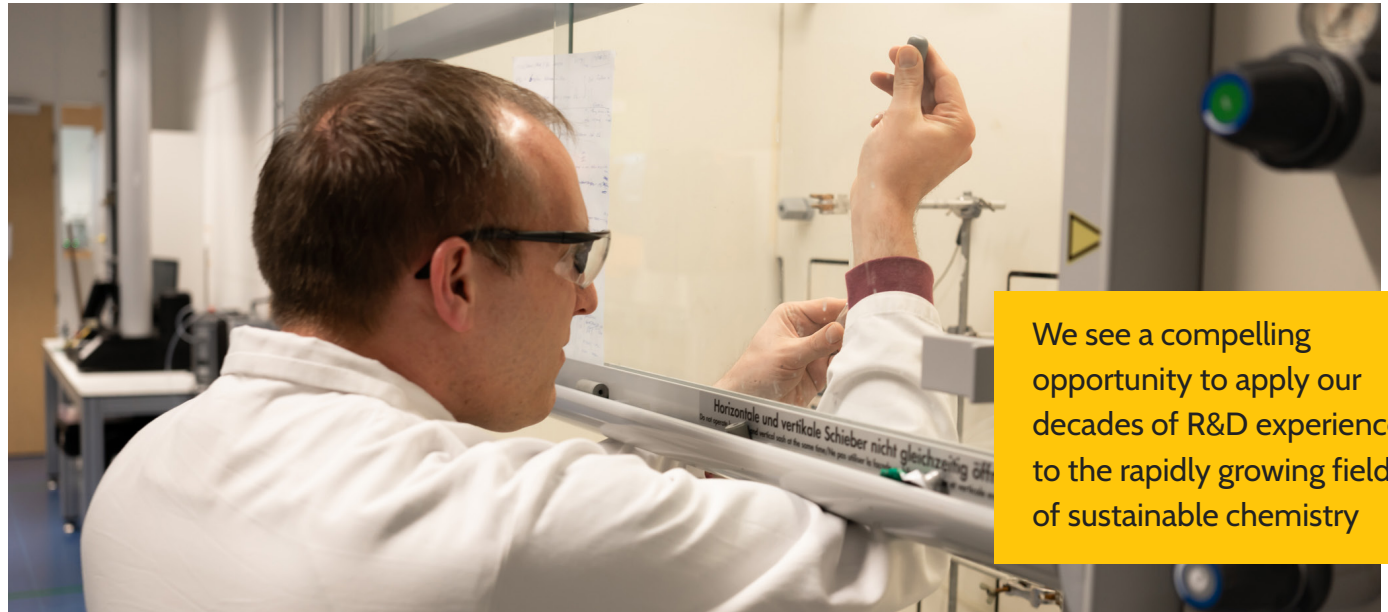
This makes PLGA a more sustainable and cost-effective alternative to, for example, non-degradable, fossil-based ethylene in paper coating applications. Most excitingly, using non-fossil CO₂ and renewable energy results in a carbon-negative plastic – meaning it could make a significant contribution to global efforts to reach net zero. In 2022, Avantium began discussions with interested companies for the further evaluation of PLGA. We aim to secure several collaborations before we ramp up this Volta Technology to pilot stage.

Avantium R&D Solutions

In October, our Avantium Catalysis business unit launched a new strategy and a new name – Avantium R&D Solutions – marking a strategic shift towards R&D in sustainable chemistry. This decision is not only a response to changing industry demand, but also a means of better aligning this business unit with Avantium’s overall strategic direction and purpose: to help transition industry to more sustainable and circular solutions.

Expanding Our Impact

We see a compelling opportunity to apply our decades of experience in R&D products and services to the rapidly growing field of sustainable chemistry. As well as continuing to provide our advanced catalysis systems and services to customers around the world, Avantium R&D Solutions will therefore expand its business focus to four sustainable chemistry markets: i) green hydrogen via water electrolysis, ii) chemical plastic recycling via pyrolysis, iii) adsorption and iv) sustainable chemical building blocks. These markets have been selected for their current (multi-billion dollar) size, further growth potential and natural fit with Avantium R&D Solutions’ existing expertise and/or customer base. We therefore view this as a low-risk strategy that enables us rapidly to further grow our business while also making a valuable contribution to these markets and accelerating the industry’s sustainability transition.



We see a compelling opportunity to apply our decades of R&D experience to the rapidly growing field of sustainable chemistry

Since there is currently no market consensus on optimal technologies in these segments, our strategy is to offer custom-made units to customers, meaning we can support a diverse range of R&D processes. We have built such units for many years, mostly for use in Avantium’s own R&D, but on occasion for use by customers. In recent years, the volume of requests for sustainable R&D support has risen, and with our new strategy in place we will now be better able to meet that demand.

At the end of 2022, we had already secured the first commercial contracts for custom-made units for adsorption and chemical building blocks, and we intend to identify and establish more collaborations in 2023. As part of the execution of our expanded strategy, we also aim to increase capacity by recruiting more people during the year, supporting our new direction as an expert partner in R&D for sustainable chemistry.

Overcoming Global Challenges

Meanwhile, we will continue to develop our existing programmes: (i) R&D Systems with our Flowrence® technology

(proprietary catalyst testing) and Batchington unit (small-scale, multiple-parallel batch testing), (ii) R&D Services and (iii) Refinery Catalyst Testing. In 2022, we continued to carefully manage the after-effects of COVID-19 on all three programmes. Overall, total revenue from Avantium R&D Solutions increased 13% and amounted to €11.3 million in 2022, compared to €10.0 million in 2021.

While demand for Flowrence® systems has yet to fully recover, revenue from our Systems business in 2022 amounted to €8.4 million (2021: €6.8 million). In other developments, our first Batchington platform was sold and delivered in 2022. The commercialisation of this technology, which we planned to launch in 2020, has been heavily impacted by COVID-19, making this a significant milestone. Ongoing travel restrictions in China also hindered our installation and commissioning plans, but with the recent changes there is now light at the end of the tunnel.

Our Services business saw a slightly lower level of demand than in 2021, and generated €2.9 million in revenue (2021: €3.2 million).



Our Technologies

Chain Reaction 2030 Goals



By 2030, our technologies will deliver 1.5 million tonnes of CO₂ savings across the chemical industry.



By 2030, we will become a circular business.



By 2030, 100% of our plant-based feedstock for Renewable Polymers and Renewable Chemistries will come from sustainable sources.

Material Topics Addressed



Environmental Impact of Our Technologies



Product Stewardship



Sustainable Feedstocks

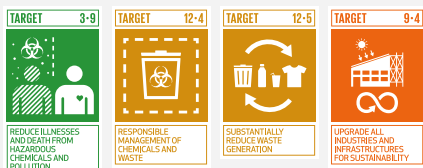


Circularity

GRI Indicators

- GRI 305 Emissions
- GRI 308 Suppliers Environmental Assessment
- GRI 414 Suppliers Social Assessment

SDG Subtargets



With our four main proprietary technologies and tailored R&D services, Avantium is committed to becoming a world leader in sustainable chemistry. Our solutions make a valuable contribution to the shift towards a fossil-free chemical industry and to the future of people and planet alike.



Reducing Industry CO₂ Emissions

By 2030, our technologies and products will deliver 1.5 million tonnes of CO₂ savings across the chemical industry.

Most of the reductions we need in order to reach this target will only become possible once our commercial plants are operational and technology licenses are provided to partners, meaning we cannot currently materially quantify our progress towards achieving this goal. Nevertheless, our existing projects at Avantium are already creating value via a range of CO₂ emission reduction means.

Currently, Avantium has three Pilot Plants operational, for our YXY® Technology, our Ray Technology™ and our Dawn Technology™. While the capacity of these Pilot Plants is significantly smaller than the capacity of a commercial plant,

there are already CO₂ savings taking place using the respective technologies. For example, the YXY® Technology Pilot Plant in Geleen has a capacity of approximately 10,000 tonnes of FDCA per year. FDCA is the key building block for PEF. The CO₂ savings for PEF in comparison with PET are calculated via a Life-Cycle Assessment (LCA).

Life-Cycle Assessment Highlights

In recent years, LCAs have been carried out on the environmental impact of our YXY® Technology and Ray Technology™ (for details, see our [corporate website](#)). Dawn Technology™, which is further behind in Avantium's development pipeline, has not yet undergone an LCA. Volta Technology, meanwhile, clearly contributes both to circularity and to CO₂ reductions by using captured CO₂ emissions as its feedstock.

- Bottles made using Avantium's PEF (via our YXY® Technology) showed a Greenhouse Gas (GHG) reduction of up to 35% over the full product life cycle when compared with PET.
- Avantium's plantMEG™ (made using our Ray Technology™) shows a reduction of up to 83% in GHG emissions over the full life cycle when compared with incumbents.
- Avantium's plantMPG™ (also made using Ray Technology™) shows a reduction of up to 81% in GHG emissions over the full life cycle when compared with incumbents.



Licensing Agreements

Avantium's strategy is to license our technologies to other companies who will, in turn, be able to multiply the positive effects of our technologies. We believe this has the potential to be a turning point in the fossil intensity of the chemical industry: based on the results of our various LCAs, effective and far-reaching licensing programmes could lead to CO₂ emission savings beyond Avantium's target of 1.5 million tonnes.

Carbon Capture and Utilisation

Avantium's Volta Technology is a leading electro-catalytic platform developing CO₂ utilisation solutions for a circular future. It converts CO₂ into higher-value chemicals. In 2022, the Volta Technology team worked on several projects:

- As part of the EU Horizon 2020 project OCEAN, we installed a container unit on site at an RWE power plant in Niederaussem, Germany. During 2022, we converted 30.4 kg of CO₂ emissions to 120 kg of formate.
- Under the RECODE project, we also ran a container at Titan Cement in Greece, an industrial site with hot and dusty conditions. Due to technical difficulties unrelated to our Volta Technology, it was not possible to measure how much CO₂ was converted.
- In 2022, we embarked on the WaterProof project, through which we will design and build equipment for the conversion of CO₂ emissions from urban wastewater and waste treatment facilities. The demonstration is expected to take place in 2025/2026 at Waternet in Amsterdam and HVC in Alkmaar (both in the Netherlands). We plan to make formic acid that will be used in the production of consumer cleaning products and as an ingredient in leather tanning.



Volta Technology is a leading electro-catalytic platform used to develop CO₂ utilisation solutions for a circular future



Improved Catalyst Testing

Catalysts increase the rate of chemical reactions and can therefore make a wide variety of chemical processes more efficient. As a result, they play an essential role in limiting the environmental harm of the chemical industry. With its expertise in catalysis, Avantium R&D Solutions supports customers' businesses in becoming more sustainable, carrying out 27 catalysis-related projects and engaging with 34 different customers in 2022. While we cannot report on the resulting CO₂ reductions at our partners' facilities, our support enables them to improve their processes and accelerate their transition to lower-emission operations.



Closing the Loop on Circularity

By 2030, we will become a circular business.

Achieving our circularity target depends on process improvements at all stages of the product life cycle, including energy, input materials, production, distribution, use, disposal, waste and emission leakage. Avantium has therefore pledged to:

- Design products that use sustainably sourced renewable materials in minimum possible amounts.
- Develop products that are durable and recyclable.
- Enable production scalability via the efficient use of licensing models for our technologies.

Design-related decisions are taken at the very beginning of the Innovation Funnel (see page 27), when 19 criteria are used to assess the likelihood of technical and commercial success and to evaluate the idea's strategic fit for Avantium. The design phase of our technologies and products is critical to the success of any circular economy: if products are not specifically developed to be renewable, reusable and recyclable, the circle will inevitably break down. Avantium's technologies all run on plant-based or air-based feedstocks whose supply can be renewed, rather than consuming finite resources.

End-of-Life

As for our products, such as PEF and plantMEG™, recent LCAs provide evidence of their circular credentials regarding recyclability and end-of-life. Our main product PEF has some distinct circularity benefits compared to other polymers; for instance, it degrades much faster than conventional plastics when exposed to fungi and bacteria under industrial composting conditions, as assessed by the Belgian company Organic Waste Systems.

In addition, not only has PEF been proved fit for purpose with existing technologies for PET recycling, but it also can easily be distinguished and sorted from PET and other plastics using a common near-infrared sorting technique. In 2022, in accordance with the European PET Bottle Platform (EPBP) protocol, an independent third party (PTI Europe Sàrl) conducted an evaluation to determine the effect of multilayer PET bottles containing 10% PEF on the PET recycling stream. The results showed that PET/PEF multilayer bottles have no negative impact on haze and other properties of the resulting recycled PET products at a market penetration of 5%, even taking potential local accumulation into account. Based on this, the EPBP awarded an interim endorsement to Avantium's PEF resin in 2022.

Product Stewardship

In 2022, we developed and launched a product stewardship strategy, which sets out Avantium's responsibility for minimising our products' environmental impact throughout the entire life cycle, including end-of-life management. This strategy incorporates four main activities: regulatory compliance, sustainable sourcing and supply chain consistency, certifications and product sustainability. We will provide a Regulatory Data Sheet (RDS) for every commercial product, confirming the product's status regarding each of these activities.



Using Sustainable Feedstocks

By 2030, 100% of our plant-based feedstock for Avantium Renewable Polymers and Avantium Renewable Chemistries will come from sustainable sources.

Avantium currently uses mainly first-generation feedstocks; namely, fructose and glucose from the agriculture supply chain. We work with suppliers who can ensure they provide us with sustainable materials, sourcing low-value fructose and glucose, for example, from farmers who feed their higher-value plant proteins into the food industry. Meanwhile, we are working to develop technologies that will allow us to increase our use of second-generation feedstocks (i.e., non-food biomass) and third-generation feedstocks (i.e., already-emitted CO₂).

Monitoring Supplier Sustainability

Overall, Avantium works with more than 600 different suppliers, most of whom provide goods and services to help run our offices and day-to-day processes with very limited environmental and social impacts. In 2022, we identified a handful of our key suppliers – our most important in terms of either volume or budget spend or their critical role in our processes – whose impacts are much more significant, and with whom we will work to reduce these impacts.

In 2022, we have launched a sustainable procurement plan, which includes securing and monitoring the compliance of Avantium's key suppliers - with the greatest impact on our wider supply chain for bio-based materials - with our new Sustainable Supplier Code, which can be found on our [website](#). The new Sustainable Supplier Code is founded on the conventions of the International Labour Organisation (ILO), the Ethical Trading Initiative (ETI) and the principles of the Sustainable Agriculture Initiative (SAI) Platform. The Code provides a consistent set of criteria for assessing how



suppliers, and if applicable the farmers who supply them, are progressing on matters of sustainability. It can also be used to benchmark external standards and make decisions on sustainable sourcing. The Code covers important sustainability issues including legal compliance, respect for human rights and labour standards, safe working environments, environmental responsibility and the management of bio-based feedstocks.

As part of the preparations for opening our FDCA Flagship Plant, we worked to recruit key suppliers throughout 2022. All have been assessed according to the social and environmental norms as described in the Supplier Code of Conduct and none has so far been identified as having a negative environmental or social impact. If this should occur, Avantium will discuss with the supplier ways of improving their working procedures and work with them to define a plan. Should the supplier continue to deviate from the Avantium Sustainable Supplier Code, Avantium will decline to recruit the potential supplier or, in the case of existing suppliers, re-assess at the leadership team level whether the collaboration should be continued.

In 2023, we will ask our key suppliers to comply with our Sustainable Supplier Code, starting with those most relevant for Avantium Renewable Polymers. We also aim to make strong progress with Avantium's remaining suppliers during the year. In the longer term, following their initial assessment and adoption of the Code, our key suppliers – with the greatest impact on our wider supply chain for bio-based materials – will be asked to review the Code and reconfirm and evaluate their compliance on a regular basis from 2024 onwards.






Our new Sustainable Supplier Code helps assess our suppliers' progress on sustainability matters







Our Operations

Chain Reaction 2030 Goals

-  By 2023, all our plants will achieve an ISO45001 certification (healthy and safe working environment).
-  By 2025, we will send zero non-hazardous waste to incineration and landfill.
-  By 2030, our own operations will achieve net-zero carbon emissions.

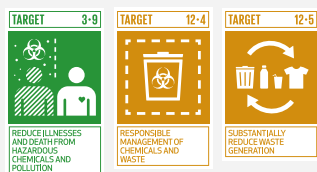
Material Topics Addressed

-  Occupational Health & Safety
-  Non-Hazardous Waste Management
-  Hazardous Materials Management
-  Greenhouse Gas Emissions of Our Operations

GRI Indicators

- GRI 403: Occupational Health & Safety
- GRI 302: Energy
- GRI 305: Emissions
- GRI 306: Waste

SDG Subtargets



At Avantium, we create disruptive technologies to support the chemical industry's transition away from fossil feedstocks. At the same time, we remain conscious of the potential impact of our own operations and work to mitigate any adverse effects on the world around us.

Our Sites

We currently run operations at four different locations. Most of Avantium's work is carried out in the offices and laboratories at our headquarters in Amsterdam, close to many other chemistry- and technology-related companies as well as the port of Amsterdam. Our second site, also a combination of offices and laboratories, is hosted by the University of Amsterdam at the Amsterdam Science Park.

We have Pilot Plants where we validate our technologies with a view to ensuring their market readiness: one for YXY® Technology at the Chemelot site in Geleen (in the south-east of the Netherlands), a second for Ray Technology™ at Chemie Park Delfzijl (in the north-east of the Netherlands) and a third for Dawn Technology™, also at Chemie Park Delfzijl. On a completely different scale, however, is the FDCA Flagship Plant we are currently building – the world's first commercial facility – to house our YXY® Technology at Chemie Park Delfzijl: scheduled to become our fifth operational site in 2024, this plant will have an annual capacity of 5 kilotonnes of FDCA.

Chemie Park Delfzijl

Chemie Park Delfzijl is part of [Chemport Europe](#), an innovative ecosystem for chemicals and materials in the Northern Netherlands. Companies, government and knowledge institutes work together towards a shared ambition: changing the nature of chemistry. It is the ambition of Chemport Europe to be the first chemical cluster in the Netherlands (and perhaps in Europe) with zero CO₂ emissions and minimum environmental impact. The entire Chemport Europe industry cluster will only use renewable energy and feedstock by 2050.

Brightlands Chemelot

Brightlands [Chemelot](#) is much more than an industrial park in South Limburg. The unique chemistry and materials site is of strategic importance for many of the companies present. At least as important: Chemelot is a growth engine for the entire region. Brightlands Chemelot is a unique chemical and materials community that ensures accelerated business growth through the open exchange of ideas. Since 2018, it has been recognised as one of the leading chemical sites in Europe. Its goal is to become circular, sustainable and completely climate neutral by 2050.

Amsterdam Science Park

[Amsterdam Science Park](#) has one of the largest concentrations of academic education and research facilities in Europe. It is a major hub for research, innovation and entrepreneurship, thanks to its world-class research institutes, universities and some 170 companies. It features particularly strong representation in the fields of ICT, life sciences, sustainable chemistry and advanced instrumentation.



Providing Safe and Healthy Workplaces

By 2023, all our plants plan to achieve an ISO 45001 certification.

As a chemical company, we prioritise safety above all else. Occupational health and safety (OHS) is managed by our Quality, Health, Safety and Environment (QSHE) department and involves very strict policies and management systems. The team ensures that proper onboarding, training and work practices are followed, while procedures, risk assessments and monitoring are maintained on an ongoing basis. Our main OHS management tool, the Integrated Management System (IMS), covers the operational aspects of quality, OHS, process safety and environment. It contains sets of rules (relating to working methods, for instance) that are described in policies, procedures and instructions to be followed by everyone at Avantium. This ensures we create a safe and effective working environment.

Enhancing OHS

In 2022, Avantium began implementing various ISO (International Organization for Standardization) and NTA (Nederlandse Technische Afspraak – Dutch Technical Agreement) standards to align the OHS policies and processes of our laboratories and plants and thus create a single, company-wide OHS system. The scope of this work includes legal requirements; risk management and/or management system standards and guidelines; procedures for reporting work-related hazards and hazardous situations; processes for identifying and assessing work-related hazards and risks (both routine and non-routine); and processes for investigating work-related incidents.

Our goal is to achieve certification in line with four different standards:

- ISO 9001 sets out the criteria for a quality management system, ensuring good-quality products and services.
- ISO 14001 is a set of standards designed to help organisations increase their environmental sustainability.
- ISO 45001 is an international standard for health and safety at work. It requires an OHS management system, supports Avantium's OHS performance and provides guidance on healthy and safe workplaces.
- NTA 8620 sets out requirements for a safety management system to prevent major accidents involving one or more hazardous substances and to control their consequences.

We aim to finish implementing this project at all our operating locations by the end of 2023, in line with our target. In due course, our FDCA Flagship Plant will also be added to this scope.

Practices and Protocols

In addition to promoting Avantium's list of [Golden Safety Rules](#), we deliver formalised training to every new joiner, as well as a comprehensive OHS reading list. Employees and visitors entering our Pilot Plants must follow a short training course and answer a list of questions before accessing operational areas.

Avantium company meetings always begin with a safety update, where we discuss incidents and the measures taken to prevent their recurrence. We also have a Safety Culture Team, comprising employees and management, which meets periodically to influence the behaviour of employees through safety campaigns and related communications. In 2022, the Safety Culture Team introduced a new focus topic: Hazard and Risk Recognition. At Avantium, we have policies, procedures and memos dedicated to risk identification and assessment that help us stay safe and avoid accidents, but we recognise that it is equally important to always stay alert to possible safety risks arising as a result of behaviour.

To grow awareness of possible hazards and safety risks, all Avantium employees were invited to join a presentation by an external subject matter expert. The Safety Culture Team also organised a 'Hazard Hunt', where employees worked in teams to spot and report as many hazards as they could.

We also continued to work with the certified OHS service provider ArboUnie in 2022, with its work contracted and supervised by the QSHE department. Every three years, ArboUnie performs an overall Risk Inventory and Evaluation assessment whereby work spots are inspected and work-associated mental and physical risks are identified.

Accidents and Incidents

At Avantium, we strive to be an accident- and incident-free workplace, but we also recognise that the nature of our work as an innovative company in the chemical industry brings certain risks. We therefore foster a no-blame culture, promoting openness about unwanted events by encouraging employees to report accidents and incidents and allowing us to continuously improve our safety and environmental performance.

No work-related fatalities or serious injuries were recorded in 2022, although we recorded 43 incidents (2021: 29). Of these incidents, most were related to leakages or spillages, with the root cause being equipment or behaviour. None of the incidents required first aid.

In 2022, we further analysed the accident that took place at our Ray Technology™ demonstration plant in Delfzijl in 2021. We conducted extensive safety assessments and implemented improved process safety measures, including adjustments to the design of the demonstration plant. We are in the final stages of concluding the investigations and the resulting consequences. In the first half of 2022, we organised a company-wide meeting to discuss what we had learnt. Avantium successfully restarted operations at the plant.



Managing Waste from Our Operations

By 2025, we will send zero non-hazardous waste to incineration and landfill.

Avantium generates both hazardous and non-hazardous waste, with the management of hazardous waste strictly regulated by the Dutch government. Avantium has strict guidelines for employees to follow when handling (potentially) hazardous materials. We also enact a safety policy based on the Hierarchy of Control (a system for controlling risks in the workplace), in which our first action is to eliminate the use of hazardous materials whenever possible. When this cannot be done, we recycle hazardous waste residues where we can, and the remainder is sent for incineration. In both cases, we partner with waste experts to ensure the safe disposal of materials that could pose a risk to people or habitats. Often, our partners can recover energy from this waste thanks to thermal processing. In 2022, Avantium produced 124,336 kg of hazardous waste.

While it is clear from our 2022 materiality assessment that the topic of non-hazardous waste has become less material to our stakeholders, we are nevertheless taking steps to achieve our sustainability target for this topic, with practices in place to help us manage non-hazardous waste in the way that best supports our environment.

In 2022, we held a series of discussions at our different locations about the main impacts of waste, including noise, inconvenience, CO₂ generation, unpleasant odours, toxic emissions and water contamination. When it comes to managing these impacts at Avantium, the first and best option is to avoid generating this waste in the first place; thereafter our goal is to find ways to recycle or reuse waste materials. In our headquarters at Zekeringstraat in Amsterdam for instance, we collect and separate the following materials for recycling purposes: paper and cardboard, confidential paper, wood, construction waste,

coffee residues and cups, glass, plastic, drinking cartons, tins, metal and chemical waste from laboratories. At all our locations, we are one of many tenants, and waste is managed centrally. For waste that cannot be prevented, reused or recycled, Avantium therefore relies on these waste management services to mitigate any possible impacts. In 2022, the volume of non-hazardous waste produced at our sites was 46,661 kg.

Waste from Operations 2022: Hazardous Waste

in kg	2022	
	Amount	%
Amsterdam (Zekeringstraat and Science Park)		
Incineration	6,084	52%
Incineration with energy recovery	3,335	28%
Re-use or recycling	2,300	20%
Total Amsterdam	11,719	
Pilot plant Geleen		
Incineration with energy recovery	74,377	93%
Re-use or recycling	5,766	7%
Total Geleen	80,143	
Pilot plants Delfzijl		
Incineration with energy recovery	32,474	100%
Re-use or recycling	0	—%
Total Delfzijl	32,474	
Total hazardous waste	124,336	

“Despite increasing production, we have successfully reduced our waste, mainly thanks to our improved recycling loop for acetic acid in the oxidation and re-slurry process.” Roger van den Beuken, QHSE Manager at Avantium’s Pilot Plant in Geleen.

Waste from Operations 2022: Non-Hazardous Waste

in kg	2022	
	Amount	%
Amsterdam (Zekeringstraat and Science Park)		
Incineration with energy recovery	10,389	39%
Re-use or recycling	16,172	61%
Total Amsterdam	26,561	
Pilot plant Geleen		
Incineration with energy recovery	2,141	82%
Re-use or recycling	459	18%
Total Geleen	2,600	
Pilot plants Delfzijl		
Incineration with energy recovery	13,000	74%
Re-use or recycling	4,500	26%
Total Delfzijl	17,500	
Total non-hazardous waste	46,661	



Reducing Emissions from Our Operations

By 2030, our own operations will achieve net-zero carbon emissions

Reducing GHG emissions and achieving net zero is very high on Avantium’s agenda. Not only do our technologies themselves enable significant emission reductions, but we also aim to minimise emissions from the development of our technologies at our own sites. The first step is to identify where emissions occur in our operations, as shown in the table. We already report on Scope 1 and Scope 2 emissions and have established systems to allow us to track and report on Scope 3 emissions in the future. We estimate that Scope 3 emissions will rise once Avantium’s new FDCA Flagship Plant becomes operational, and we will in due course assess the significance of their impact and address them as necessary.

Emissions from Our Operations 2022

	2022	
	Usage in kg	CO ₂ emissions in tonnes
Scope 1 (direct emissions)		
Amsterdam Zekeringstraat	0	0
Amsterdam Science Park	0	0
Geleen Pilot Plant	n/a	0.436
CO ₂	n/a	0.326
VOC	n/a	0.110
Delfzijl Pilot Plant	0	0
Delfzijl Flagship Plant	0	0
Total Scope 1	0	0.436

	2022	
	Usage in kg	CO ₂ emissions in tonnes
Scope 2 (indirect emissions)		
Amsterdam Zekeringstraat		
Electricity – fossil (MWh)	0	0
Sustainable electricity (MWh)	1,552	0
Gas for heating (m ³)	68,638	136
District heating (Gj)	0	0
Total Amsterdam Zekeringstraat		136
Geleen Pilot Plant		
Steam (Gj)	1146	71
Electricity – fossil (MWh)	0	0
Sustainable electricity (MWh)	1,090	0
Gas for heating (m ³)	0	0
District heating (Gj)	0	0
Total Geleen Pilot plant		71
Delfzijl Pilot Plant		
Steam (Gj)	770	152
Electricity – fossil (MWh)	446	289
Sustainable electricity (MWh)	0	0
Gas for heating (m ³)	0	0
District heating (Gj)	0	0
Total Delfzijl Pilot Plant		442
Total Scope 2		649

In addition to CO₂, our Pilot Plants also emit volatile organic compounds (VOCs). In 2022, VOC emissions at Delfzijl were insignificant; in Geleen they were estimated at 0.110 tonnes.

Avantium also deploys various energy saving measures, such as the introduction of LED light bulbs across our sites to cut down our electricity usage – a step that delivered energy savings of 9,301 kWh in Delfzijl in 2022. In other locations, it was not possible to measure the results of this initiative, owing to changes in business activities and the implementation of other measures.

In 2022, our Amsterdam Zekeringstraat offices and laboratories switched to a solely green electricity supply (following the lead of our Pilot Plant in Geleen), delivering a significant emissions reduction of more than 700 tonnes. The annual total estimated emissions for Scope 1 and Scope 2 across all locations was 649 tonnes CO₂e.



Our People

Chain Reaction 2030 Goals



By 2030, Avantium will be one of the 10 best companies to work for in the Netherlands.



By 2030, we will have engaged 100,000 students about using chemistry to create a fossil-free world.



By 2025, we will improve upon our baseline of being an inclusive and diverse company, ensuring that we are representative of the societies and communities we operate within.

Material Topics Addressed



Talent Attraction & Retention



Diversity & Inclusion



Health & Well-Being



Next Generation of Scientists

GRI Indicators

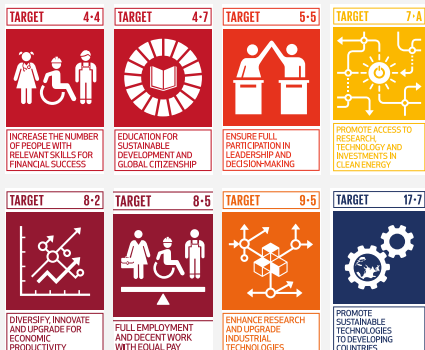
- GRI General disclosures on Activities and workers (2-6, 2-7, 2-8)

- GRI 401: Employment

- GRI 404: Training and education

- GRI 405: Diversity and equal opportunity

SDG Subtargets



Our diverse team of 264 people is united and inspired by our common purpose of making a lasting, positive impact on the world. We aim to attract and retain talented colleagues and foster a workplace where everyone feels they belong, so they are in turn empowered to contribute to the execution of our ambitious strategy.

Our overall approach to HR management is laid out in various company principles and policies, including our Employee Conditions Handbook and the Code of Good Business Conduct (see Responsible Business Principles on page 52).

Culture and Core Values

At Avantium, we are united by a common goal: to make a positive and lasting impact on our world. Our employees are highly motivated to contribute to this mission to transition the chemical industry to a sustainable, fossil-free future. Setting high ambitions and daring to take on big challenges is deeply ingrained in our culture, because we know that innovation is not a linear process but is characterised by highs and lows. Bringing successful innovation to the market therefore requires perseverance, creativity, flexibility and focus – traits that are common to Avantium’s people and culture alike.

Our people are guided by five core values that define what we stand for and how we work with colleagues, customers and partners. These core values are not only central to our culture but also enable the execution of our strategy.

1. We make a lasting impact: We think big. We understand our customers through and through. We improve the world around us. We drive – and thrive on – change. We have an impact on the environmental footprint of the wider industry.
2. We are determined team players: We embrace challenges. We value complementary talents and diverse perspectives. We actively engage with partners. We work in teams to solve problems. We go the extra mile to deliver results.
3. We do the right things right: We behave ethically. We make bold choices. We take responsibility for our actions. We operate safely.
4. We are pragmatic idealists: We always find a way. We think outside the box, but never lose sight of reality. We keep our feet on the ground. We always sail towards our destination, while adjusting course when necessary.
5. We have fun and the rest of the world is a little bit weird: We disrupt. We appreciate unconventional solutions. We celebrate success and learn from setbacks. We view things with a positive eye and an open mind.

We aim to live up to these values as we carry out our daily activities. The qualities of honesty, integrity, openness and respect are also enshrined in our Code of Good Business Conduct. Communication plays a key role in this regard, and we strive to maintain strong communication through company-wide information and consultation procedures, including company meetings, internal communication channels and formal procedures (such as Avantium’s Works Council).



Becoming a Top-10 Place to Work

By 2030, Avantium will be one of the 10 best companies to work for in the Netherlands.

Our people are key to our success at Avantium, enabling us to aim further and go higher. In turn, to support our workforce, we pay significant attention to HR, recruitment, talent management and other people-related matters, with the goal of becoming one of the best employers in the Netherlands. Our reputation as a sustainable chemistry disruptor makes us attractive to potential employees – 10% of start-up employees in the Netherlands work at an impact company like Avantium² – but to ensure that we also retain the talented people we need, we strive to foster an inclusive and inspiring workplace where everyone can explore and reach their potential. This involves promoting, among other things, diversity, equal opportunities, engagement, trainings, company culture and career development.

Great Place to Work Programme

We carried out our first Trust Index survey with Great Place to Work in December 2021. Our first goals were to identify Avantium's strengths as an employer and find areas where we can do better – thus establishing a baseline for improvements in the years to come. Our initial Trust Index score did not yet qualify us for a Great Place to Work certification, but in 2022, guided by the survey results, our Great Place to Work project group organised round table sessions across all our locations and business units to gather ideas on how to reach our 2030 target. In 2023, the project group will use these ideas to define short-, medium- and long-term goals to help us gain certification and become a top-10 place to work. We aim not only to improve in areas where people have asked for more support, but also to challenge ourselves to keep building on areas in which we are already strong. In the first quarter of

2024, we will repeat the Great Place to Work survey, allowing us to measure our progress against the current baseline.

Works Council

Avantium's Works Council (Ondernemings Raad) is composed of eight members, chosen from different business units and sites to ensure even representation of employees. New members were chosen in 2022. During the year, the Works Council gave advice on two topics and consent on one topic, as required by the Works Council Act. One milestone was the successful negotiation of the Job Grading Process, where the Works Council represented employees and contributed to a fairer system. The Works Council also discussed general topics, such as safety, budget and vitality, with the Management Team, and members used their everyday contacts to stay informed about employees' concerns. Many of these concerns have been incorporated into the Works Council's 2023 agenda.

Health and Well-Being

We are committed to providing safe and healthy working conditions for all our employees. Our chemical operations and related activities come with inherent risks, and safety is therefore always top of the agenda at Avantium (see page 39). Meanwhile, as part of our everyday operations, we provide guidance on ergonomics in the workplace, offer a voluntary medical assessment and collaborate with a certified OHS union, ArboUnie, to support our business and employees in matters related to health, illness and absence.

The absenteeism rate in 2022 was 7.3% (2021: 6.1%). Even though 31.82% of all employees recorded no absence due to illness in 2022 (2021: 45.1%), the high rate of absenteeism has our full attention. Our social medical team holds regular consultations with our company doctor and involved

leadership, with the aim of supporting recovery and reintegration and, as a result, reducing the absenteeism rate due to illness. By the end of 2022, our HR department, in collaboration with ArboUnie, had started line manager trainings with the aim of supporting them in preventing and managing absenteeism.

We also recognise that mental well-being is a crucial component of the health of our people, and, in turn, of our ability to carry out our strategy. In 2022, we continued to foster a working environment built on inclusion, support, trust, respect and responsibility. We paid extra attention to social safety on the work floor in 2022, with a message from Avantium's CEO emphasising the importance of social safety and outlining the procedures and actions colleagues can take should they experience or witness discrimination, harassment, bullying or victimisation. We have strong mechanisms in place to guard against and address bullying, discrimination and other unacceptable behaviour, including our Confidant initiative and Whistleblower Policy. Employees who feel they have suffered or witnessed harassment, discrimination, bullying or victimisation, or who are struggling with related dilemmas, can contact one of our Confidants to address their situation and/or follow Avantium's complaints procedure. The Confidant acts according to our Confidant Regulations, giving advice while keeping all discussions strictly confidential.

Performance Management and Training

At Avantium, we aim to ensure that every employee, no matter their role in our company, is able to reach their full potential. At the beginning of each year, all colleagues set their business and personal goals in consultation with their line manager. Business unit goals provide guidance for individual objectives, which should include contributions to Avantium's goals as well as targets for self-development and learning. Employees and line managers meet regularly to discuss progress on the goals, with half-year meetings offering a chance to reflect on individual performance,

² <https://www.techleap.nl/reports/netherlands-startup-employment-2022-report/>



focus on development and aspirations and make any necessary adjustments. At the end of the year, a final appraisal meeting takes place.

Our portfolio of training and development programmes is designed to help our colleagues enhance their personal and professional skills and capabilities. All Avantium employees, for instance, can access the GoodHabitz learning platform, which is home to more than 80 development programmes. An online test guides users towards the topics most relevant for them, empowering individuals to drive their own learning journey. In 2022, our people followed courses to develop their IT, social media and feedback skills, among many others.

We are committed to providing equal opportunities to our staff, our contractors and agents of and applicants to the company, and to not discriminating on the basis of age, gender, race, disability, faith, beliefs or sexual orientation. Avantium aims to ensure that its employees are selected, trained, compensated, promoted or transferred solely on the basis of abilities, qualifications and merit.

To prevent unconscious bias in our Performance & Development Review cycle, all line managers receive briefing documents that include information about, and guidance on avoiding unconscious bias. To avoid bias in our recruitment processes, interviewers use standardised recruitment scorecards to evaluate candidates on their suitability for the vacancy. The hiring team compares the compiled scorecards to identify the strongest candidate.

Talent Attraction and Retention

Fostering a safe and vibrant workplace where people can make an impact is a key pillar of our strategy. To support and enable this, we offer a number of benefits to our employees, beginning with our remuneration policy. Naturally, recognising and rewarding our people for their work and achievements is an important part of our approach to providing a great place to work. Employee remuneration

increases are dependent on performance, position in the salary scale and results, encouraging our people to aim higher, take on new challenges and make a real, lasting impact through their work.

In 2022, our HR department concluded a job-grading exercise, supported by external advisor Willis Towers Watson. Each medium-level job title within our organisation was assigned a job family and weighed based on seven criteria: Job Functional Knowledge, Business Expertise, Leadership, Problem Solving, Nature of Impact, Area of Impact and Interpersonal Skills. The results were calibrated within and across our business units and at Management Team level. The resulting job family matrix depicts the relative structure of job titles in our organisation and will be the backbone of all future HR instruments. Whenever new job titles are identified, they will be graded and calibrated using the same grading method.

Our new job family matrix served as the basis for a subsequent salary benchmark, which was performed against our general industry. With the help of Willis Towers Watson, we designed a salary structure setting out a salary range per global grade. In April 2022, all employees received confirmation of their job title and grade, together with their personal relative salary position within the applicable salary range.

Other employee benefits at Avantium include company pension contributions and reduced health insurance costs. We also have an Avantium Mobility Plan, which supports greener employee travel through NS Business cards for public transport and a company-wide bicycle scheme, which brings benefits for employees' mental and physical well-being as well as for the environment.

Avantium has a highly educated workforce of experts across a wide range of chemistry and engineering specialisms. In preparation for the next phase of our strategy execution

– commercialising our renewable chemistry technologies and constructing our FDCA Flagship Plant – we have broadened our talent pool in terms of expertise in recent years, shifting our focus from competencies such as innovation and creativity towards the skills required for engineering, deployment and commercialisation.

We believe the level of interest shown in Avantium by potential candidates reflects positively on our company, in terms of both the work we do and the way we do it. On average, we receive 2,290 applications every year – approximately 29 applications per vacancy, including internal vacancies (2021: 43) – and it takes us an average of 84 days to fill a vacancy.

In 2022, the Avantium team expanded considerably, with 64 new joiners on employee contracts (twice the number of leavers). All in all, our workforce increased by 16.30%, for a total of 264 people at the end of the year. In addition, we have 44 people on non-employee contracts: 23 with flexible contracts, five with internship agreements, four with PhD agreements and 12 with self-employed contractor agreements. Diversity is a key factor in the depth of our talent pool, and Avantium is proud to attract candidates from all over the world: at the end of 2022, we employed colleagues representing 25 different nationalities (2021: 20).



Promoting Diversity, Equity and Inclusion

By 2025, we will improve upon our baseline of being an inclusive and diverse company, ensuring we are representative of the societies and communities we operate within.

We aspire to maintain a safe and open culture where colleagues of all backgrounds feel included, valued and supported. As part of this, Avantium aims to provide equal opportunities to all employees, ensuring people are selected, trained, compensated, promoted and transferred solely based on the qualifications and abilities needed to perform the work in question. Given the fact that our operation fall under Dutch law, the risk of diversity-related discrimination or unequal or unethical treatment is limited; nevertheless, we take steps to promote diversity within our team, especially with regard to age, nationality and gender.

Celebrating Our Differences

In line with our company values, we strive to make the best possible use of our people at all stages of their working life, in a way that does justice to their well-being, motivation, experience and knowledge. Avantium therefore has an age-conscious personnel policy in place to guide the sustainable employment of every colleague, regardless of age. The policy has four parts, addressing different career stages: the development phase (early-career employees), the rush-hour phase (career growth; changing family composition), the balance phase (positive work-life balance) and the senior phase (changes in physical capacity; opportunities for older employees). To this end, Avantium has several initiatives in place to help employees balance their work and family lives, such as care leave and parental leave. In 2022, 23 colleagues used their right to take parental leave and another 10 returned from parental leave.

At the end of 2022, Avantium's workforce included people of 25 nationalities (2021:20). While English and Dutch are most commonly used, tens of languages are spoken across the team. As a result, we have an extremely diverse workforce that can draw on a variety of backgrounds and experiences in support of its work. Indeed, we are proud to have long been a very international organisation where respect for diversity is not only a moral obligation but also a business driver, ensuring the attraction and retention of highly qualified people with the specific abilities we need to bring our vision to life.

At the same time, we are aware that we operate within an industry in which women have historically been underrepresented. We therefore pay close attention to our gender balance at Avantium. In 2022, 27% of our employees were women (2021: 26.1%), while at the decision-making level, 50% of the Supervisory Board (2021: 80%), 17% of the Management Team which has increased to 29% with the start of Yap Chie Cheung in February 2023 (2021: 14%) and 41% of senior management directly reporting to the Management Team (2021: 28%) were women. We are committed to raising these numbers and improving our company's overall gender balance, and have therefore set the following stringent diversity, equality and inclusion targets for the next two years, against our 2021 baseline:

- Ensure at least 33% of our Supervisory Board are women and at least 33% are men.
- Ensure at least 33% of our Management Team are women and at least 33% are men.
- Ensure a minimum 2% year-on-year increase of women in senior management who report directly to the Management Team.
- Ensure a minimum 2% year-on-year increase of women in our total workforce.
- Maintain the diversity of nationalities within our company.
- Ensure equal pay for equal work (as assessed by an independent external party every three years).
- Conduct a Trust Index survey with Great Place to Work every two years. In the Diversity & Inclusion module, we measure progress within the organisation against the

following statements:

- I. People here are treated fairly regardless of their age.
- II. People here are treated fairly regardless of their race.
- III. People here are treated fairly regardless of their gender
- IV. People here are treated fairly regardless of their sexual orientation.
- V. If I am unfairly treated, I believe I will be given a fair shake if I appeal.

Meeting these targets is especially important as we pursue the scale-up of our lead technology to commercialisation and continue to grow our workforce, which is broken down by seniority level, age group, nationality and gender diversity in the table.

Employee Diversity in 2022

	Management Team	Leadership positions	Non-leadership positions
Female	17%	41%	26%
Male	83%	59%	74%
<30 years old	—%	—%	12%
30–50 years old	—%	41%	56%
>50 years old	100%	59%	31%
Dutch	100%	77%	77%
Non-Dutch	—%	23%	23%

The basic salary ratios of women to men vary per location and seniority level. In general, the ratio for non-Management Team positions is approximately 0.90.



Inspiring the Next Generation

By 2030, we will have engaged 100,000 students about using chemistry to create a fossil-free world.

At Avantium, we believe sustainable chemistry is something we can all be excited about. We aim to use our position as a leader in the field to excite the next generation of scientists, helping to build a pipeline of motivated and talented people who are keen to make a difference in the chemical sector. This approach also helps grow awareness among young people – also as the consumers of tomorrow –, in particular of the need to transition away from a fossil-based, linear economy towards a sustainable, circular future.

Building on our many years of student outreach and engagement initiatives, we began to develop a more formalised engagement programme in 2022. Avantium already had a student engagement team in place, as well as more than 10 employees with direct engagement experience, several valuable connections with major educational institutions and content archives full of engagement materials. With this established, we strengthened our tracking and management system by updating our activity tracking form and sharing our master tracker with the entire company on a quarterly basis. We have also adjusted our outreach strategy, with the result that our target team will now regularly discuss ideas for new activities with ongoing and broader reach, such as videos. Our aim is to accelerate our student engagement in 2023 and beyond, through partnerships with subject matter organisations as well as social media campaigns – including Chemie Is Leuk ('Chemistry Is Fun') – to boost audience engagement.

We believe this approach will help us inspire the next generation of scientists and engage with 100,000 students by 2030. In 2022, we made important progress towards this goal, reaching almost 18,000 students via a range of different activities.

Outreach and Engagement in 2022

Activity	Description of activity	# engaged
Open days	Large-scale events during which organisations open their doors to students (e.g., National Weekend of Science, Chemelot Open Day, Chemie Park Delfzijl Open Day)	3,093
Programmes with industry organisations and subject matter organisations	Wij Zijn Chemie ('We Are Chemistry') campaign by Centre for Youth Communication Chemistry (C3) and the Royal Association of the Dutch Chemical Industry (VNCI) where chemical industry employees provide (online) guest lectures in education	89
Social media including Avantium's website	Student-related posts on social media, videos and views of website pages	Website: 449 Videos: 1,071 LinkedIn: 12,344 Twitter: 311
Guest lectures	Avantium employees speak at a school or university	321
Site visits to Avantium offices and plants	Visits as part of a course, where students and teachers receive a lecture and tour of the laboratories or Pilot Plant	62
Interns	Students do their internship at Avantium	18

Activity	Description of activity	# engaged
RDS units	Units are manufactured and installed by Avantium R&D Solutions at universities for educational purposes	42
Other	Seminars, webinars, school projects, etc.	126

National Weekend of Science

In the Netherlands, the National Weekend of Science (Weekend van de Wetenschap) takes place every year in early October. Avantium has participated in events in Amsterdam since 2019, with 2022 marking our first time taking part in Geleen. At Amsterdam Science Park, we collaborated with the University of Amsterdam, with our Senior Scientist Bart van den Bosch and PhD student Noë Watson welcoming four groups of chemistry enthusiasts – young and old – who learned about environmentally friendly ways of using CO₂ and were introduced to our Volta Technology.

In Geleen, meanwhile, we joined forces with our Chemelot neighbours for the Brightlands Chemelot Campus Open Day. Our FDCA Pilot Plant was the only facility open for guided tours during the event, hosting approximately 2,000 visitors in a single day. As well as giving visitors an insight into our FDCA production, we took the opportunity to showcase some exciting examples of real-world PEF applications.

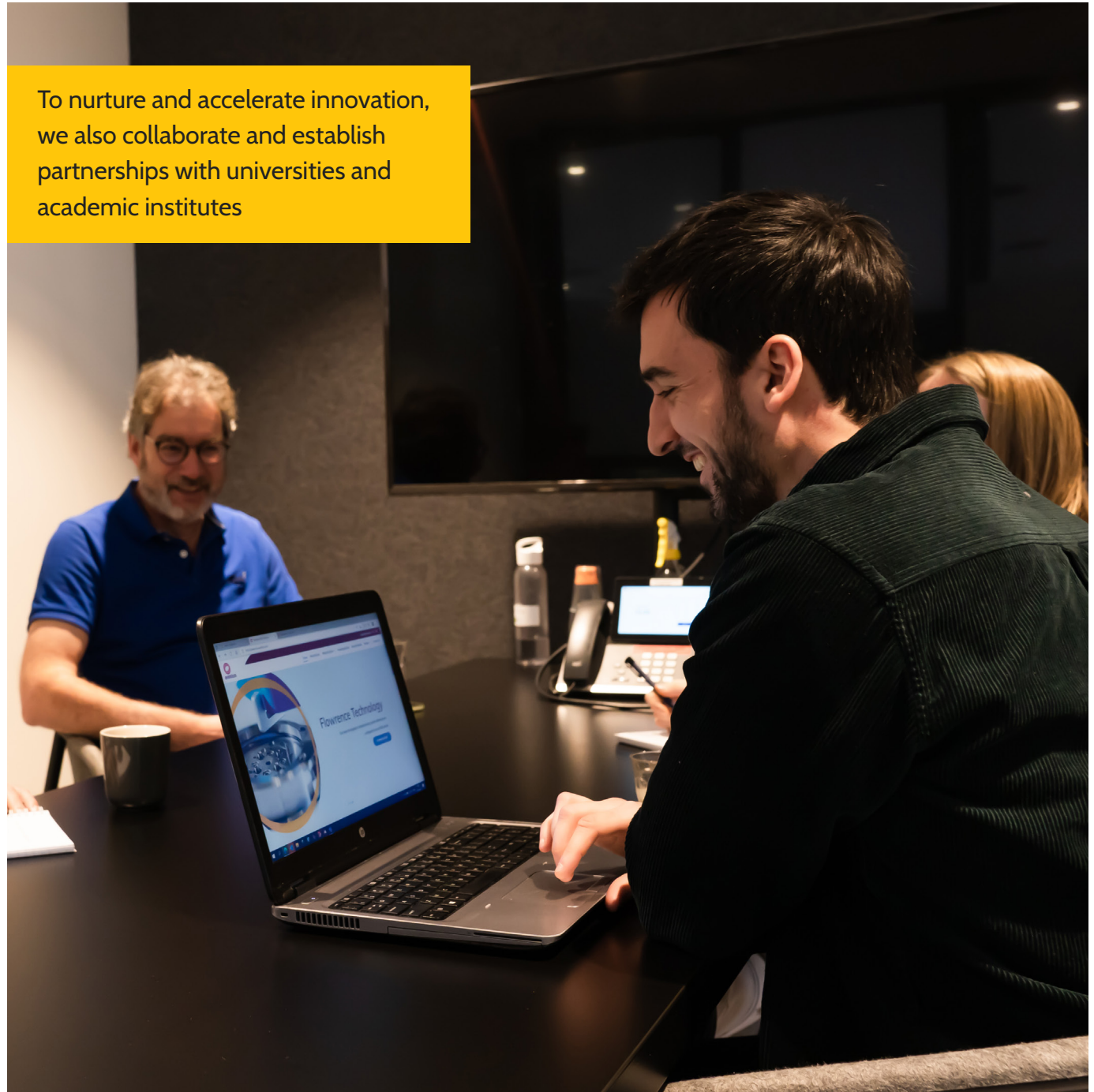


To nurture and accelerate innovation, we also collaborate and establish partnerships with universities and academic institutes. This gives us access to a large pool of scientists, students and academics, and presents opportunities for scouting new talent for our company. Our Chief Technology Officer, Gert-Jan Gruter, is Extraordinary Professor of Industrial Sustainable Chemistry at the Van 't Hoff Institute for Molecular Sciences, one of the eight research institutes of the University of Amsterdam Faculty of Science. He also leads Avantium's Corporate Technology team, which explores all aspects of polymer materials transitions, acting as an early-stage pipeline of new ideas for existing and future technologies. PhD students form the core of the team, with eight working on their theses at Avantium in 2022 (2021: nine) while contributing to the development of our technologies. We are proud that all four of the PhD students who graduated in 2022 are now Avantium employees.

Avantium also works with the University of Amsterdam's Psychology Research Institute, where PhD students in Social Psychology research sustainable consumer behaviour. Investigating the psychology of green consumer habits, such as the public's willingness to pay a premium for greener packaging, is vital if we are to successfully commercialise new sustainable materials and decouple our industry from fossil feedstocks.

Furthermore, Avantium regularly offers internships to university or high-school students. In 2022, 18 students completed an internship at Avantium.

To nurture and accelerate innovation, we also collaborate and establish partnerships with universities and academic institutes





Our Leadership and Governance

Chain Reaction 2030 Goals



By 2030, 100% of our advocacy will focus on transforming the chemical industry to becoming circular and fossil-free.

Material Topics Addressed



Climate Advocacy



Climate-Related Regulation



Stakeholder Engagement



IP & Data Protection



Corporate Partnerships

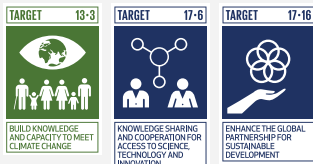


Responsible Licensing

GRI Indicators

- GRI 22-28 Strategy, policies and practices

SDG Subtargets



At Avantium, we believe we have a responsibility to make our voice heard. We are determined advocates for a sustainable chemical sector, engaging with different stakeholders to deliver the innovation and collaboration we need to make the global transition a success.



Advocating for a Fossil-Free Industry

In order to advocate for changes that support the transition to circular and sustainable chemicals and materials, Avantium regularly gives interviews and publishes thought leadership articles. In 2022, 46 interviews and thought leadership articles were published by Avantium employees (2021: 43) about our technologies and the way they address the climate crisis and plastic waste pollution. We also advocated for change in the chemical industry and called for partnerships and collaborations to tackle the climate crisis. 27 papers by Avantium employees were published in peer-reviewed journals and other publications in 2022 (2021: 17), including the prestigious scientific journal Nature Communications. Furthermore, we participated in 56 conferences, speaker events and webinars in 2022 (2021: 40), giving presentations at around half of these events.

Avantium actively engages in and works through partnerships and collaborations. We work with stakeholders across the plastics value chain, for instance in industry associations such as European BioPlastics (EUPB), Industry Table Northern

Netherlands and the Royal Association of the Dutch Chemical Industry (VNCI). Avantium is also a member of several corporate social responsibility initiatives and consortia in Europe, including the Renewable Carbon Initiative, aiming to support and speed up the transition from fossil to renewable carbon for all organic chemicals and materials; the Bio-based Industries Consortium, a non-profit organisation focused on strengthening the bio-based industries sector in Europe; and CO₂ Value Europe, the non-profit association representing the carbon capture and utilisation community in Europe.

Meanwhile, Avantium's CEO Tom van Aken is the representative for small and medium enterprises in the Chemistry Top Team in the Netherlands, aiming to stimulate good cooperation between science, industry and government; Ed de Jong, our Vice President Development, is a board member of and representative for the chemical industry in the Top Consortium for Knowledge and Innovation for the Biobased Economy in the Netherlands; and, in 2022, our Communications Director Caroline van Reedt Dortland has become chair of the board of the Centre for Youth Communication Chemistry (C3), which introduces chemistry and life sciences to children and young people in the Netherlands.



Stakeholder Engagement

Continuous stakeholder engagement, in which we embrace open dialogue and knowledge-sharing, is important in an innovation-driven industry and helps us to identify areas for improvement.

We communicate with our stakeholders through various channels and at a variety of levels. Our methods of engagement vary depending on the stakeholder, the key issues and the purpose of engagement.

The following tables provide an overview of our main stakeholder groups, the ways we communicate with them and the topics most relevant to them.

Stakeholder	Form and frequency of dialogue	Topics discussed	Effect of dialogue on Avantium
Employees	<ul style="list-style-type: none"> ■ Social intranet (YIP) ■ Company meetings with all employees (every two months or when appropriate) ■ Leadership Team meetings (every two months or when appropriate) ■ Business unit town hall meetings (every two months or when appropriate) ■ Performance reviews (twice a year) ■ Training and development programmes (when appropriate) ■ Works Council (at least every two months or when appropriate) ■ Onboarding programme for new employees (when appropriate) 	<ul style="list-style-type: none"> ■ Strategy ■ Business highlights and performance ■ Health and safety ■ Human Resources-related topics, including vitality ■ Diversity and inclusion ■ Training and development 	With a continuous and open dialogue, we aim to help our employees embrace our values and familiarise themselves with our strategy and mission. We celebrate our successes and share our challenges and setbacks. We believe employee engagement is key to Avantium’s business, and that our success is built on the commitment, ambition and expertise of our people.
(Prospective) Partners and customers	<ul style="list-style-type: none"> ■ Business meetings and site visits, joint (research) projects and business development (when appropriate) ■ Phone and video calls, email exchanges and virtual tours by commercial or technical teams (daily) ■ Conferences, symposia and special events (when appropriate) 	<ul style="list-style-type: none"> ■ Technologies, lead products and services ■ Business development and innovation ■ Customer support and quality ■ Technology licences ■ Environmental, social and governance (ESG) targets (e.g., circular business models, carbon footprint) 	An integral part of Avantium’s strategy and our commercialisation roadmap is close collaboration with strong partners and customers throughout the entire value chain. We work with companies who share our values and want to build a better world for future generations. This helps us develop innovative solutions that deliver sustainability benefits to customers and beyond.
Shareholders	<ul style="list-style-type: none"> ■ Direct interaction with Investor Relations, CEO or CFO in (video and audio) calls, email exchanges, site visits (daily) ■ Annual General Meeting (annually) ■ Extraordinary General Meeting (when appropriate) ■ Capital Markets Day (Technology & Markets Day/Retail Investors Day) (annually or when appropriate) ■ Annual or half-year results presentation and press release (bi-annually) ■ Investor conferences and roadshows (when appropriate) 	<ul style="list-style-type: none"> ■ Strategy, business activities and performance ■ Financial results ■ Funding options ■ Market outlook ■ Company roadmap and technology portfolio ■ Lead products and end-market ■ ESG performance ■ Board composition and remuneration 	This group consist of current shareholders, potential investors and financial analysts. We aim to help them understand the (long-term) investment opportunities Avantium offers. With shareholders, we discuss our strategy and business model, financial performance and outlook, funding strategies and opportunities, as well as our sustainable solutions.



Stakeholder	Form and frequency of dialogue	Topics discussed	Effect of dialogue on Avantium
Suppliers and contractors	<ul style="list-style-type: none"> Direct interaction via supplier account teams/procurement in calls, email exchanges, virtual meetings (daily) Site visits at Avantium and/or at the supplier's office (when appropriate) 	<ul style="list-style-type: none"> Products and technology Innovation Supply chain of renewable feedstock Supplier performance and risk management Health and safety Compliance Human rights and labour standards Environmental topics, including biodiversity IP/information security Business continuity 	<p>We rely heavily on our supplier network. Our suppliers and contractors are integral as partners in the efficient and seamless scale-up of our technologies and in delivering on our customer commitments. We are committed to a responsible and sustainable supply chain, as laid out in our Sustainable Suppliers Code.</p>
Governments and authorities	<ul style="list-style-type: none"> (Pro)active dialogue with government, regulators and authorities and municipalities (when appropriate) Safety and compliance reporting (when appropriate) 	<ul style="list-style-type: none"> Our technologies and lead products Strengthening innovation in the industry and society where we operate Compliance Safety Permitting 	<p>Avantium takes part in open dialogues with relevant governments and authorities. We have regular meetings with government bodies, authorities and local municipalities to discuss Avantium's business, opportunities and challenges, with the aim of strengthening our license to operate and generally promoting an environment conducive to investment and development, as well as to mitigate regulatory and political risk.</p>
Society	<p>Industry associations</p> <ul style="list-style-type: none"> Member conferences, regular meetings, round tables of relevant industry associations (when appropriate) <p>Community, universities, media, NGOs and other</p> <ul style="list-style-type: none"> www.avantium.com (continuously) Avantium's social media channels (continuously/when appropriate) Press releases, interviews, engagement calls/meetings (when appropriate) Collaboration with University of Amsterdam (continuously) Community engagement programmes (when appropriate) Company visits (when appropriate) 	<ul style="list-style-type: none"> Our technologies and lead products Strengthening innovation in the industry, society and where we operate Compliance Circular economy Community engagement Our people Exciting the next generation about renewable chemistry Local developments 	<p>We align our business strategy and sustainability goals with the needs of our wider society, beyond our direct value chain. We also engage with students at schools and universities, sharing our expertise and exciting the next generation about sustainable and renewable chemistry.</p>



Intellectual Assets and Data Protection

Responsible, active management of our intellectual assets and data, including those of employees, clients and suppliers, is of vital importance to Avantium. We have a dedicated team to protect our intellectual assets, with in-house patent attorneys who proactively seek protection in accordance with the intellectual asset strategy of each of our three business units. These strategies are aligned with and support the overall business strategy and ensure we can exploit and leverage the value of our technologies and maximise their sustainable impact.

Throughout our innovation process, we report technology improvements, seek patent protection and actively safeguard our freedom to operate to attain our strategic objectives – a critical factor in Avantium's success. To protect our proprietary technologies and products, we have developed, and continue to maintain and strengthen, an extensive patent portfolio.

Avantium has solid protection in place for its proprietary technologies, with 156 patent families containing more than 900 patent rights. This not only helps safeguard Avantium's leading position as a technology development company and a frontrunner in renewable chemistry, but also plays a pivotal role in our licensing strategy. Avantium has an active intellectual asset management programme, which includes regularly reviewing competitors' patent publications to stay informed of external developments and discussing new internal inventions with Avantium technicians, filing patent applications as appropriate. In order to expand our freedom to operate, we also file third-party observations and lodge oppositions. Furthermore, we investigate the potential opportunities of acquiring the right to practise under the patent rights of third parties ('non-assertion').

Patents and Patent Applications in 2022

Business unit	Intellectual asset portfolio	Current number of patent families (incl. newly filed patent applications) ³	Newly filed patent applications in 2022 ⁴	Newly granted patents in Europe (EPO) or the USA in 2022	Newly reported inventions in 2022 ⁵
Renewable Polymers	YXY Technology	65	6	16	15
Renewable Chemistries	Ray Technology	17	3	3	11
Renewable Chemistries	Dawn Technology	9	0	4	0
Renewable Chemistries	Volta Technology ⁶	35	1	0	7
R&D Solutions	RDS ⁷	11	0	0	10
Corporate Technology	Early stage	19	8	1	9
	Total	156	18	24	52

³ A patent family is a collection of several national and/or regional patents and/or patent applications covering the same invention

⁴ A patent application is a request pending at a patent office for the grant of a patent for an invention. Once the patent application complies with the laws of the country or region concerned, a patent may be granted for the invention

⁵ Newly reported inventions may mature into a publication or patent application or may be kept as a trade secret

⁶ Including former Liquid Light patent families

⁷ Formerly called Avantium Catalysis



Data Management

Data and data systems are vital assets for Avantium. Having improved our data systems, including our firewalls, in 2021, we made adjustments to our information technology (IT) policies and governance in 2022. We now have in place an IT Committee, under the leadership of our CFO, which discusses important IT changes, ensures proper IT project planning and assesses new or changed regulations and their impact for Avantium.

IT risk assessments are scheduled and conducted on an annual basis, especially those relating to cyber security. The results of our cyber security risk assessments are presented to the IT Committee, alongside recommendations for the prioritisation of implementing additional controls. The same Committee establishes and documents cyber risk acceptance and tolerance criteria and sets up processes for managing cyber risks.

Increasing our resilience to cybercrime remains an important point of attention. In 2022, we started a cybersecurity awareness programme, which continues to run in 2023. The programme consists of a knowledge assessment, computer-based trainings and tests. Based on the assessment results, specific trainings are assigned to relevant target groups, from individual IT users to all Avantium employees. The training content covers a range of areas – including email phishing, password strength, social engineering, physical security, safe web browsing, travel security and social media – and is adjusted to ever-changing threats.

In 2022, we suffered one IT security incident. An unknown and unauthorised person accessed and used an Avantium email account, sending a fake SharePoint link and inviting the recipients to use their log-in credentials. The fake SharePoint link was blocked by our firewall. The affected email account was also blocked, and the password reset. As a result, no harm was caused by this phishing attempt, but we immediately informed our colleagues and spent time

discussing this incident and the lessons learnt in a company meeting. Our IT department has now made multi-factor authentication a standard requirement for all Avantium accounts.

We protect our data privacy in line with General Data Protection Regulation (GDPR) requirements. In 2022, we did not receive any substantiated complaints concerning breaches of customer privacy or losses of customer data.

Climate-Related Regulation

We actively engage with governments and authorities to help shape climate policy and plastic regulations. We do this both as Avantium and in collaboration with industry organisations, partners in grant consortia and other like-minded partners.

Corporate Partnerships

Partnerships are at the heart of our strategy. We are always actively exploring partnerships across the entire value chain of our technologies and have ongoing partnerships with industry leaders and brand owners to develop, scale and commercialise our technologies and make our innovations globally successful. We collaborate with multiple partners within the value chain, including feedstock providers looking to diversify their markets, converters and chemical companies aiming to transition to fossil-free chemicals and materials and consumer brands seeking plant- or air-based solutions for packaging, textiles and more.

Avantium works closely with other companies in various grant consortia. One example is PEFerence, a consortium of organisations aiming to replace a significant share of fossil-based polyesters with 100% plant-based PEF. Members include, among others, Carlsberg Group, LVMH, Henkel, LEGO and Nestlé Waters.

Responsible Licensing

As part of its commercialisation strategy, Avantium is actively exploring technology licensing opportunities for the future large-scale production of its technologies. We incorporate sustainable sourcing requirements into our license agreements.

Responsible Business Principles

The following areas are fundamental to embedding responsibility into the core of our day-to-day business operations. They are foundational pillars for our continued success and we take them seriously:

- Five core values: These define what we stand for and how we work with colleagues, customers and partners (see page 42).
- Code of Good Business Conduct: This Code is a reflection of our beliefs and values as a business that acts with integrity and respect for all its stakeholders. Our priority is to be a successful business, which means investing in growth and balancing short-term and long-term interests. We care about our customers, our employees, our shareholders, our business partners and the world we live in. Every employee must therefore follow the letter and the spirit of this Code in their day-to-day work. The Code covers a range of areas including but not limited to integrity at work, age discrimination, working conditions, equal opportunities, conflicts of interest, privacy, financial practices, discrimination, harassment and bullying and complaints procedures.



Labour and Human Rights

As the driving force behind Avantium's success, our people are at the heart of everything we do. We therefore safeguard our people's rights to health and safety as well as labour and human rights. The following principles and policies help to ensure this:

- **Employee Conditions Handbook:** This details the workplace standards and rules of engagement at Avantium, including our health and safety policy, complaints procedure, performance and job descriptions, staff regulations (e.g., working hours, administrative matters), contract management, employee benefits, illness and absence, pension arrangements and other relevant matters.
- **Whistleblower Policy:** This sets out the procedures under which employees can and must report relevant irregularities, including suspicions about bribery or unethical conduct.
- **Employee Promotion Policy:** This explains Avantium's approach and procedures in relation to promotions and career growth, including consideration of background, nationality, religion, race, gender, disability, sexual orientation and age.
- **Works Council Regulations:** These explain the consultation process in the case of significant reorganisations, mergers or investments, or of changes in staff regulations.
- **Diversity, Equity and Inclusion at Avantium:** This document explains the Avantium culture and values and highlights our commitment to considering diversity and inclusion, such as through equal opportunities, training and development, a supportive working environment for different phases of life, embedding diversity and inclusion in teams, the Code of Good Business Conduct and the Whistleblower Policy.
- **Sustainable Supplier Code:** This code confirms that Avantium operates under Dutch law, which prohibits child or forced labour, and that Avantium's suppliers are also required not to use child labour (as defined by ILO Conventions 138 and 182) or the forced or compulsory labour of both permanent and contracted workers (as defined by ILO Conventions 29 and 105).

- **QHSE Corporate Policy:** This describes how Avantium manages risks in line with its Safety First philosophy and its obligations to comply with laws and regulations. Other procedures and work instructions provide further detail.
- **Golden Safety Rules:** We strive to be an accident- and incident-free workplace. All our employees commit to Avantium's [Golden Safety Rules](#).

Ethics

We uphold high standards in matters of business ethics, such as bribery, fraud and anti-corruption. Our Code of Good Business Conduct covers ethical business practices in a wide range of areas. Avantium also ensures that its agreements and other engagement documentation with business partners include appropriate provisions on money laundering and required actions or countermeasures. In protection of its proprietary and innovative technologies, it enters, where necessary, into Mutual Confidentiality and Material Transfer Agreement when processing and sharing confidential information and material with third parties.

At every meeting of the Audit Committee, Avantium's Compliance Officer gives an update to the members on fraud and irregularities, including whistleblowing cases. In 2022, there were no confirmed incidents of corruption, no legal actions taken against anti-competitive behaviour or anti-trust and no incidents of discrimination reported.

Transparency

We are transparent about our technologies, products and processes, and have a number of mechanisms for enabling and ensuring this transparency:

- **Bilateral Contacts Policy:** This covers contact and information-sharing with shareholders.
- **Life cycle assessments (LCAs):** These provide transparency about the impact of our products over their whole lifetime. We believe not only that it is crucial for us to be open about this information to our stakeholders, but we that

LCAs should be carried out as standard throughout our industry (see page 34).

Governance and Accountability

Avantium's corporate governance framework is based on the requirements of the Dutch Civil Code, the Dutch Corporate Governance Code, the company's Articles of Association of 14 March 2017, the applicable securities laws and the regulations concerning the Management Board and the Supervisory Board. More information on how Avantium is governed can be found in the Corporate Governance chapter on page 106. Documents relating to good corporate governance are available on Avantium's website and include the company's Articles of Association, Supervisory Board Terms of Reference and regulations governing the activities of the Audit, Industrialisation, Nomination and Remuneration Committees.

Financial Performance in 2022

Income Statement

Revenue

<i>in millions of €</i>	2022	2021	% change
R&D Solutions	11.3	10.0	13%
Renewable Chemistries	0.1	0.5	-80%
Renewable Polymers	6.1	0.4	1461%
Unallocated	0.4	0.0	100%
Total revenue	17.8	10.9	63%

In 2022, Avantium's consolidated revenue increased by 63% from €10.9 million in 2021 to €17.8 million. The increase in revenue was driven by Avantium Renewable Polymers, mainly due to the initial payment received from Origin Materials upon the initiation of non-refundable technical due diligence activities performed in 2022. Revenue in Avantium R&D Solutions increased by 13% owing to the delivery of several components and modules for Flowrence® systems and contract R&D projects during the year.

Other Income: Government Grants

Income from government grants showed an increase of 14%, from €6.7 million in 2021 to €7.6 million in 2022. The higher grant recognition was predominantly in Avantium Renewable Polymers coming from previously awarded grant programmes (PEference, IMPRESS and DEI+) and is related to the progress made in connection with the start of the construction of the

FDCA Flagship Plant. Avantium successfully secured an additional grant in 2022, to support its participation in the four-year R&D programme WaterProof (for more details, see page 32).

EBITDA⁸

<i>in millions of €</i>	2022	2021	% change
R&D Solutions	2.3	2.7	-15%
Renewable Chemistries	-3.6	-2.3	57%
Renewable Polymers	-6.9	-7.1	-3%
Company overheads/other	-9.5	-9.4	1%
EBITDA	(17.7)	(16.1)	10%

In Avantium R&D Solutions, the decrease in EBITDA for 2022 related to higher raw materials and contract costs in the market. In addition and as planned, we have invested in additional FTE resulting in higher employee benefit expenses.

The lower EBITDA of Avantium Renewable Chemistries was mainly due to the lower income from government grants and lower revenues.

Avantium Renewable Polymers showed an improved EBITDA in 2022 as a result of higher revenues, which were partly offset by an increase in costs being expenditures incurred for Financial Close which took place in March 2022, legal and advisory costs related to the debt facility, and an increase in costs related to support activities contracted from Avantium. For further information on the EBITDA of Avantium's business segments, please refer to note 21 in the financial statements.

Total EBITDA for Avantium decreased from €-16.1 million in 2021 to €-17.7 million in 2022.

Operating Expenses

<i>in millions of €</i>	2022	2021	% change
Raw materials and contract costs	(3.8)	(3.0)	27%
Employee benefit expenses	(23.4)	(19.2)	22%
Office and housing expenses	(3.1)	(2.0)	55%
Patent, licence, legal and advisory expenses	(6.8)	(4.3)	58%
Laboratory expenses	(3.3)	(2.9)	14%
Advertising and representation expenses	(1.3)	(0.7)	86%
Other operating expenses	(1.5)	(1.6)	-6%
Net operating expenses	(43.1)	(33.7)	28%

Net operating expenses amounted to €43.1 million in 2022, an increase of €9.5 million compared to 2021 (€33.7 million). This increase is due to the planned increase in FTE during 2022, growth in patent, license, legal and advisory costs, as well as the costs related to the professional and advisory services in connection with the Debt Facilities Agreement which are in place for the construction of the FDCA Flagship Plant.

⁸EBITDA is an important measurement of the company's financial performance before taking the cost of capital, depreciation and taxes into consideration. EBITDA margins provide a view of operational efficiency and enable a more accurate and relevant comparison between peer companies.

Financial Position and Balance Sheet

Cash Position and Cash Flow

The total cash balance (including restricted cash⁹) as at 31 December 2022 was €64.9 million (31 December 2021: €34.9 million). During 2022, Avantium's cash position improved substantially, which was the result of a number of extraordinary transactions that took place during the year. Firstly, the successful capital raise by means of a public offering of shares in Avantium N.V. that took place in April 2022, which generated net proceeds of €41.6 million. In addition, Avantium Renewable Polymers received a €20.0 million cash investment from Bio Plastics Investment Groningen for the shareholding it acquired in Avantium Renewable Polymers at Financial Close. Furthermore, in November 2022, the first drawdown on the Debt Facilities Agreement took place, resulting in a €15.0 million increase in the cash position.

Avantium's cash outflow increased by €28.5 million (excluding extraordinary cash flows) to €46.6 million in 2022, versus €18.1 million in 2021. The cash outflow in 2022 mainly related to a €38.1 million increase of planned investments in capital expenditure for the engineering and construction of the FDCA Flagship Plant.

The increased capital expenditure was partially compensated by a net-positive movement of €17.0 million in working capital, compared with €3.2 million in 2021. The positive movement in working capital is the result of €18.7 million higher trade & other payables, partially offset by €1.4 higher trade & other receivables. Trade & other payables increased mainly due to the increased capital expenditure for the construction of the FDCA Flagship Plant. Furthermore, Avantium received pre-financing for a number of grant programmes during 2022, for which most of the work is yet to be performed.

⁹ For more information refer to note 10 of the consolidated financial statements.

¹⁰ Other includes non-cash movements related to share-based payments.

The following table provides an overview of the net cash outflow during the year excluding extraordinary cash flows:

<i>in millions of €</i>	2022	2021	% change
EBITDA	(17.7)	(16.1)	10%
Lease payments	(1.9)	(1.7)	17%
Working capital movement	17.0	3.2	431%
Capital expenditures	(43.4)	(5.3)	725%
Interest and commitment fees from borrowings	(1.5)	—	100%
Other ¹⁰	1.0	1.7	-44%
Net cash outflow	(46.6)	(18.1)	157%

Balance sheet

Total assets increased to €162.0 million (2021: €77.7 million), mainly as a result of the planned investment in the FDCA Flagship Plant. Total equity increased to €91.2 million (2021: €50.0 million) as a result of the equity issuance in 2022.

Total borrowings increased to €12.9 million (2021: nil), which relates to the first drawdown that took place under the Debt Facilities agreement, which is measured at amortised cost.

Financial lease obligations increased to €11.9 million (2021: €10.7 million), and primarily consist of lease agreements on offices, plants and laboratory facilities. This increase relates to new lease agreements concluded as well as the extension of a number of existing lease agreements during the year.

Non-current assets increased from €34.6 million in 2021 to €87.6 million in 2022, primarily as a result of the planned investment in the construction of the FDCA Flagship Plant.



Going Concern

The financial statements have been prepared on a going concern basis.

Avantium N.V. (“Avantium”)

Avantium is a leading technology company in renewable chemistry, dedicated to developing and commercialising breakthrough technologies for the production of chemicals from renewable sources and circular plastic materials.

Avantium consists of three business segments in various stages of maturity: Avantium R&D Solutions, Avantium Renewable Polymers and Avantium Renewable Chemistries.

- Avantium R&D Solutions is our main revenue-generating business unit, providing R&D solutions in the field of sustainable chemistry and advanced catalyst testing systems and services for international blue-chip players.
- Avantium Renewable Polymers commercialises its YXY® Technology for the production of furandicarboxylic acid (FDCA), which is a key ingredient for polyethylene furanoate (PEF). PEF is a novel, 100% plant-based and fully recyclable polymer with the potential to outperform today's packaging materials, such as plastic, glass and aluminium, especially in the packaging, film and textile sectors, which are large and growing markets. Avantium Renewable Polymers has operated a Pilot Plant in Geleen since 2011 and is currently constructing its FDCA Flagship Plant at the Chemie Park Delfzijl site in Groningen, with a capacity of 5 kilotonnes per annum. Handover from engineering to operations is scheduled for the first quarter of 2024, after which we expect to commission and start up the FDCA Flagship Plant for the commercial production of FDCA and PEF.

- Avantium entered into a non-exclusive industrial technology license agreement with Origin Materials, providing Origin access to relevant parts of Avantium's YXY® Technology to enable the conversion of Origin-produced CMF (chloromethylfurfural) derivatives into FDCA at a 100 kilotonnes per annum scale facility. This will enable the use of second generation, renewable feedstocks for the production of FDCA and PEF. Under the agreement, Avantium is eligible to receive license fee milestone payments and royalties for each metric ton of FDCA produced at the licensed plant, in line with industry practices. Avantium received a non-refundable payment of €5 million in 2022. As a result of signing the industrial technology license agreement, Origin Materials paid Avantium a milestone fee of €7.5 million in February 2023.
- Avantium Renewable Chemistries develops, among other technologies, plantMEG™ (mono-ethylene glycol), which is a plant-based and competitive alternative for fossil-based MEG. This is an important chemical building block for PET and PEF resin, both of which are used in bottles and packaging; fibres for clothing, furniture and the automotive industry; and solvents and coolants. Avantium Renewable Chemistries opened a demonstration plant in Delfzijl in 2019, which became fully operational in 2020. Avantium plans to scale up the plantMEG™ technology in order to subsequently implement its licensing business model.

Funding Avantium

Avantium's consolidated cash position was €64.9 million as at 31 December 2022. Excluding Avantium Renewable Polymers, Avantium's cash position was €47.9 million. Included in the €47.9 million is a €5.0 million cash deposit reserve held in the name of Avantium N.V. for any potential future equity funding needs during the construction of the FDCA Flagship Plant. It has been agreed with the consortium of lenders that Avantium Renewable Polymers B.V. will at all times have sufficient funding available for the construction of the FDCA Flagship Plant. The reserved cash is available to meet any funding shortfall that may arise, and this is assessed together with the Lenders upon each utilization of the debt facility. The cash in this deposit account remains at all times in full control and ownership of Avantium and its consolidated group.

With the funding obtained in April 2022 from the capital raise, the material uncertainty that existed on the company's ability to continue as a going concern was resolved in April 2022.

In addition to this, Avantium successfully secured debt financing in December 2021, with the first and second drawdowns taking place in November 2022 and January 2023, respectively. Avantium Renewable Polymers expects to meet the conditions precedent to drawdown on the loan in the upcoming period.

Avantium therefore expects to have sufficient cash flow to meet the requirements for working capital, capital expenditures and R&D for at least 12 months after the signing date of these financial statements.



In light of the above, management has assessed the going concern assumption on the basis of which Avantium's financial statements for 2022 have been prepared.

The company continues to adopt the going concern basis in preparing its consolidated financial statements.

Due to Avantium's nature as a technology development company, with significant R&D expenses, and the need to invest in scaling our novel technologies and to demonstrate them at commercial scale, the company remains dependent on attracting additional external funding, in particular as the significant income growth from our own operations and licensing is expected to be a few years away. Avantium therefore continues to explore and evaluate various funding options to strengthen its financial position.



Investor Relations and Share Performance

Investor Relations

Avantium values its strong relationship with shareholders and the broader investment community. We therefore set high standards for our communications strategy to ensure that we always provide transparent, accurate and relevant information to our shareholders and investors, thereby helping them make informed investment decisions. We are committed to providing consistent and high-quality information to all stakeholders timely and simultaneously to ensure that the public market also has access to this information. To that end, Avantium regularly updates the markets on our performance, the progress we are making on the execution of our strategy and any other relevant developments in the company, through press releases, webcasts, conference calls and other forms of communication.

All activities comply with the rules and regulations of Euronext Amsterdam and the Dutch Authority for the Financial Markets (AFM). More information about investor relations can be found on our website.

Dialogue with the Investment Community

To ensure we maintain an open and continuous dialogue with the financial community, we engage with investors extensively through (virtual) roadshows, investor meetings and conferences. We also accommodate meeting requests from the financial community wherever feasible and in adherence with all applicable regulatory and confidentiality obligations.

When we publish our annual and half-yearly results, or when we provide an update on significant strategic events, our Chief Executive Officer (CEO) and Chief Financial Officer (CFO)

host a conference call for research analysts to discuss our recent business and financial performance. We release transcripts of these calls or other price-sensitive information on our website immediately thereafter. We also use events to inform both retail and institutional investors about our business and strategy.

Our policy is to have at least two representatives of Avantium present at each conversation with shareholders and investors, where possible. Bilateral meetings and conference calls with analysts, investors and shareholders are not held during 'closed periods', which normally start one month prior to the publication of Avantium's annual or half-yearly results. Our policy of holding bilateral meetings with shareholders is set out in the Bilateral Contact Policy that can be found in the corporate governance section of our [website](#).

In 2022, we participated in various investor conferences, organised by BofAML, Berenberg, Bryan Garnier, Degroof Petercam and Kepler Cheuvreux. We also organised various Virtual Management Roadshows ahead of our capital increase and following the release of our full-year and half-year results. During these digital and physical investor meetings, our CEO, CFO and Investor Relations team engaged with more than 155 UK, US, Benelux and European investors.

On 28 March 2022, we held a Retail Investor Day at our Pilot Plant in Geleen. The main topics discussed were the realisation of our FDCA Flagship Plant in Delfzijl and the partnerships signed for Avantium Renewable Polymers, including the offtake agreements on FDCA and PEF.

General Meetings of Shareholders

Avantium organises an Annual General Meeting of Shareholders (AGM) once a year. Extraordinary General Meetings of Shareholders (EGMs) are held as often as the Management Board or Supervisory Board deems desirable. No later than 42 days before the AGM or EGM, Avantium announces the date and the agenda and other meeting documents on the Investor Relations section of its website.

On 25 January 2022, we held a virtual EGM to ask our shareholders for approval on items related to the positive Final Investment Decision (taken in December 2021) on the construction of our FDCA Flagship Plant. Approval was granted to authorise the Management Board to issue 2.84 million warrants to a consortium of banks as part of a €90 million Debt Facilities Agreement, as well as to authorise the Management Board to issue €45 million in ordinary shares. The EGM also adopted the amended Articles of Association to increase the authorised share capital of Avantium to allow for the issuances of ordinary shares. Moreover, the EGM approved the appointment of Nils Björkman as member of the Supervisory Board. More information about the meeting, including the minutes, voting results and attendance, can be found on our website.

On 18 May 2022, an AGM took place at Avantium's headquarters in Amsterdam. Avantium's shareholders granted the requested approvals on all items on the agenda, including the adoption of the 2021 financial statements and the re-appointment of PricewaterhouseCoopers Accountants N.V. as the external independent auditor of Avantium for the financial year 2022. More information about the 2022 AGM, including the minutes, voting results and attendance, can be found on our website.



On 30 November 2022, we held another EGM at our headquarters in Amsterdam. The agenda item was the appointment of Boudewijn van Schaik to the position of CFO and member of the Management Board, effective 1 January 2023. Avantium's shareholders unanimously endorsed the appointment of Boudewijn van Schaik as CFO until the end of the AGM in 2027.

Capital Raise

On 14 April 2022, Avantium successfully raised €45 million by means of a public offering with a priority allocation for its existing shareholders, a retail offering and a private placement. The company issued 11,250,000 new shares, which represented 36% of the issued share capital. Pricing of the capital increase was fixed at €4.00 per share, a 20% discount versus the previous closing price. The net proceeds of the equity raise are primarily used to further develop Avantium's Ray Technology™ and other technologies and to scale-up towards further commercialisation via technology licensing, in addition to general corporate purposes.

Listing and Indices

Avantium's shares are listed and traded on both Euronext Amsterdam and Euronext Brussels, under the ticker symbol AVTX. Avantium is included in the Euronext Amsterdam SmallCap Index (AScX), which consists of the 25 listed companies ranked 51–75 (in terms of size) on Euronext Amsterdam.

Share Capital and Voting Rights

At the end of 2022, the number of issued and outstanding ordinary shares amounted to 42,605,893. The ordinary shares issued and outstanding have equal voting rights (one share = one vote).

Indicative Free Float

Avantium's free float amounted to approximately 55% at the end of 2022.

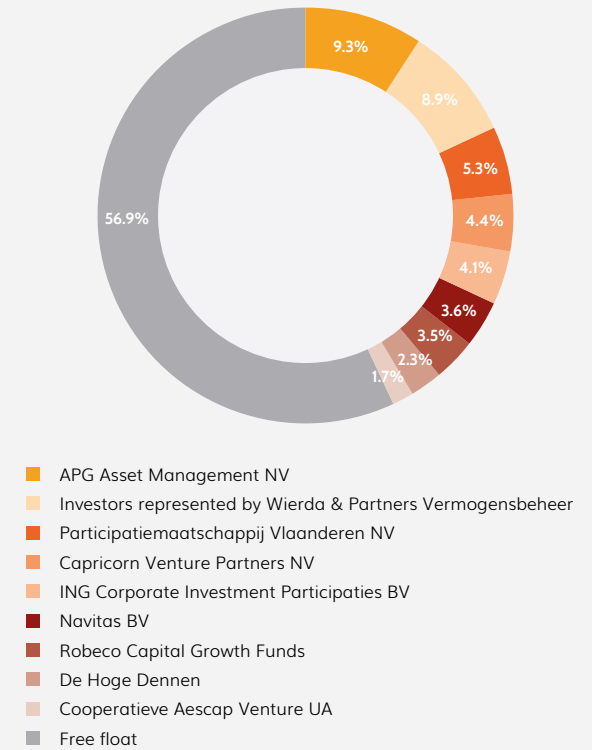
Major Shareholders

The Dutch Financial Markets Supervision Act requires Avantium's investors who hold a (potential) capital and/or voting interest of 3% or more to disclose this to the Netherlands Authority for the Financial Markets (AFM). The AFM publishes these major shareholding disclosures in its publicly available register at www.afm.nl.

Subsequent to the capital increase, APG Asset Management N.V. remains our largest shareholder and currently holds up to 9.3% of our registered shares. We saw a significant increase in shares held by retail shareholders represented by Wierda & Partners Vermogensbeheer. Their holding currently represents c. 8.9% of our capital. During 2022, a number of shareholders decreased their holding; among others, PMV Comm VA and Capricorn Cleantech Fund, which lowered their stake to 5.3% and 4.4% respectively.

In 2022, Avantium continued to have a large shareholder base of Dutch and Belgian retail investors who actively trade Avantium stock.

Major Shareholders in 2022



Source: AFM Register substantial holdings and gross short positions.



Share Price Performance and Liquidity

Avantium's share price ended the year 2022 at €3.65, a 32% nominal decline versus 31 December 2021. Avantium's market capitalisation on 31 December 2022 was €156 million, compared to €169 million at year-end 2021. Companies with above-average risk profiles such as Avantium underperformed in the first half of 2022, as the war in Ukraine started, gas prices surged and inflation increased significantly. Our share recovered somewhat during the second half of the year, when the rate of inflation growth decreased and developments regarding a potential recession in the US and Europe were somewhat better than expected.

Overall, we saw an increase in trading in our share over the year. The total number of Avantium shares traded in 2022 amounted to circa 44.4 million shares (24.9 million shares in 2021). Velocity (the total number of shares traded divided by the average number of shares issued) was 104.2%, compared to 79.6% in 2021. The start of the year was marked by a positive decision by shareholders to build the world's first commercial FDCA Flagship Plant, and we saw significant volumes traded on the back of this news. We saw even higher volume during early April, when we announced a €45 million capital raise. In addition, we saw significant trading volumes after the publication of the offtake agreements signed with Carlsberg in June and AmBev and LMVH in August.

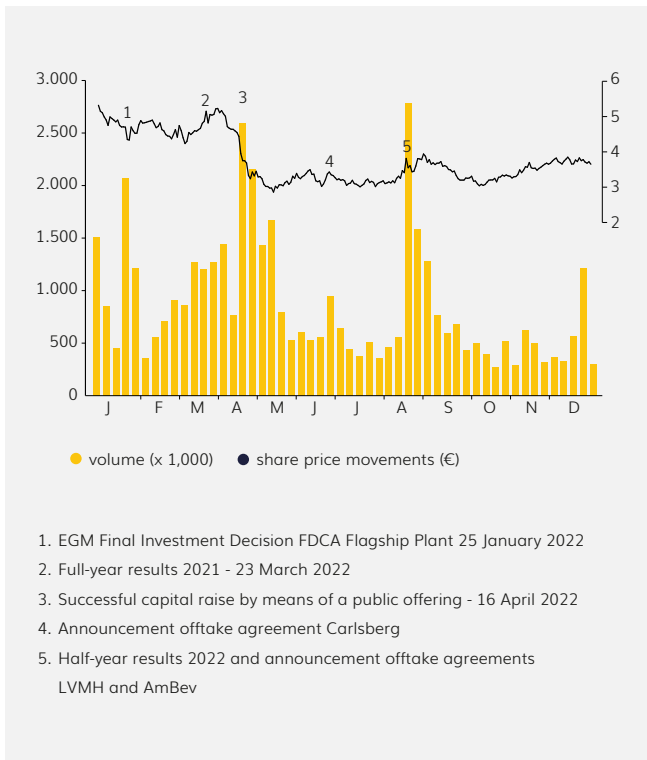
Analyst Recommendations

Avantium is currently covered by six analysts, one more than in 2021. The research recommendations at the end of 2022 were as follows:

Bank	Target price	Recommendation
ABN AMRO -		
Oddo BHF	€5.20	Neutral
Berenberg	€4.40	Buy
Bryan Garnier	€10.00	Buy
ING	€10.95	Buy
Kepler Cheuvreux	€3.95	Hold
Degroef Petercam	€6.00	Buy

Dividend Policy

Avantium intends to retain any future profits for the foreseeable future to expand the growth and development of its business. Therefore, the company does not anticipate paying dividends to its shareholders in the foreseeable future.



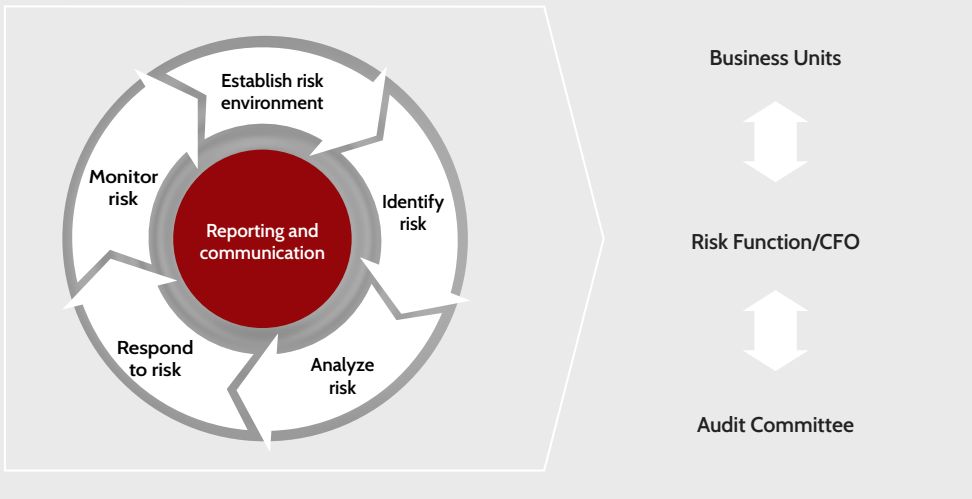


Risk and Opportunity Management

Framework

Risk management is one of the key responsibilities of Avantium’s Management Team and Supervisory Board. Avantium’s principal risks and uncertainties – whether under our control or not – are highly dynamic and our assessment of and responses to them are critical to the company’s future business and prospects. Avantium’s approach to risk management is framed by the ongoing challenge of understanding the risks that the company is exposed to, the assessment of the company’s risk appetite and how these risks change over time. This section provides an overview of Avantium’s Risk and Control Framework and its effectiveness, in order to substantiate the Risk and Control Statement.

Risk Management Process



Risk Appetite

The Management Team determines Avantium’s risk appetite, monitors Avantium’s risk exposure and sets the group-wide targets, which are reviewed on an ongoing basis. This process is supported and supervised by the Supervisory Board. Avantium manages its risks and opportunities through the boundaries defined by the risk appetite. Our risk appetite is broken down into the following risk areas:

Risk areas	Description of risk areas	Appetite
Strategy and Technology	Avantium develops new technologies through R&D projects, which are ‘industry disruptive’. In doing so, Avantium seeks to protect its proprietary technology. We aim to demonstrate scale-up of these technologies from laboratory scale via a Pilot Plant to a Flagship Plant, and subsequently to sell technology licenses. Funding these technologies is inherently risky.	High
Operations	Avantium’s operational risk is related to managing its laboratories and offices, starting up and operating its Pilot Plants and building and operating a Flagship Plant.	Low (Safety and Quality)
Finance and Reporting	Avantium has a conservative financial strategy and strives to ensure that there are no reporting errors.	Medium (Scale up technology)
Legal and Compliance	Avantium strives to avoid non-compliance with laws and regulations, which include health and safety regulations, competition law and environmental laws, and aims to limit any liability risk and to avoid fraud and bribery.	Low



Control Environment

The control environment relates to our standards, processes, culture and structures.

At the top of Avantium, the Management Team sets the tone on the importance of internal risk control by demonstrating its commitment to integrity and ethical values. Avantium's Code of Good Business Conduct supports this open culture.

Avantium is committed to adequate business controls and disciplined processes. Business controls are incorporated into our automated systems as far as possible. The focus of financial reporting is on cash management and bottom-up cash forecasting.

Avantium regularly reviews our insurable risk and our insurance policies together with our insurance broker to determine whether we have sufficient coverage.

Assessments and Audits

The audit function supports Avantium in accomplishing its objectives by providing an independent and professional view on its processes and controls.

The Management Board has decided, in consultation with the Audit Committee, that the company is too small to install its own dedicated internal audit officer. Senior staff members in the company's Finance department are partially dedicated to risk and control management. The CFO oversees risk management tasks. An update on risk management activities, findings, conclusions and actions are provided to the Audit Committee, where priorities are set and guidance is provided to follow up on identified areas of concern and to further enhance risk and control management. This internal audit function is further supported by the relevant subject matter experts throughout the company.

The Technology Board is established and appointed by the Management Board to act in an advisory capacity. The Technology Board provides advice and recommendations to the Management Board regarding technology aspects of major investment decisions, as well as technology strategies the company is pursuing or plans to implement, including risks and risk mitigation strategies.

The Industrialisation Committee of Avantium serves as its advisory and risk review forum for (i) the company's technology strategy, (ii) its industrialisation roadmaps and (iii) its technology portfolio, all as determined, formulated and executed by the company's Management Board and Management Team.

Professional external operational auditing is brought in on a case-by-case basis. Based on this information and communication technology (ICT) audit, the company started the ICT Security Project in 2021. During 2022 the improvements identified were implemented. The improvements are focused on technical improvements relating to ICT security and on awareness training for our employees.

In 2022, a risk assessment was performed by an external consultancy, to review and evaluate the Internal Control Framework of the engineering, procurement and construction of the FDCA Flagship Plant. There were findings identified but none were deemed critical. For the findings identified, an action plan for areas of improvement has been agreed on. A specific action from the risk assessment was to perform regular internal audits on the engineering, procurement and construction of the FDCA Flagship Plant. Avantium is conducting periodic internal audits on the construction project of the Flagship Plant in line with this recommendation.

In 2022, Avantium conducted an internal risk assessment on our Intellectual Property. Intellectual Property is a core part of the business and it forms part of the most important assets of Avantium. The objective of the internal audit performed on the Intellectual Property of Avantium was to identify the risks relating to the licenses and patents of the business, the international exposure of Avantium and create strategic interest and protection. There were multiple risks identified, but none of these risks were deemed critical. An action plan for areas of improvement has been agreed for the outcomes identified.

In light of the serious environmental situation we face, Avantium has assessed the possible effects of climate change on its financial position. Based on the various positive developments in the groundbreaking technologies we develop (as shared throughout this report), Avantium's management has concluded that climate change does not negatively impact the financial position of the company. On the contrary, climate change may accelerate the demand for alternative renewable materials and provide further opportunities for Avantium.



Risk Assessment

The Management Team, the business units and the functional department heads are responsible for their respective risk management; they perform an integral risk assessment at least once a year. These assessments are supported and prepared by senior staff members of the Finance department. The risk assessment for 2022 was presented and approved by the Management Team on 5 December 2022. The 2023 risk plan was subsequently presented to the Audit Committee for endorsement on 8 December 2022.

These risk assessments identify risks, taking into account the likelihood of risks occurring and the impact on the company, both reputational and financial. Mitigating actions are subsequently defined and monitored. Material conclusions of these assessments are shared with and analysed by the Audit Committee.

Key Risks in 2022

The key risks identified are those that threaten the achievement of Avantium's objectives.

Below is an overview of the key risk factors and mitigating actions. These risk factors are viewed by Avantium's Management Team as being the most relevant. The company has put in place mitigating actions to counter the identified risks, which are categorised as follows: Strategy and Technology; Operations; Finance and Reporting; and Legal and Compliance.



Strategy and Technology

Risks	Mitigating factors
<p>Financing</p> <ul style="list-style-type: none">■ Avantium may fail to timely obtain the necessary equity, grants or debt funding, thereby preventing the company from continuing as a going concern, violating loan covenants, as well as preventing the company from executing its strategy, delivering on its commitments and obligations towards partners, lenders and in grant programmes, retaining key employees and meeting payment obligations. Capital markets can be very volatile and it is possible that this will make it difficult for Avantium to complete a successful capital raise at the appropriate and relevant time.■ Not meeting certain loan conditions, overspending on capital expenditure and/or operational costs or having major project delays can result in higher funding needs, which can trigger bank guarantees, pledges, sales of assets at depressed prices, capital raises at steep discounts or even bankruptcy.■ Avantium may not be able to refinance its loans when due at acceptable rates or may be unable to refinance at all. Failure to refinance can trigger bank guarantees, pledges, sales of assets at depressed prices, capital raises at steep discounts or even bankruptcy.■ Avantium may continue to incur financial losses for the foreseeable future and may never achieve or sustain profitability.	<ul style="list-style-type: none">■ Executing commercial, technical and business plans by strict project management, adequate staffing, project governance and oversight.■ Actively managing relationships with all relevant stakeholders, including existing shareholders, potential new investors/partners, financial institutions, customers and licensees.■ Managing cash prudently, without jeopardising strategic progress or compromising the safety of employees or the security of the company's technologies and freedom to operate.■ Constantly monitoring the national/international grant landscape for new opportunities. Actively monitoring commitments and compliance under grant programmes.■ Managing portfolios and prioritising scarce resources.■ Maintaining dialogue with banks and prospective investors and actively seeking strategic opportunities to raise new funding, and obtaining the flexibility to raise new equity when market conditions are optimal.
<p>Commercial validation of YXY® Technology</p> <ul style="list-style-type: none">■ Avantium Renewable Polymers may not be able to commercialise its YXY® Technology through the production and sale of its products FDCA and PEF and may not be able to subsequently execute its licensing strategy. This may be due to a variety of factors, including unforeseen operational challenges for which Avantium Renewable Polymers is unable to develop a workable solution, that may result in significant additional costs or that could even prevent production of FDCA at sufficient volumes, in sufficient quality and in accordance with the planned timelines.	<ul style="list-style-type: none">■ Actively managing a sales funnel process targeting and engaging potential and future customers.■ Implementing a market entrance strategy based on YXY Technology's value propositions in different applications and market segments. In time, when volumes increase and cost price decreases, additional segments become accessible.■ Selling licenses for larger, industrial-scale plants. Due to economies of scale, operational excellence and continuous technology development, cost price will decrease further.■ Developing a detailed marketing plan for licensing the technology.■ Reviewing the commercial strategy and licensing model across the organisation to ensure that market, business and financial assumptions remain valid and robust.



Strategy and Technology (continued)

Risks	Mitigating factors
<p>Commercialise Ray Technology™</p> <ul style="list-style-type: none"> Avantium Renewable Chemistries may not be able to commercialise its Ray Technology™ through the licensing and subsequent production and sale of plantMEG™ at the right specifications, quality, yields, cost price or volumes. Technology challenges may delay the commercialisation. 	<ul style="list-style-type: none"> Optimising Avantium's Ray Technology™ and the production of plantMEG™ in the operating Pilot Plant in Delfzijl, the Netherlands. These activities assist in narrowing down and optimising operational parameters, such as yields and required capital expenditures. Continuing to apply a strict portfolio management and stage-gate approach, to bring projects from ideation, via proof-of-principle, to a fully developed business case that forms the basis for finding like-minded partners and attracting funding. Monitoring competitors' technologies and accommodate market entrance strategies for Ray Technology™. Maintaining Avantium's strong connections with partners in the plantMEG™ value chain to de-risk the sourcing of feedstock, operations, financing and commercialisation of plantMEG™.
<p>Realisation of Ray Technology™ industrial scale factory in Europe</p> <ul style="list-style-type: none"> Incorporation of the joint venture may be delayed by factors outside Avantium's control. These factors could include items impacting the business case, such as a continued volatile geopolitical environment driving up energy and feedstock prices and inflation. Incorporation of the joint venture may be delayed by factors outside Avantium's control. These factors could include items impacting the business case, such as a continued volatile geopolitical environment driving up energy prices and inflation. Due to financing (grant and equity), setup of the joint venture or obtaining insufficient offtake agreements, the Ray Technology™ industrial scale factory may not be built. A delay in the timeline of setting up the joint venture may cause difficulties in attracting partners. 	<ul style="list-style-type: none"> Co-operating with our announced joint venture partner on fine-tuning the business case, site selection and funding. Negotiating offtake agreements with other parties, with a strict portfolio and pipeline approach. Ensuring an organisational focus on the success of this joint venture; sufficient qualified resources to be made available for this key project. Optimising and stabilising Avantium's Ray Technology™ and the production of plantMEG™ in the operating Pilot Plant in Delfzijl, the Netherlands. These activities assist in narrowing down the required capital expenditures. Maintaining Avantium's strong connections with partners in the plantMEG™ value chain to de-risk the sourcing of feedstock, operations, financing and commercialisation of plantMEG™.
<p>Competition</p> <ul style="list-style-type: none"> The technologies Avantium is developing may not be competitive with other new emerging technologies and systems, which provide similar functions, lower cost or better solutions for potential customers. Avantium may not have full oversight of the technologies developed by competitors. 	<ul style="list-style-type: none"> Keeping up continuous technology development to maintain competitiveness. Maintaining strong industry and business partner relationships. Monitoring and analysing competitors through various sources (trade associations, universities, banks, etc.) and their IP filings. Actively maintaining, protecting and expanding our current IP portfolio. Warning potential violators on infringement and the consequences.



Operations

Risks	Mitigating factors
<p>Recruit, retain, develop and engage employees</p> <ul style="list-style-type: none">■ Avantium may not be able to recruit and/or retain the highly skilled and engaged employees it needs, which will have a direct negative impact on reaching its strategic objectives and may result in business interruptions.■ Avantium may not be able to find a desired balance between experience and age, which will have a direct negative impact on reaching its strategic objectives and may result in safety incidents and business interruption.	<ul style="list-style-type: none">■ Offering employees competitive compensation, the opportunity to make a direct business impact, autonomy, an inspiring culture and colleagues and a multitude of learning and development opportunities.■ Using Avantium's sustainability plan, titled Chain Reaction 2030, as a communication instrument for engaging new and existing talents.■ Initiating learning workshops where people can share knowledge on a variety of topics to promote development. Avantium invests in skill development courses, management trainings and leadership programmes to enable the personal and professional growth of all our employees.■ Securing equal opportunities and a feel-safe culture.
<p>Construction and operations of FDCA Flagship Plant</p> <ul style="list-style-type: none">■ Due to operational, environmental and/or technical reasons, or in the context of geopolitical developments, Avantium Renewable Polymers may not be able to start up and operate its Flagship Plant for the production of FDCA on time, within budget or within specification.■ If construction and commissioning of the FDCA Flagship Plant takes longer than expected, Avantium Renewable Polymers may not be able to meet the demands of (potential) customers, which may hamper and/or delay the commercialisation of FDCA and PEF products.	<ul style="list-style-type: none">■ Ensuring effective and strict project management; supervision, forecasting, risk and cost (spending) control; adequate resourcing including staffing; and quality of the engineering, procurement and construction (EPC) contract. Risk sharing is an important element, as foreseen in the EPC contract.■ Ensuring, by hiring the appropriate expertise, that the FDCA Flagship Plant operates robustly after commissioning, covering all disciplines including staffing, systems, safety, logistics, regulations and finance.■ Assessing risks: establishing and continuous monitoring an appropriate risk register. Managing construction and operation risks diligently together with constant monitoring of their potential influence on capital and operational expenditure.
<p>Intellectual property (IP) protection</p> <ul style="list-style-type: none">■ Avantium may not be successful in adequately protecting its proprietary technology, products and processes, information, trade secrets and know-how.	<ul style="list-style-type: none">■ Actively maintaining, protecting and expanding Avantium's IP portfolio in line with the company's IP strategy.■ Actively monitoring and analysing worldwide trends and technology developments, especially with respect to the patent landscape.■ Ensuring regular reviews with the technical teams and committees to consider proactively publishing or seeking patent protection.■ Imposing IP assignment obligations for employees (and – if applicable – consultants, interns and secondees).■ Maintaining adequate ICT and HR security and IP protection controls.■ Providing recurring confidentiality and IP protection awareness training to Avantium staff.



Risks	Mitigating factors
<p>Freedom to operate</p> <ul style="list-style-type: none">Avantium may not be able to ensure and maintain its required freedom to operate, and/or Avantium may inadvertently infringe the IP rights of third parties in its commercial operations.Litigation or third-party claims of alleged IP infringement could require substantial time and money to resolve even if proven unfounded.Unfavourable outcomes in these proceedings could limit Avantium in commercialising its lead technologies.	<ul style="list-style-type: none">Actively maintaining, protecting and expanding our current IP portfolio, for use, if required, in cross-licensing.Publishing on technologies for which exclusivity is not desired.Actively monitoring and analysing the patent landscape, reviewing competitors' patent portfolios, lodging oppositions and filing third-party observations where appropriate.
<p>Food safety</p> <ul style="list-style-type: none">Food safety is an important qualifier for many of our future customers. Inability to adhere to food contact materials regulations may negatively affect the company's ultimate ability to sell products for the desired applications and to sell subsequent licenses under the company's licensing strategy. Avantium may not be able to obtain or maintain the required food contact approvals worldwide.	<ul style="list-style-type: none">Continue the registering of Avantium products in accordance with applicable regulations and directives allowing the manufacture, distribution and use of these products in the jurisdictions of interest.Co-operating closely with customers to ensure appropriate product application testing to support the food contact approvals and compliance investigations. Where possible, the company aims to obtain initial food contact approval with the material produced at pilot-plant phase and validate materials produced at commercial scale, which has been successful for Europe and now being applied for in other jurisdictions.Retaining reputable consultants to support the food contact approval submission process in different jurisdictions of interest for our customers.Following strict manufacturing protocols and quality assurance procedures in future operations to ensure that our products are fully in line with specifications according to regulations and customer needs.Where possible, including liability caps in customer contracts.Establishing product liability insurance to partially cover the risk.
<p>Cybersecurity and ICT</p> <ul style="list-style-type: none">ICT security risks are changing rapidly. Not keeping ICT infrastructure, systems, procedures and user awareness up to date may result in security risks, business interruptions, information loss or leakage and reporting omissions.	<ul style="list-style-type: none">Implementing recommendations on Avantium's ICT infrastructure and security.Regularly updating ICT security and data governance policies. Actively managing compliance with these through preventive, monitoring and detection controls.Providing compulsory training for employees and building their awareness on cybersecurity.Making daily backups of our critical systems/servers and conducting regular restore tests.Keeping hardware, software and firewall solutions and accessibility up to date.Upgrading the enterprise resource planning system (planned as part of the scale-up of Avantium Renewable Polymers and the FDCA Flagship Plant project).
<p>Permits and regulations</p> <ul style="list-style-type: none">Risks such as (i) new or changing regulations, (ii) non-compliance with Avantium's current permits and/or environmental regulations applicable to an Avantium location or company sub-contractors or (iii) unwanted (unintentional) emissions and/or wastewater release.	<ul style="list-style-type: none">Regularly engaging with the relevant regulatory bodies and other stakeholders.Diligently and swiftly acting upon observations and recommendations made during inspections by line management, staff, consultants and relevant regulatory bodies.



Operations (continued)

Risks	Mitigating factors
<p>Handling hazardous substances</p> <ul style="list-style-type: none"> ■ Handling hazardous substances within Avantium's operations brings a risk of spills (environmental damage) and personal exposure (health damage). Inherent health, safety and environmental hazards in our operations and insufficient awareness of unsafe plant conditions can lead to injuries, casualties or environmental consequences and a (temporary) plant shutdown. ■ Construction of the FDCA Flagship Plant - if an accident occurs on-site, this may result in severe health consequences, severe personal trauma and prolonged shutdown of construction activities. 	<ul style="list-style-type: none"> ■ Applying strict design criteria for the factories handling hazardous substances. Special attention for hazardous substances is given in our Chemical Hazard Assessments (CHA) wherefrom safe usage of these chemicals can be inducted into design as well as into prognoses operational activities. ■ Ensuring that for all planned operational activities hazard and risk assessments are performed, allowing for proper preventive and mitigating measures (Lines of Defence – LOD). ■ Implementing work method to ensure mechanical integrity of installations as well as installing systems and sensors to detect loss of containment (LOC) to prohibit incidents and accidents. ■ Prior to commencing any operational activities, carrying out thorough assessments in which all eventualities are considered and necessary preventive measures are implemented. ■ Maintaining a system to register all (hazardous) chemicals in process streams and inventories. ■ Giving every employee (and students, interns and hired specialists such as contractor and consultant) adequate safety training at the start of their engagement as well as a list of all standard operating policies that apply to their relevant activities and locations (laboratory/ office/plant), including the proper use of personal protective equipment. ■ Creating awareness for HSE issues through leadership engagement, training procedures, safety systems, internal memos, instructions and company meetings, as well as a continuous safety culture programme across the company. ■ Monthly reporting of all safety incidents and non-conformities (events) to monitor safety performance, maximise learnings by implementing corrective or preventive measures. ■ Implementation of an ISO-certified quality programme to promote standard operating procedures and working instructions for day-to-day operations whereby the content of training will improve and supervision for safe execution of extraordinary activities (such as maintenance and troubleshooting). ■ In recent years, the company hired specialists to improve on its knowledge regarding specifically occupational hygiene and process safety. For other fields, specialists like toxicologist will be hired on project base.
<p>Inflation and rising commodity costs, energy costs and supply chain</p> <ul style="list-style-type: none"> ■ Failure to manage inflation and price increases in supply chain (subcontractors, materials and services) and insufficient access to qualified and cost-effective vendors may result in increased operational and financing cost which may adversely affect Avantium's business cases. 	<ul style="list-style-type: none"> ■ Management will continue to closely monitor market developments. Through monitoring, the company may better anticipate and assess any impact on the relevant parts of its supply chain and business activities. ■ More frequent reviews of the budget and forecasts by management will provide insight on the effect of any increased cost on the company's supply chain and business. ■ Continuous review of alternatives for sourcing, actively negotiating applicable terms,(pro-) active and transparent dialogue with business partners, vendors and subcontractors. ■ For the construction of the FDCA Flagship Plant an EPC contract with Worley is in place, including a contractual sourcing strategy, actively managed by joint project teams, which includes.



Operations (continued)

Risks	Mitigating factors
<p>Sustainability - Feedstock</p> <ul style="list-style-type: none">■ Avantium currently uses agricultural crops as feedstock for its YXY® Technology and Ray Technology™. The agricultural sector is one of the most sensitive sectors to climate change; it could impact crop growth and yields. This could lead to significant price increases.■ Using agricultural crops as feedstock for the YXY® Technology and Ray Technology™ could have negative connotations amongst the general public.	<ul style="list-style-type: none">■ Avantium's technologies are feedstock flexible, allowing the company to switch to other second generation agricultural feedstock if necessary.■ The impact originated by the plant-based feedstock could be further reduced by a switch to lignocellulosic feedstocks such as originating from second generation biomass. Avantium's Dawn Technology™ converts non-food biomass into industrial sugars and lignin in order to help transition the chemicals and materials industries to non-fossil resources. Avantium runs a pilot biorefinery in Delfzijl, the Netherlands, based on the Dawn Technology™. The use of second generation feedstock is already tested at Avantium Renewable Polymers in the framework of the BBI-JU PEference project, and should confirm that the YXY® process can use second generation biomass when it becomes available at commercial volumes and pricing.
<p>Sustainability - Climate Change</p> <ul style="list-style-type: none">■ Avantium's laboratories, offices and Pilot Plants depend on energy and aim to use sustainable energy in the future. Energy security issue is becoming increasingly important and demand for renewable energy is increasing. Access to reliable weather, water and climate information which might be hindered due to physical impacts of climate change is critical for access to sustainable energy.■ Climate change - and the extreme weather events that accompany it - could disrupt global supply chains, exacerbate shortages, delay deliveries and lead to higher prices.	<ul style="list-style-type: none">■ Avantium's business model and product designs aim to incorporate sustainability principles to be less dependent on conventional energy. The Delfzijl location is strategically chosen to promote access to variety of sustainable energy sources - wind energy, hydrogen and other.■ Continuous review of alternatives for sourcing, actively negotiating applicable terms,(pro-) active and transparent dialogue with business partners, vendors and subcontractors.



Finance and Reporting

Risks	Mitigating factors
Interest rate <ul style="list-style-type: none">Increases in benchmark interest rates could lead to higher interest rate charges in case of debt instruments with a floating interest rate.	<ul style="list-style-type: none">If applicable and not cost prohibitive, the use of interest rate hedges prevent exposure to the costs already factored in the higher interest rate environment. After careful consideration of timing and circumstances, the company has not opted for entering into an interest rate hedge.
Safeguarding Avantium's cash <ul style="list-style-type: none">The banks and/or financial institutions where Avantium deposits its cash may experience disruptions or defaults, leading to a situation where cash is no longer accessible to Avantium.	<ul style="list-style-type: none">Regularly checking the risk profiles of the financial institutions where we have deposited cash.Following the company policy of not speculating with its cash reserves.
IFRS and sustainability compliance <ul style="list-style-type: none">Non-compliance with International Financial Reporting Standards (IFRS) and sustainability reporting requirements. Not informing our shareholders and other stakeholders in conformity with reporting might lead to a loss of trust, reputational damage, a declining share price and, possibly, legal claims.	<ul style="list-style-type: none">Maintaining corporate accounting policies and making them available across the company. Our control framework includes financial reporting controls for compliance with IFRS.Using external expert advice if necessary.Implementing a sustainability reporting roadmap.Through timeline integration of standards and collection of data we are able keep up with the required sustainability disclosure and provide investors and other stakeholders with the information they need.
Grant reporting <ul style="list-style-type: none">Non-compliance with internal process and external grant rules and regulations may result in a correction (at least) or pay-back of the full amount received (in the worst-case scenario) or missed opportunities under grant programmes.	<ul style="list-style-type: none">Maintaining grant policies and communicating them across the company.Working actively to train employees on internal processes (e.g. time writing) and external regulations, including monitoring compliance on the processes.



Legal and Compliance

Risks	Mitigating factors
<p>New laws and regulations</p> <ul style="list-style-type: none"> ■ New government laws, regulations or measures, including increased regulations on the production and use of sustainable versus oil-based products, may have a major impact on our business and financial position, and could lead to a threat to our activities. 	<ul style="list-style-type: none"> ■ Monitoring and adapting to relevant (changes in) rules and regulations. ■ Maintaining a dialogue with authorities, where possible.
<p>Sanction regulation compliance</p> <ul style="list-style-type: none"> ■ Avantium may unknowingly or unwilfully have partners, customers, agents, consultants or other company contacts in breach of sanctions regulations which could adversely affect our business. 	<ul style="list-style-type: none"> ■ Continuing to adhere to (sanctions) laws and regulations, with Avantium's policies, procedures and ethics codes prohibiting us from entering into business with sanctioned parties. ■ Using up-to-date sanctions-screening software tools for business relationships the company enters into.
<p>Bribery, corruption and money laundering</p> <ul style="list-style-type: none"> ■ Avantium may be exposed to bribery, corruption and money laundering. 	<ul style="list-style-type: none"> ■ Managing a stringent approach to bribery and corruption with internal controls, coordinated by the Finance and Legal teams. ■ Retaining an external, independent organisation to assist, where necessary, in monitoring interactions with suppliers, agents and distributors. ■ Including clauses on anti-bribery, corruption, anti-money laundering clauses and appropriate remedial actions in many different agreements the company enters into. ■ Avantium has a whistleblower procedure in place to report corruption, bribery and anti-money laundering. ■ Avantium has an Anti-Money Laundering, Anti-Bribery and Anti-Corruption Policy in place. ■ Avantium performs regular risk assessments on corruption, bribery and anti-money laundering and reports those assessments to the Audit Committee on a regular basis. ■ The Avantium Code of Business Conduct contains a specific procedure for sensitive transactions (e.g. gifts).
<p>Fraud</p> <ul style="list-style-type: none"> ■ Avantium may be subject to fraudulent activities. 	<ul style="list-style-type: none"> ■ Clearly setting the tone at the top that any fraud is not tolerated. ■ Implementing segregation of duties and other internal control activities. ■ Continuous awareness communication and training. ■ Encouraging employees to safely report any suspicion of non-compliance with our ethics code. Following a report, any potential violation will be investigated. The outcome may lead to disciplinary action, the severity of which is determined by the nature and circumstances of the incident. Impacts may include termination of employment. If necessary, the company takes additional action to prevent similar incidents in the future. ■ Using the processes described in the Whistleblower and Confidant policies. ■ Including clauses on fraud and appropriate remedial actions in many different agreements the company enters into.



Legal and Compliance (continued)

Risks	Mitigating factors
<p>Confidential information</p> <ul style="list-style-type: none">■ An employee or former employee of Avantium or a third party may, intentionally or otherwise, disclose unauthorised confidential information belonging to Avantium, or confidential information received from a customer or business partner.	<ul style="list-style-type: none">■ Entering into a non-disclosure agreement (NDA) with each employee and where necessary with any third party (such as business partners, customers, suppliers and consultants), to cover the protection of the company's confidential information. In most cases the company NDA template is used (governed by Dutch law).■ Creating awareness and ensuring that employees understand their confidentiality obligations. Employees are educated during in-house training sessions on the handling of Avantium's confidential information.■ Making employees aware that it is important to strictly limit the disclosure of Avantium's confidential information only to the particular third parties concerned.■ Using the standard operating procedure policy stipulating how to handle confidential information (belonging either to Avantium or to a third party).
<p>Compliance with market abuse regulation</p> <ul style="list-style-type: none">■ Avantium, or a (former) employee of Avantium, may fail to comply with market abuse regulations, and may misuse and/or disclose Avantium's inside information (intentionally or unintentionally).	<ul style="list-style-type: none">■ Creating employee awareness around adherence to Avantium's insider trading policy and legislation through training programmes and communication.■ Establishing timely log files on classified information that will likely develop to become inside information.■ Establishing and maintaining insider lists of Avantium employees who have access to and knowledge of insider information.■ Having an appropriate meeting schedule (in terms of frequency) for the Disclosure Committee, which reports to the Management Board and Supervisory Board.■ If applicable, notifying insiders, in a timely manner, about their obligations, creating explicit status acceptance.■ Disclosing inside information to the market when appropriate.



In-Control Statement

Avantium's assessment is that there are no major failings in its internal risk management and control systems in the reporting year.

It should be noted that the above does not imply that our systems and procedures provide certainty as to the realisation of strategic, operational, compliance and reporting objectives, nor that they can prevent all misstatements, inaccuracies, errors, fraud and non-compliance with laws and regulations.

On this basis, Avantium's Management Board states that to the best of its knowledge:

- the Annual Report provides sufficient insight into the effectiveness of Avantium's internal risk management and control systems;
- the aforementioned risk management and control systems provide reasonable assurance that the financial reporting does not contain any material inaccuracies; and
- based on the current state of affairs, financial reporting on a going concern basis is justified (refer to going concern note on page 118).

In accordance with provision 1.4.3. of the Dutch Corporate Governance Code and Article 5:25c of the Financial Supervision Act, the Management Board declares that, to the best of its knowledge:

- the sections in the Report of the Management Board as included in this report provide sufficient insights into any deficiencies in the effectiveness of Avantium's internal risk management and control systems;
- the financial reporting systems provide reasonable assurance that Avantium's financial reporting does not contain any material errors;
- based on Avantium's current state of affairs, it is justified that the financial reporting is prepared on a going concern basis (refer to going concern note on page 118);
- the sections in the Report of the Management Board list those material risks and uncertainties relevant to expectations regarding Avantium's continuity for the period of 12 months after the preparation of the Report of the Management Board;
- the financial statements as included in this report provide a true and fair view of the assets, liabilities, financial position and results for the financial year of both Avantium and the group companies included in the consolidation; and
- the sections in the Report of the Management Board provide a true and fair view of the situation on the balance sheet date and the business development during the financial year of Avantium and of our affiliated group companies included in the financial statements.

Amsterdam, 21 March 2023

Tom van Aken
Chief Executive Officer

Boudewijn van Schaik
Chief Financial Officer



Governance

Management Team	75
Supervisory Board	77
Report of the Supervisory Board	78
Remuneration Report 2022	84
Corporate Governance	106



Management Team



Tom van Aken
(1970, Dutch)

Chief Executive Officer (CEO) and member of the Management Board

- Joined Avantium in 2002
- Appointed CEO of Avantium in 2005
- Current term of appointment 2021–2025

Tom van Aken joined Avantium in 2002 as Vice President of Business Development. In 2004, he became Vice President of Global Marketing and Sales before being appointed Avantium's CEO in 2005. Prior to joining Avantium, Tom was Business Development Director at DSM Fine Chemicals. He earned a master's degree in Chemistry from the University of Utrecht (the Netherlands).

Ancillary positions

- Chair of the Supervisory Board for Plantics B.V.
- Member of Top Team Chemistry.NL (SME representative)
- Member of the Board of Directors TKI Green Chemistry & Circularity
- Chair of the Supervisory Board TKI BBE (Biobased Economy)



Bart Welten
(1960, Dutch)

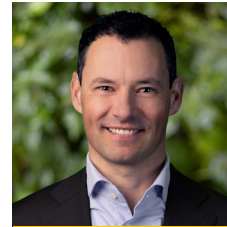
Chief Financial Officer (CFO) and member of the Management Board

- Joined Avantium in 2020
- Appointed CFO of Avantium in 2020
- Term of appointment 2020–2022

Bart Welten served as Avantium's CFO until 31 December 2022. Before joining Avantium, Bart was CFO of Centrient Pharmaceuticals (formerly a joint venture between DSM and Sinochem) in Singapore. Before leaving Centrient, he oversaw the sale of the company to Bain Capital. Prior to this, he was CFO of DSM Resins and DSM Anti-Infectives. Bart holds a Law degree from Leiden University (the Netherlands) and an MBA from Boston College (USA).

Ancillary positions

Member of the Supervisory Board for Sanquin



Boudewijn van Schaik (1979, Dutch)

Chief Financial Officer (CFO) and member of the Management Board

- Joined Avantium in 2023
- Appointed CFO of Avantium in 2023
- Current term of appointment 2023–2027

Boudewijn van Schaik joined Avantium as CFO on 1 January 2023. Prior to this, he served as Corporate Finance Director, and held other senior roles in Treasury, Strategy and M&A, at SBM Offshore (2013–2022). Other previous roles include various senior finance positions at NIBC Bank, ABN AMRO Bank, Main Corporate Finance and Alexander Forbes Financial Services. Boudewijn holds a Business Science degree (Accounting and Corporate Finance) from the University of Cape Town (South Africa).

Ancillary positions

None



Gert-Jan Gruter
(1963, Dutch)

Chief Technology Officer (CTO)

- Joined Avantium in 2000
- Appointed CTO of Avantium in 2004

Gert-Jan Gruter has been Avantium's CTO since 2004, before which he was responsible for setting up the Chemicals Service Business (2000–2004) and was a Group Leader in New Catalyst Research at DSM (1993–2000). Gert-Jan holds a master's degree in Organic Chemistry and a PhD in Organometallic Chemistry & Catalysis from the Vrije Universiteit in Amsterdam (both in the Netherlands). He is the inventor on more than 100 patents and was elected CTO of the Year Europe in 2014.

Ancillary positions

- Professor of Industrial Sustainable Chemistry at the University of Amsterdam
- Visiting Professor at Chulalongkorn University Bangkok, Thailand.



Carmen Portocarero
(1967, Dutch)

General Counsel

- Joined Avantium in 2012
- Appointed General Counsel in 2012

Carmen Portocarero joined Avantium in 2012. Prior to this, Carmen held various corporate legal positions, including during more than 17 years at US telecommunications company AT&T. She holds a master's degree in Law from the Catholic University of Nijmegen (the Netherlands) and completed various law programmes at Harvard University to obtain her US qualifications.

Ancillary positions

None



Steven Olivier
(1964, Dutch)

Managing Director Avantium R&D Solutions

- Joined Avantium in 2015
- Appointed Managing Director of Avantium R&D Solutions in 2015

Steven Olivier joined Avantium in 2015 as Managing Director of the Avantium R&D Solutions business unit, which was known as Avantium Catalysis until 2022. Prior to joining Avantium, Steven worked at Albemarle (2005–2014) and AkzoNobel (1994–2004) in a range of senior executive and commercial roles in the catalyst industry. From 2011 to 2013, he was a representative director of Nippon Ketjen (Japan). He holds a master's degree in Chemistry from Leiden University (the Netherlands).

Ancillary positions

None



Bas Blom
(1964, Dutch)

Managing Director Avantium Renewable Polymers

- Joined Avantium in 2021
- Appointed Managing Director of Avantium Renewable Polymers in 2021

Bas Blom has been Managing Director of the Avantium Renewable Polymers business unit since 2021. Prior to joining Avantium, Bas held various P&L and commercial leadership roles in global listed companies such as GE, SABIC and Renewi, where he focused on profitable growth in engineering plastics and sustainable products. Bas holds a master's degree in Aerospace Engineering from Delft University of Technology (the Netherlands) as well as an MBA in Information Management from Business School Netherlands and is a GE Certified SixSigma Master Black Belt.

Ancillary positions

External Advisor at Bain Advisor Network



Yap Chie Cheung
(1974, Dutch)

Managing Director Avantium Renewable Chemistries

- Joined Avantium in 2023
- Appointed Managing Director of Avantium Renewable Chemistries in 2023

Prior to joining Avantium, Yap Chie Cheung was Global Business Unit Director at the Nourish Division of International Flavors & Fragrances (IFF) (2020–2023) and Director Bioindustrial and Proteins Europe at Cargill (2015–2020). Between 1998 and 2015, she also held several marketing and business positions at DSM, including in its Bio-based Products & Services division. Yap Chie holds a master's degree in Business Economics from the Vrije Universiteit in Amsterdam (the Netherlands).

Ancillary positions

None

Supervisory Board



Edwin Moses
(1954, British)
Chair of the
Supervisory Board

- Member of the Supervisory Board since 2019
- Chair of the Nomination Committee, Chair of the Remuneration Committee, Member of the Audit Committee
- Current term of appointment 2019–2023

Background

Edwin Moses is a serial entrepreneur and value creator in European life science companies. He has expertise in high-value service provision to the pharmaceutical industry and in drug discovery and development. His primary focus is on high-growth businesses and change management, with 25 years of board-level experience in more than 15 companies, mostly as Chair.

Ancillary positions

- Chair of the Supervisory Board Achilles Therapeutic plc
- Chair of the Supervisory Board LabGenius Ltd
- Member of the Advisory Board GIMV Life Sciences



Michelle Jou
(1969, Taiwanese)

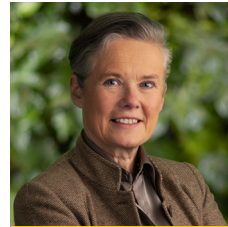
- Member of the Supervisory Board since 2020
- Member of the Nomination Committee, the Remuneration Committee and the Industrialisation Committee
- Current term of appointment 2020–2024

Background

Michelle Jou serves as Chief Executive Officer at Castrol (part of the BP group). Prior to this, she worked for around 19 years at Covestro (formerly Bayer Material Science) in various senior management positions in Asia and Europe. In her last role at Covestro, she was President of Covestro's global Polycarbonates Segment (Shanghai). She holds a BA in French from Fu-Jen University (Taiwan) and an MBA from the EMLYON Business School (France).

Ancillary positions

CEO, Castrol (part of the BP group)



Margret Kleinsman (1963, Dutch)

- Member of the Supervisory Board since 2017
- Chair of the Audit Committee
- Current term of appointment 2021–2025

Background

Margret Kleinsman, CFO of Agrifirm, graduated from the University of Twente and completed her post-doctoral research at the Vrije Universiteit in Amsterdam (both in the Netherlands). She was CFO of Holland Colours N.V. from 2014 until 2020. Before this, she worked for AkzoNobel, with particular responsibilities in the areas of chemicals, fibres and coatings, and including two longer-term assignments in the USA.

Ancillary positions

CFO of Agrifirm



Nils Björkman
(1954, Swedish)

- Member of the Supervisory Board since 2022
- Chair of the Industrialisation Committee, Member of the Nomination Committee, the Remuneration Committee
- Current term of appointment 2022–2026

Background

Nils Björkman worked for 33 years at food processing and packaging solutions company Tetra Pak Group in a variety of senior positions around the world, including Sweden, Canada, the USA, the UK and Switzerland. His last position was Executive Vice President of all commercial operations of the Tetra Pak Group, which he held until his retirement in March 2015. He has worked as a non-executive board member for several companies and holds an MBA from the Stockholm School of Economics (Sweden).

Ancillary positions

None

Report of the Supervisory Board

Introduction

This report explains how Avantium's Supervisory Board fulfilled its responsibilities in 2022. The Report of the Supervisory Board should be read in conjunction with the Corporate Governance section, which provides information on the company's corporate governance structure.

Composition, Diversity and Independence

The Supervisory Board currently consists of four members: Edwin Moses (Chair), Michelle Jou, Margret Kleinsman and Nils Björkman. The biographies of the Supervisory Board members are available on the preceding pages of this report and on the Avantium website.

In August 2021, the Supervisory Board proposed the appointment of Mr Nils Björkman as a member of the Supervisory Board. At the Extraordinary General Meeting (EGM) held on 25 January 2022, Nils Björkman was appointed as Supervisory Board member for a term of four years.

Two members of our Supervisory Board stepped down in 2022, with Cynthia Arnold and Trudy Schoolenberg resigning for personal reasons in March 2022 and September 2022, respectively. In early 2023, Avantium nominated Dirk Van Meirvenne and Peter Williams to replace them. The Supervisory Board will propose their appointments to the Annual General Meeting on 10 May 2023.

As described under Diversity & Inclusion in the Our People section, Avantium aspires to be an inclusive and diverse company with an open and inspiring culture. This also applies to the composition of the Supervisory Board. The Supervisory Board seeks to promote diversity among its members in terms of age, gender, nationality, experience within the industry, background, skills, knowledge and insights. As far as possible, we aim to create a balance among the Supervisory Board's members where this diversity is represented. The objective is to comply with the Supervisory Board Profile that can be found on Avantium's website. In 2022, the percentage of women on the Supervisory Board was 50%, complying with our own Diversity, Equality and Inclusion target as described on page 45 as well as with the target of at least 33% male or female Supervisory Board members prescribed by Dutch legislation on gender balance.

Diversity Profile

Name	Year of birth	Nationality	Expertise and experience	Gender
E. Moses	1954	British and Belgian	<ul style="list-style-type: none"> Scaling up innovative companies Executive and non-executive experience International experience 	Male
M.B.B. Jou	1969	Taiwanese	<ul style="list-style-type: none"> International executive experience, especially Asian region Commercial experience from chemicals and plastics industries 	Female
M.G. Kleinsman	1963	Dutch	<ul style="list-style-type: none"> Financial expertise in chemicals and plastics industries International experience 	Female
N. Björkman	1954	Swedish	<ul style="list-style-type: none"> International expertise in the packaging innovations business International industry experience 	Male

Retirement and Re-Election Schedule

Name	(Re-)appointment date	Year of possible re-election	End of final term
E. Moses	20 December 2019	2023	2031
M.B.B. Jou	14 May 2020	2024	2032
M.G. Kleinsman	19 May 2021	2025	2029
N. Björkman	25 January 2022	2026	2034

All members of the Supervisory Board are deemed independent. In the Supervisory Board's opinion, the composition of the Supervisory Board is such that the members can act critically and independently from one another and from the Management Board, as stipulated in the Dutch Corporate Governance Code (principles 2.1.7 to 2.1.9). This means that the tasks of the Supervisory Board as laid down in Avantium's Articles of Association can be fulfilled, including providing the Management Board with solicited and unsolicited advice and support.

In 2022, there was no actual or potential conflict of interest between Avantium and any Supervisory Board member. In line with legislation and as part of the key control framework of the company, members of the Supervisory Board (as well as the Management Board) are required to annually state their related parties and transactions, if any, between these related parties and the company. It was confirmed that no related-party transactions occurred in 2022, except for those cases in which members of the Supervisory Board use a management company to invoice their related directors' fees to Avantium.

Education and Self-Evaluation

Ongoing education is an important part of good governance. Members of the Supervisory Board regularly visit Avantium's offices to meet with senior management and to develop deeper knowledge of operations, opportunities and challenges. Direct, one-on-one contact between Supervisory Board members and Management Team members generally follows naturally from discussions in the meetings of the Supervisory Board. These discussions draw on the expertise of individual Supervisory Board members, whose advice is sought on a wide range of specialist topics as required.

Each year, based upon the Dutch Corporate Governance Code and Section 2.2 of the Supervisory Board Regulations of Avantium N.V., the Supervisory Board evaluates the composition, competence and functioning of the Supervisory Board and its committees, the relationship between the Supervisory Board and the Board of Management, its committees, its individual members, the chairs of both the Supervisory Board and the committees, as well as the composition and functioning of the Board of Management and its individual members. The 2022 evaluation was particularly centred around the composition of the Supervisory Board after two of the Supervisory Board members had stepped down in 2022. Another focus point was the composition of the Management Board, in response to the announced retirement of Chief

Financial Officer Bart Welten. The chairman of the Supervisory Board held one-on-one meetings with all individual Supervisory Board members. The overall conclusion of the self-assessment was that Avantium has a well-functioning Supervisory Board. The Supervisory Board has an open and constructive relationship with the Management Board. It was decided to recruit two new Supervisory Board members to replace Cynthia Arnold and Trudy Schoolenberg in order to bring additional expertise, in particular in the area of chemical manufacturing, large investment projects, technology and innovation management.

Supervisory Board Meetings in 2022

Meetings and Attendance

Supervisory Board meetings are held regularly to discuss the company's achievements and plans, the functioning and composition of the Supervisory Board and the performance of the Management Board. In its oversight capacity, Avantium's Supervisory Board has frequent communications with the Management Board, both in and between Supervisory Board meetings. The Supervisory Board met five times and had seven additional update calls in 2022. All meetings were also attended by the full Management Board, apart from the closed sessions of the Supervisory Board under the agenda item 'Supervisory Board only'. Additionally, the Supervisory Board had several informal dinners together with the Management Board in 2022, following or in advance of the regular Supervisory Board meetings.

The individual attendance per meeting can be found in the table below.

Name	Supervisory Board meeting	Audit Committee meeting	Industrialisation Committee meeting	Nomination Committee meeting	Remuneration Committee meeting
E. Moses	12/12	5/5	6/6	10/10	3/3
C.A. Arnold ¹¹	1/12	n.a.	n.a.	n.a.	n.a.
M.B.B. Jou	12/12	n.a.	6/6	10/10	3/3
M.G. Kleinsman	11/12	5/5	n.a.	3/10 ¹²	n.a.
G.E. Schoolenberg ¹³	4/12	2/5	n.a.	n.a.	n.a.
N. Björkman ¹⁴	10/12	n.a.	6/6	10/10	3/3

¹¹ Cynthia Arnold stepped down from the Supervisory Board in March 2022.

¹² Margret Kleinsman - in her role of chair of the Audit Committee - was extensively involved in the recruitment process of the new Chief Financial Officer and therefore attended the Nomination Committee meetings on several occasions.

¹³ Trudy Schoolenberg stepped down from the Supervisory Board in September 2022.

¹⁴ Nils Björkman was appointed as member of the Supervisory Board as per 25 January 2022; meetings that he attended as an observer in 2021 are taken into account.



Topics Discussed in 2022

The Supervisory Board meets at least five times a year and always prior to the publication of Avantium's annual and half-year results, which are discussed with the Management Board along with related documents, such as the draft press release and the independent auditor's report on procedures performed. These results and related documents are discussed by the Audit Committee prior to the Supervisory Board meeting. The external independent auditor was present for the discussion of the 2022 Annual Report and accounts.

In addition to the standard agenda items for meetings, such as the development of financials and the business performance throughout the year, the Supervisory Board discussed (with the Management Board) the following topics in 2022:

- topics related to safety and the aftermath of the accident at the Ray demonstration plant in Delfzijl in 2021;
- detailed progress reports on individual business units' results and progress on strategic milestones;
- the equity financing that took place in April 2022
- financial planning, equity and debt financing;
- new technology developments;
- the assessment of strategic and technological, operational, financial and legal risks and control and compliance issues;
- Avantium's sustainable value creation and capital allocation strategy;
- the preparation, evaluation and follow-up of the General Meetings;
- topics related to sustainability;
- the views of analysts and investors, as well as changes in the shareholder structure and base;
- initiatives related to public relations and thought leadership;
- senior leadership performance, organisational changes and senior management appointments;
- the budget for the second half of 2022 and the budget for 2023.

The following topics in particular were discussed extensively by the Supervisory Board.

Progress on the Construction of the FDCA Flagship Plant

The construction of the FDCA Flagship Plant and the related capital expenditures, staffing, governance and timing was discussed at length in the Supervisory Board meetings in 2022. The discussion in the Supervisory Board meetings on this topic was often prepared by one of the committees, in particular the Industrialisation Committee. High inflation and supply chain disruptions as a result of the war in Ukraine formed a difficult backdrop to the start of the FDCA Flagship Plant construction in April 2022. The Supervisory Board gave careful consideration to the impact thereof on the schedule and costs. The Supervisory Board of Avantium N.V. also supervises, in its capacity as Supervisory Board to

Avantium Renewable Polymers' major shareholder, the business of Avantium Renewable Polymers B.V. and in particular the engineering, construction and commissioning of the FDCA Flagship Plant. It therefore received reports on the findings of the meetings of the Project Oversight Board and the Shareholders' Committee of Avantium Renewable Polymers (details on the governance of Avantium Renewable Polymers B.V. can be found in Corporate Governance on page 109). The Supervisory Board also discussed the risk assessment, performed by an external consultant, to review and evaluate the Internal Control Framework of the engineering, procurement and construction of the FDCA Flagship Plant. Avantium is conducting periodic internal audits on the construction project of the FDCA Flagship Plant, the outcomes of which are also shared with Supervisory Board.

Equity Capital Raise

The Supervisory Board and management also spent significant time on funding options and funding scenarios based on short- and medium-term operational cashflow forecasts and required minimum cash balances. In April 2022, Avantium raised €45 million through a public offering of new Avantium shares - a great accomplishment given the situation of the financial markets in the first half of 2022. In several meetings, the Supervisory Board extensively discussed and endorsed the proposed process, structure and timelines of this capital raise. It approved the process of wall-crossing Avantium's existing major shareholders on the back of other preparatory meetings held by Avantium and its advisors after the full-year 2021 results publication in March 2022. It also discussed at length with the Management Board the number of Offer Shares to be issued and the minimum issue price per Offer Share.

Strategic Partnerships

In 2022, the Supervisory Board paid close attention to the negotiations with various strategic partners. It monitored the progress on the commercial offtake agreements on FDCA and PEF and discussed and mandated the key terms of those agreements. The Board also spent significant time monitoring and discussing the negotiations with the US-based company Origin Materials in the second half of 2022 and the start of 2023. It mandated the key terms of the industrial technology license agreement, the offtake agreement and ancillary arrangements with Origin Materials.

Avantium Renewable Chemistries Technologies

The Supervisory Board also engaged in important discussions with the Management Board about the overall technology portfolio within Avantium Renewable Chemistries and the strategic choices for each technology. The Supervisory Board closely monitored and approved developments regarding Ray Technology™, Volta Technology, Dawn Technology™ and the developments within the Corporate Technology team led by Gert-Jan Gruter.



Avantium R&D Solutions

In 2022, the Supervisory Board also discussed the strategic shift of Avantium Catalysis - now named Avantium R&D Solutions - towards R&D in sustainable chemistry, in addition to providing advanced catalysis R&D systems and services to customers worldwide. The Board weighted the risks and opportunities of this strategic shift and endorsed the extended offering of Avantium R&D Solutions to target emerging markets for sustainable chemistry.

Safety

The Supervisory Board spent significant time discussing safety at Avantium, including the implementation of various ISO (International Organization for Standardization) and NTA (Nederlandse Technische Afspraak – Dutch Technical Agreement) standards at Avantium and the safety culture at Avantium. In addition, the Supervisory Board discussed the aftermath of the accident that took place at Avantium's demonstration plant in Delfzijl in 2021, to ensure that appropriate actions were undertaken to avoid such an accident from happening again.

Stakeholder Management

The Supervisory Board takes an active interest in understanding Avantium's stakeholders, their perceptions and their positions on various topics related to the company's areas of business. The Supervisory Board was informed of stakeholders' positions by the Management Board, and also collected such information through its own network.

Supervisory Board Committee Activities in 2022

The Supervisory Board divides its tasks among four committees: the Audit Committee, the Industrialisation Committee, the Remuneration Committee and the Nomination Committee. These Committees are responsible for preparing specific topics on which the respective committee makes recommendations for decisions to be made in the plenary meetings of the Supervisory Board.

At the end of 2022, the composition of the Supervisory Board committees was as follows:

Audit Committee	Industrialisation Committee	Remuneration Committee	Nomination Committee
Margret Kleinsman (Chair)	Nils Björkman (Chair)	Edwin Moses (Chair)	Edwin Moses (Chair)
Edwin Moses	Michelle Jou	Michelle Jou	Michelle Jou
		Nils Björkman	Nils Björkman

Report of the Audit Committee

The Audit Committee supports the Supervisory Board in its responsibility to oversee Avantium's financing, financial reporting process and financial statements, and its internal control, risk management and audit systems. In 2022, the Audit Committee met five times (2021: four) and held two calls to approve the annual and half-year results. The meetings were also attended by the CEO, the CFO, the Compliance Officer, the Head of Accounting and Reporting and the external independent auditor. Minutes of all meetings were submitted to the Supervisory Board. At each meeting, the Audit Committee discussed relevant financial reporting and accounting topics, including the impact of the high inflation and supply chain disruptions as a result of the war in Ukraine on the 2022 financials and operations of Avantium. Extensive time was spent on discussing the rapid changes in the requirements with regard to reporting on ESG topics and the new Sustainability Reporting Directive.

The Audit Committee also discussed Risk Management targets and the findings of internal and external risk assessments. This included an internal risk assessment on Avantium's Intellectual Property (IP), as well as a risk assessment performed by an external consultancy, to review and evaluate the Internal Control Framework of the engineering, procurement and construction of the FDCA Flagship Plant. There were findings identified but none were deemed critical.

Moreover, the Audit Committee monitored the company's progress on risk identification and implementation of risk mitigation actions and approved the 2023 Risk Planning. The Audit Committee spent significant time on business ethics, such as bribery, fraud and anti-corruption. At every meeting of the Audit Committee, Avantium's Compliance Officer gave an update on fraud and irregularities, including whistleblowing cases. In 2022, there were no confirmed incidents of corruption, no legal actions taken against anti-competitive behaviour or anti-trust and no incidents of discrimination reported. IT Security and Cybercrime also remained an important topic in 2022.

Report of the Industrialisation Committee

The Industrialisation Committee serves as the Supervisory Board's advisory and risk review forum in providing oversight of (i) the company's technology strategy; (ii) industrialisation roadmaps; and (iii) technology portfolio, all as determined, formulated, and executed by the company's Management Board and senior management. The Industrialisation Committee met

six times in 2022 (2021: eight) and discussed in detail the commercialisation strategy for YXY® Technology and the progress on the construction of the FDCA Flagship Plant. The Industrialisation Committee primarily focussed in 2022 on the review of the development and execution of Avantium's technology portfolio and roadmap. For Avantium YXY® Technology and Ray Technology™, the Industrialisation Committee thoroughly reviewed the business case and financial model, application development, market outlook, competitive landscape, the IP position, the technology and the licensing technology roadmap. The Committee also prepared the discussion for the full Supervisory Board on the strategic shift for Avantium R&D Solutions towards R&D for sustainable chemistry, in addition to its existing offering of advanced catalysis R&D systems and services. Time was also spent on the business case, the IP position and competitive landscape, the technological roadmap and business development of Volta Technology. The Supervisory Board is grateful for the services of Cynthia Arnold, who continued to help the Industrialisation Committee after stepping down from Avantium's Supervisory Board - her involvement was governed by a consultancy agreement that expired at the end of 2022.

Report of the Remuneration Committee

The Remuneration Committee is responsible for advising the Supervisory Board on remuneration. One of its standard duties is to assess whether the Management Board's performance targets have been achieved. The Remuneration Committee met three times in 2022 (2021: three) to discuss and formulate proposals for the remuneration of the individual members of the Management Board. The Remuneration Committee presented its findings and proposals to the Supervisory Board, which then finalised the performance appraisals and related remuneration of the individual Management Board members.

Bart Welten retired as Chief Financial Officer and member of the Management Board on 31 December 2022. He did not receive a severance payment in connection with his retirement. The Remuneration Committee discussed the compensation and benefits package for the new CFO Boudewijn van Schaïk. Avantium and Boudewijn van Schaïk have entered into a management services agreement (overeenkomst van opdracht) within the meaning of Article 7:400 of the Dutch Civil Code. The contents of the Agreement are in line with the provisions of the prevailing Dutch Corporate Governance Code and in line with Avantium's remuneration policy. More information on the remuneration package of Boudewijn van Schaïk can be found in the Remuneration Report on page 84.

Report of the Nomination Committee

The Nomination Committee's standard duties include assessing the composition of the Supervisory Board and the Management Board, evaluating the functioning of individual members, succession planning and monitoring corporate governance. The meetings of the Nomination Committee are attended by the CEO, except when issues relating to his performance and remuneration are discussed. The Nomination Committee met ten times in 2022 (2021:three). This relatively high number was necessary to extensively discuss and prepare for the succession

of Chief Financial Officer Bart Welten, who had notified Avantium of his intention to retire as CFO for personal reasons by the end of 2022. The Nomination Committee developed a detailed profile for this position and subsequently interviewed multiple potential candidates in the course of 2022. The Committee worked closely with the full Supervisory Board and in particular with the chair of the Audit Committee, the CEO and the General Counsel on this appointment and consulted the Works Council as appropriate. The search was supported by a well-respected executive search agency. In an Extraordinary General Meeting on 30 November 2022, the Supervisory Board was pleased to propose the appointment of Boudewijn van Schaïk as CFO and member of the Management Board effective as of 1 January 2023.

The Nomination Committee was also involved in the recruitment process of the new Managing Director for Avantium Renewable Chemistries. This process was facilitated by an external recruitment agency. In November 2022, Avantium announced the appointment of Yap Chie Cheung as Managing Director for the Renewable Chemistries business unit. Yap Chie joined Avantium on 1 February 2023.

Another key activity for the Nomination Committee in 2022 was selecting two new members for the Supervisory Board, after Cynthia Arnold and Trudy Schoolenberg stepped down in March 2022 and September 2022, respectively. Also in this search process, the Committee developed detailed profiles for each of the positions and assessed all the candidates, working closely with the full Supervisory Board and consulting with the Works Council as appropriate. In early 2023, Avantium nominated Dirk Van Meirvenne and Peter Williams for appointment to the Supervisory Board. The Supervisory Board will propose the appointments to the Annual General Meeting on 10 May 2023.

Report of the General Meetings of Shareholders 2022

At the Extraordinary General Meeting of Shareholders held on 25 January 2022, Avantium requested approval from its shareholders to authorise the Management Board to issue 2.84 million warrants to a consortium of banks as part of a €90 million debt financing package related to the construction of the FDCA Flagship Plant. Avantium also requested approval to authorise the Management Board to issue €45 million in ordinary shares. It was furthermore proposed to amend Avantium's Articles of Association to increase the authorised share capital of Avantium to allow for the issuances of ordinary shares. The General Meeting granted the requested approvals for all items, allowing Avantium to execute all relevant documentation to complete the transaction ("Financial Close") for the FDCA Flagship Plant) and to start the construction. In this same General Meeting, Nils Björkman was appointed to the Supervisory Board for a term of four years, ending at the close of the Annual General Meeting to be held in 2026.



Following the Dutch government's Temporary COVID-19 Justice and Safety Act (the 'Emergency Act'), Avantium decided to make the Extraordinary General Meeting on 25 January 2022 accessible to shareholders only via electronic means, namely a live webcast hosted on Avantium's website. Shareholders could therefore attend the Extraordinary General Meeting online but were not granted physical access; however, Avantium provided shareholders with the opportunity to participate interactively and to exercise their shareholders' rights in line with the Emergency Act.

As the COVID-19 measures were lifted in the spring of 2022, Avantium was able to organise the Annual General Meeting on 18 May 2022 in person again, at Avantium's headquarters in Amsterdam. At this General Meeting, the CEO and CFO reported on key business matters relating to Avantium in 2021. The General Meeting adopted the 2021 financial statements and gave positive advice on the Remuneration Report 2021. The members of the Management Board were granted discharge of liability for their management in 2021, and the members of the Supervisory Board for their supervision thereof. The General Meeting also approved the proposal to authorise the Management Board to issue up to 4% ordinary shares in connection with the company's long-term incentive and share-based compensation plans. PricewaterhouseCoopers Accountants N.V. (PwC) in the Netherlands was appointed external independent auditor for the financial year 2022. As in previous years, the Chair of the Audit Committee elaborated on the work of the Audit Committee in 2021, on the company's collaboration with PwC and on other items relevant in the past year. The lead partner of PwC was given the floor to elaborate on the audit procedure and the independent auditor's report for 2021.

In the Extraordinary General Meeting on 30 November 2022, also held in person at Avantium's headquarters, Avantium's shareholders confirmed the appointment of Boudewijn van Schaik for the position of Chief Financial Officer and member of the Management Board, effective 1 January 2023 and until the end of the Annual General Meeting in 2027.

Financial Statements 2022 and Profit Appropriation

The financial statements for the financial year 2022 were prepared by the Management Board in compliance with Articles 20 and 21 of the Articles of Association. Attached to these statements was the unqualified report from the independent auditor PwC. The financial statements and the outcome of the external audit were discussed by the Audit Committee with the Management Board in the presence of the external independent auditor.

The 2022 financial statements were endorsed by all Management Board and Supervisory Board members and are, together with PwC's independent auditor's report, included in this Annual Report. The Management Board will present the 2022 financial statements at the Annual General Meeting on 10 May 2023.

The Supervisory Board requests that the Annual General Meeting grants discharge to the members of the Management Board and to the members of the Supervisory Board for their respective duties in 2022.

Gratitude

The Supervisory Board wishes to thank all Avantium employees for their outstanding contributions and continuing dedication, enabling Avantium to accelerate the commercialisation of the plants-to-plastics YXY® Technology as well as demonstrating the commercial potential of Avantium's other proprietary technologies. The Supervisory Board is very grateful to the Management Board and senior management of Avantium for their strong leadership and for their constructive dialogues with the Supervisory Board.

Amsterdam, 21 March 2023

On behalf of the Supervisory Board,

Edwin Moses, Chair
Michelle Jou
Margret Kleinsman
Nils Björkman



Remuneration Report 2022

Letter from the Chair of the Remuneration Committee

On behalf of the Remuneration Committee, I am pleased to present the 2022 Remuneration Report, which provides a summary of the remuneration policies for the Board of Management and the Supervisory Board. The following pages explain how these policies were applied in 2022.

In the sections below, I will reflect on the company performance in 2022 and the resulting pay outcomes, as well as the Remuneration Committee's key activities in 2022 and the outlook for 2023.

2022 company performance and remuneration outcomes

Looking back, 2022 was a transformative year for Avantium in its journey from being solely an R&D company to one that will have large-scale commercial operations:

Strategic progress

- Having received the support of Avantium's shareholders at an Extraordinary General Meeting in January 2022, Avantium reached Financial Close on 31 March 2022, paving the way for construction of the FDCA Flagship Plant. On Financial Close, Avantium entered into a €90 million Debt Facilities Agreement with a consortium of Dutch banks, comprising ABN AMRO Bank, ASN Bank, ING Bank and Rabobank, as well as with the Dutch government-backed impact investment fund Invest-NL. Each bank has committed €15 million, and Invest-NL has committed €30 million under the Debt Facilities Agreement. In November 2022, the first drawdown of €15 million from the Debt Facilities Agreement took place, and a further €15 million drawdown occurred in January 2023.
- In February 2023, Avantium entered into a partnership with Origin Materials to accelerate the mass production of FDCA and PEF. The partnership includes a non-exclusive industrial technology license agreement, providing Origin Materials access to relevant parts of Avantium's YXY® Technology to enable the conversion of Origin-produced CMF (chloromethylfurfural) derivatives into FDCA at a 100 kilotonnes per annum scale facility. This will accelerate the mass production of FDCA and PEF and enable the use of second generation, renewable feedstocks for the production of FDCA and PEF. In support of the industrial technology license agreement, Origin Materials and Avantium have also entered into a conditional offtake agreement for FDCA and PEF. Under the terms of this overall transaction, Avantium received an upfront payment of €5 million in 2022.

- In the second quarter of 2022, Avantium restarted the Ray demonstration plant. With the plant running successfully throughout the rest of the year, key data were gathered which help inform engineering plans for the design of a Ray Technology™ Flagship Plant. This commercial plant is envisaged to be constructed as part of a joint venture with sugar beet processor (and Ray Technology™ feedstock supplier) Cosun Beet Company. The spike in prices of sugar, energy and hydrogen in 2022 caused Avantium and Cosun Beet Company to closely re-examine the long-term Ray business case, and the outcome is that both parties remain fully committed to moving forward.
- For the Volta Technology, Avantium successfully operated two demonstration units in real-world conditions and used a third to explore opportunities for producing carbon-negative plastic from CO₂.
- Avantium successfully raised €45 million from equity in April – an exceptional achievement given the state of the financial markets.

Commercial progress

- In 2022 and early 2023, Avantium Renewable Polymers signed eight new FDCA and PEF offtake agreements with major brand owners for a range of applications.
- Avantium Catalysis not only saw its revenues return to growth, but also underwent a transformation of its own: now called Avantium R&D Solutions, this business unit adopted a new growth strategy in 2022, focusing on sustainable chemistry solutions for customers.

Operational progress

- For Avantium Renewable Polymers, the start of the construction of the FDCA Flagship Plant has been a significant milestone, providing the platform for the commercial launch of the plant-based, recyclable and high-performance polymer PEF to customers worldwide and for the sale of technology licenses for global deployment and monetisation. Despite the challenges posed by global supply chain disruption and inflation during the year, the construction of the FDCA Flagship Plant is progressing well. By the end of 2022, more than 700 piles had been driven into the ground, and Avantium had completed civil works by installing the foundations, floors, piping, roads and walls. In addition, a significant portion of the steel construction and storage tanks have already been erected. After a thorough review of the project execution plans and the expected delivery and installation of equipment, mechanical completion of the FDCA Flagship Plant is now expected in the first quarter of 2024.



ESG

- Avantium received the results of life-cycle assessments (LCAs) on Avantium's plant-based mono-ethylene glycol (plantMEG™) and plant-based mono-propylene glycol (plantMPG™), demonstrating their significant sustainability benefits versus incumbents. Already in 2021, a LCA for single-layer PEF and multilayer PET/PEF bottles showed a significant reduction in greenhouse gas (GHG) emissions over the life cycle of the bottles compared to bottles made just from PET.
- Avantium started to report on Scope 1 (direct emissions from owned or controlled sources) and Scope 2 emissions (indirect emissions from the generation of purchased electricity, steam, heating and cooling). Avantium has established systems to track and report on Scope 3 emissions (indirect emissions, occurring in the company's value chain) in the future.
- Avantium has set diversity, equality and inclusion targets for the next two years, against the 2021 baseline.
- In 2022, a product stewardship strategy was developed and launched, which sets out Avantium's responsibility for minimising its products' environmental impact throughout their entire life cycle, including end-of-life management. In 2022, Avantium also developed and launched a new Sustainable Supplier Code.
- In 2022, Avantium began implementing various ISO (International Organization for Standardization) and NTA (Nederlandse Technische Afspraak – Dutch Technical Agreement) standards to align the occupational health & safety (OHS) policies and processes for our laboratories and plants and thus create a single, company-wide OHS system. No work-related fatalities or serious injuries were recorded in 2022.

The Remuneration Committee has carefully weighed all aspects of events in 2022, and has taken care to ensure that their impact was reflected in a fair application of the remuneration policy and the assessment of this year's achievement of targets. The fact that Avantium made significant strategic, commercial and operational progress in the delivery of its business plan, and was able to meet important ESG targets, is reflected in the remuneration to be paid to the Management Board.

After careful consideration and following the assessment made by the Remuneration Committee on the level of achievement for each of the goals for 2022, the Supervisory Board made the following decisions:

- There was an average total company achievement of 83% of the 2022 targets.
- The 83% achievement assessment of the company's 2022 targets will form the basis for the cash incentive bonus payment to all staff, and will be used to determine the Management Board and senior management's annual performance related cash bonus component (Short-Term Incentive) and the non-cash long term annual variable incentive component (Long-Term Incentive).
- The timing of the (cash) pay-out of the Bonus will be Q2 2023.

2022 Remuneration Committee focus areas

In 2022, the Remuneration Committee met three times. In addition to detailed discussions on the corporate targets, and then assessment of their level of subsequent achievement, special attention was paid to:

- Further refining the target-setting for non-financial key performance indicators (KPIs)
As per the remuneration policy, the performance measures represent a balanced mix of strategic, commercial and operational performance targets, which together ensure a focus on both the performance of the company in the short-term and on the attainment of its long-term strategic objectives. For 2022, the Remuneration Committee added environmental, social and governance (ESG) targets to the mix of performance measures.
- The Remuneration Committee has selected and determined the 2023 targets based on financial performance (55%) and non-financial performance (45%). These targets are set taking into account Avantium's strategy and five-year business plan. As an important element thereof, these goals aim to drive the company's performance on ESG criteria. As a technology leader in sustainable and circular chemicals and plastics, Avantium aims to meet ESG standards and report in a transparent way on its progress in implementing its sustainability plan [Chain Reaction 2030](#).
- Increasing level of disclosure
The Remuneration Committee also considered the extent to which the targets could be more transparently communicated externally, without releasing commercially sensitive information.
- Dialogue with shareholders
In 2022, the company and the Remuneration Committee had an extensive dialogue with its major shareholders and shareholder representative bodies to discuss Avantium's remuneration policy and Remuneration Report. We have carefully considered this feedback, as reflected in this 2022 Remuneration Report.

Looking forward

The Remuneration Committee had previously intended to propose a revision of Avantium's remuneration policy in 2023. After careful consideration, the Remuneration Committee concluded not to endorse any revisions this year but take more time to complete a more thorough review during 2023. This will include any updates to address further developments in remuneration practices, and take into consideration any adjustments resulting from remuneration benchmark assessments and feedback received from shareholders. A revised remuneration policy will be submitted for approval at the 2024 Annual General Meeting of Shareholders. We remain committed to remuneration practices and policies that allow us to attract, retain and motivate high-performing employees while paying close attention to appropriate alignment with all stakeholders.



I look forward to discussing the policy and actual remuneration practices in the 2023 Annual General Meeting of Shareholders, and will be happy to answer any questions you may have.

Edwin Moses
Chair of the Remuneration Committee



Introduction

This Remuneration Report provides a summary of the remuneration policies of Avantium's Management Board and Supervisory Board, as well as an overview of the remuneration of the members of the Management Board and the Supervisory Board paid in the financial year 2022. This Remuneration Report is prepared in accordance with the relevant parts of Section 135, Book 2 of the Dutch Civil Code, in line with the EU guidelines based on the EU Shareholders' Rights Directive. The remuneration is furthermore determined in accordance with the remuneration policy adopted at the Annual General Meeting on 14 May 2020, with an effective date of 1 January 2020. After approval by the Supervisory Board, the Remuneration Report will be submitted to the General Meeting on 10 May 2023 for an advisory vote of our shareholders, in line with Section 135b subsection 2, Book 2 of the Dutch Civil Code.

The Remuneration Report for the financial year 2021 was submitted to the Annual General Meeting of 2022 for an advisory vote and received a positive advisory vote. As part of our efforts to further improve transparency, we have added the ex-post the ex-ante disclosure of the 2023 targets. We have also provided further disclosure on the actual achievement levels. An exception is made in the case of sensitive information where disclosure is not in the interests of the company or our shareholders.

Remuneration Policy

Introduction and Governance of the Remuneration Policy

The last update of the remuneration policy was adopted by the General Meeting on 14 May 2020 and became effective as per 1 January 2020.

The remuneration policy supports the purpose, long-term development and strategy of the company, while aiming to respect all stakeholders' requirements and maintaining an acceptable risk profile. The Supervisory Board ensures that the policy and its implementation are linked to Avantium's strategic goals and objectives. The remuneration structure is aimed at achieving a balance between short-term and long-term results and objectives, and is designed to encourage behaviour that is focused on long-term value creation for all stakeholders, while ensuring that the highest standards of integrity and good corporate governance are maintained. It is aimed at motivating the accomplishment of outstanding achievements, using a combination of financial and non-financial performance measures. At Avantium, sustainability is at the heart of the company's strategy. Avantium's vision of a fossil-free world sits at the heart of all Avantium does, and Avantium's technologies and products are designed to revolutionise the chemical

industry and reshape a broad range of high-value markets. Avantium's long-term and short-term sustainability objectives are increasingly linked to the company's remuneration structure.

The Remuneration Committee previously intended to propose a revision of Avantium's remuneration policy in 2023. After careful consideration, the Remuneration Committee concluded not to endorse any revisions this year but take more time to complete a thorough review during 2023 and submit a revised remuneration policy for approval at the 2024 Annual General Meeting of Shareholders. Revisions this year would have primarily comprised adjustments resulting from the Committee's due consideration of the feedback received from shareholders on the Remuneration Report 2021 and the remuneration policy for the members of the Management Board and the Supervisory Board. The Remuneration Committee concluded that the adjusted approach in reporting, including its level of reporting transparency on target setting and achievement, both retroactively for 2022 and in advance for 2023, would be addressed in the Remuneration Report 2022. It furthermore concluded that during 2023, the company would continue to work on linking variable remuneration more directly to its sustainability objectives. As a technology leader in sustainable and circular chemicals and plastics, Avantium has to meet environmental, social and governance (ESG) standards and report in a transparent way on its progress in implementing its sustainability plan Chain Reaction 2030.

The Remuneration Committee additionally concluded that given that the Management Board's and senior management's remuneration continues to fall within a competitive range of approximately 20% around the median market levels payable within the reference groups of industrial companies in our sector, it is also not necessary to propose any adjustments at this time.

Based on feedback from shareholders on the remuneration policy and the Remuneration Report 2021, as discussed during and after the 2022 Annual General Meeting, the Remuneration Committee continued to assess Avantium's need to be restrictive in the disclosure of the Management Board's exact actual targets, both in advance and retrospectively. The Committee maintains its view that these are strategically and commercially sensitive information. It however understands that more transparency towards its external stakeholders is strongly desired and continues to give this due consideration. This Remuneration Report includes the Remuneration Committee's assessment of the goal achievement level for 2022.

The 2023 targets represent a list of long- and short-term goals that are aligned with the company's business strategy. As an important element thereof, these goals should reflect the company's ESG criteria. In anticipation of a revised Remuneration Policy, the Remuneration Committee has selected and determined the 2023 targets based on financial performance (55%) and non-financial performance (45%). These targets are set taking into account Avantium's strategy and five-year business plan.



The Remuneration Committee maintains its view on the one-off fixed award of share options to members of the Supervisory Board upon their appointment. The remuneration package for its Supervisory Board members should enable Avantium to attract and retain diverse members with a broad international background and the right balance of personal skills, competences and experience required to oversee Avantium's (execution of its) long-term strategy and performance. The one-off fixed award of share options contributes to Avantium's long-term value creation and serves as a long-term investment in Avantium, aiming to align the members' respective interests with those of the other shareholders. In order to assess more explicitly the shareholders' perspective on this remuneration element for Supervisory Board members, any such one-off fixed awards of share options to new member of the Supervisory Board upon their appointment will be submitted for approval by the General Meeting as a separate remuneration element from the annual fee.

The Supervisory Board is responsible for the execution of the remuneration policy. The Remuneration Committee will continue to regularly assess the remuneration policy and advise the Supervisory Board on the need for any changes.

The Remuneration Committee intends to submit an updated version of Avantium's remuneration policy for the Management Board and the Supervisory Board for approval during the 2024 Annual General Meeting of Shareholders. This will include any updates to address further developments in remuneration practices and take into consideration any adjustments resulting from remuneration benchmark assessments and feedback received from shareholders during and prior to the General Meeting.

External Perspective: Reference Group and Market Positioning

As with the remuneration philosophy for all Avantium employees, the remuneration of the Management Board should be competitive compared with a relevant reference market. To define this market, a reference group has been approved by the Supervisory Board, consisting of companies that are selected on criteria such as geography, governance framework, scope and type of industry. In principle, a benchmark is conducted at least once every four years. In the years without a new benchmarking exercise, the Supervisory Board considers the appropriateness of any change of base salary based on the market environment, as is also the case concerning salary adjustments for other Avantium employees.

As a guiding principle, the total direct remuneration of the Management Board is set at or around the median of the reference market.

In 2021, in line with the remuneration policy, the Supervisory Board conducted a remuneration benchmark assessment of the market competitiveness of the current compensation package of the members of the Management Board. The Supervisory Board carefully reviewed the reference group for the benchmark assessment and amended it according to the above-mentioned criteria. Geographically, the amended reference group consists primarily of listed western European companies and, exceptionally, some non-European companies that are highly relevant from a talent market perspective or industry perspective. Furthermore, the weighting of UK, US and Swiss companies does not exceed 50% of the reference group. From a scope and type-of-industry point of view, the reference group includes companies of comparable size that are primarily active in the (specialty) chemicals and materials, and biotechnology industries.

The companies in the reference group for the Management Board remuneration benchmark assessment performed in 2021 were:

- Accsys Technologies PLC (UK)
- Amyris Inc (US)
- BRAIN Biotechnology Research and Information Network AG (DE)
- Carbios SA (FR)
- Evolva Holding SA (CH)
- Global Bioenergies SA (FR)
- Holland Colours NV (NL)
- IBU-tec advanced materials AG (DE)
- Iofina PLC (UK)
- Isagro SpA (IT)
- Metabolic Explorer SA (FR)
- Nabaltec AG (DE)
- SICIT Group SpA (IT)
- Treatt PLC (UK)
- Versarien PLC (UK)
- Zotefoams PLC (UK)

The remuneration benchmark assessment was performed on the following compensation elements:

- Base salary
- Target short-term incentive (STI)
- Total cash compensation (TCC) – base salary plus STI
- Annualised expected value of the long-term incentive (LTI)
- Total direct compensation (TDC) – TCC plus LTI



The outcome of the 2021 benchmark resulted in the conclusion that for all of the compensation elements, the Management Board remuneration for 2022 falls within a competitive range of +/-20% around the median market levels payable within the reference group, which is in line with our remuneration policy. During 2023, the Supervisory Board intends to conduct a remuneration benchmark assessment of the market competitiveness of the current compensation package of the members of the Management Board, in preparation for submitting the remuneration policy to the Annual General Meeting for approval in 2024. As part thereof, the Supervisory Board will also review the reference group for the benchmark assessment and will amend where necessary according to the previously mentioned criteria.

Management Board Remuneration 2022

The remuneration paid to the members of the Management Board in 2022 was based on Avantium's remuneration policy.

The remuneration of the members of the Management Board consists of the following components:

- i) fixed annual base salary;
- ii) short-term annual variable remuneration (in cash);
- iii) long-term annual variable remuneration in the form of shares (LTIP) and options (employee stock option plan, or ESOP); and
- iv) allowance for pension and fringe benefits.

Avantium does not grant any personal loans, guarantees or advance payments to members of the Management Board.

i) Fixed Annual Base Salary

The objective of the fixed annual base salary is to compensate for the performance of day-to-day activities. The fixed annual base salary of the members of the Management Board is based on the level of responsibility and performance and is set at or around the median of the remuneration levels payable within the reference group.

In line with the remuneration policy, in 2022 the full year base salary of the CEO, Tom van Aken, increased by 2.0% to an annual base salary of €273,179. The full year base salary for the CFO, Bart Welten, increased by 2.1% to an annual base salary of €239,969.

ii) Short-Term Annual Variable Remuneration

The objective of the short-term annual variable remuneration is to ensure that the members of the Management Board focus on realising their short-term operational objectives, leading to longer-term value creation.

The bonus refers to the annual performance-related cash and non-cash incentive that is applicable to the members of the Management Board and comprises (i) a cash component consisting of no more than 50% of the aggregate bonus, if any, and (ii) a non-cash component equivalent to the cash component which must be invested in Investment Shares (see under iii.a Long-Term Investment Plan in the Form of Matching Shares).

The Supervisory Board has the discretionary power to adjust the incentive pay-out up- or downwards if it feels that the outcome is unreasonable due to exceptional circumstances during the performance period, such as by taking into account the long-term interests and sustainability of the company as a whole. Scenario analyses of the possible outcomes of the variable remuneration components and their effect on the remuneration of the Management Board are conducted. This power was not used for adjustments of the incentive pay-out over 2022, nor was any remuneration recovered from present or former Management Board members.

Performance Measures

The performance measures form a balanced mix of ESG, strategic, commercial and operational performance targets, which together ensure a focus on both the performance of the company in the short-term and the company's long-term strategic objectives. For each of the performance measures, the Supervisory Board sets challenging, but realistic, targets and target levels.

The performance targets are specific and measurable and are formulated and communicated at the beginning of each financial year (except for circumstances where the Supervisory Board considers semi-annual target-setting more appropriate), although the Supervisory Board may adjust the targets and their relative weighting if required by significantly changed strategic priorities in any given year. Following a presentation by the Management Board, the Supervisory Board sets the targets, based on progress on sustainability targets, commercial performance and operational performance, in relation to Avantium's strategy and long-term objectives, as set out in the remuneration policy (www.avantium.com/corporate-governance/#remuneration). When the performance criteria are set, the interests of all stakeholders are considered.

In order to achieve alignment in the remuneration structure of the Management Board and other Avantium employees, a subset of the bonus performance measures, target-setting and pay-out schemes as set out in the remuneration policy is applicable to Avantium employees.



The strategic progress targets are based on value-creation for shareholders and realising strategic focus, including securing financing and strategic partnerships and achieving strategic milestones. The targets for commercial performance are based on securing strategic partnerships for the commercialisation of technology programmes and reaching the commercialisation phase of the different technology programmes (path from laboratory scale to demonstration scale and finally commercialisation scale). The operational performance targets are based on and reaching the operational milestones of the different technology programmes (path from laboratory scale to demonstration scale and finally commercialisation scale). The ESG targets are based on the company's roadmap for execution of its sustainability plan [Chain Reaction 2030](#).

Although Avantium maintains its view that detailed targets qualify as strategically and commercially sensitive information, it understands that more transparency towards its external stakeholders is strongly desired, both in advance of target setting and retrospectively, and will continue to give this matter careful consideration.

For the annual bonus 2022, the on-target bonus, i.e. the bonus in case of on-target performance, is equal to 100% of (i) 70% of base salary for the CEO and (ii) 50% of base salary for the CFO. The maximum bonus, i.e. the bonus in case of above-target performance, is equal to 150% of the on-target bonus. If performance is below a pre-defined threshold level, no bonus will be paid out. The members of the Management Board are, together with senior management, obligated to invest the total non-cash component of their (net) bonus in Investment Shares. The non-cash component percentage of the bonus is 50%. The cash component of the bonus may, at the discretion of the relevant member of the Management Board, also be invested in investment shares.

The bonus pay-out levels are prorated upon the level of achievement of the aforementioned performance targets.

For the annual bonus 2022, the performance targets and their relative weighting were set as follows:

Name	Weight factor	Target
T.B. van Aken	60%	Strategic
	15%	Commercial
	15%	Operational
	10%	ESG
B.J.J.V. Welten	40%	Strategic
	15%	Commercial
	35%	Operational
	10%	ESG

The Remuneration Committee has carefully weighed all aspects of this year's events to ensure a fair application of the remuneration policy and assessment of the 2022 goals. The fact that Avantium made significant strategic, commercial and operational progress on the delivery of its business plan, and was able to meet important ESG targets, is reflected in the remuneration to be paid to the Management Board.

After careful consideration and following the proposal made by the Remuneration Committee on the target achievements for each of the goals identified for 2022, the Supervisory Board made the following decisions:

- There was an average total company achievement of 83% of the 2022 targets.
- The 83% achievement assessment of the company's 2022 targets will form the basis for the cash incentive bonus payment to all staff, and will be used to determine the Management Board and senior management's annual performance related cash bonus component (Short-Term Incentive) and the non-cash long term annual variable incentive component (Long-Term Incentive).
- The timing of the (cash) pay-out of the Bonus will be Q2 2023.

In line with Avantium's performance in 2022, as set out in the section 'The Value We Created in 2022', it was concluded that Strategic Differentiator targets were partially achieved, Commercial targets were partially achieved and Operational Performance targets were partially achieved. This resulted in the conclusion of the Supervisory Board that the average total company performance was 83%. The total company performance represents an average achievement score, as members of Avantium's employees are paid 50% on basis of company achievements and 50% on the achievements of their respective business unit, being more granular financial, commercial, operational and organisational targets relevant for the specific business unit.



For 2022, the scores of certain business units were lower than the company targets, given that certain, specific goals in these business units were not achieved. For that reason the average total company score of Avantium employees for 2022 was slightly lower than for the members of the Management Board.

The table below sets out the performance per target. The Supervisory Board used upwards discretion with respect to the operational target related to delivery of the EPC milestones for the FDCA Flagship Plant (on target and on budget), which it deemed partially achieved, taking into account the challenging conditions such as high inflation rates and the supply change challenges under which the team performed.

With respect to the ESG target Chain Reaction 2030 implementation (Operations): calculate direct GHG emissions from our Avantium Renewable Polymers FDCA Flagship Plant, Pilot Plants and laboratory activities, and improve on the baseline: the partial achievement is a result of the completion of the baseline calculations for the Pilot Plants and laboratories having been completed and improvements were realised (please refer to the Avantium Annual Report on page 41). The calculations for the FDCA Flagship Plant have not been completed yet.

The Management Board members are paid a bonus on the basis of achievements of the company on ESG, strategic, operational and commercial goals. The targets for the CEO furthermore included additional specific strategic targets, related to the strengthening of the Management Team for the next phase of commercialisation. The overall average achievement of the CEO and CFO for performance year 2022 amounts to 86.24% and 84.38% respectively of the maximum achievable bonus. Reference is made to the table below.

The maximum achievable bonus for Tom van Aken is 70% (therefore resulting in a variable remuneration for 2022 of 60% of his annual base salary). The maximum achievable bonus for Bart Welten is 50% (therefore resulting in a variable remuneration for 2022 of 21% of his annual base salary).

Name	Weight factor	Target	Measured performance	Total performance in 2022
T.B. van Aken	60%	Strategic	58%	86%
	15%	Commercial	8%	
	15%	Operational	13%	
	10%	ESG	8%	
B.J.J.V. Welten	40%	Strategic	38%	84%
	15%	Commercial	8%	
	35%	Operational	31%	
	10%	ESG	8%	



Performance measure	Objective	Target	Performance
Strategic	Secure financing and partnerships	<ol style="list-style-type: none"> 1. Ensure that the group's business operations are timely, prudently and sufficiently funded, on the basis of obtaining the mandate from its shareholders to raise €45 million in equity capital and against satisfactory conditions. 2. Secure sustainable progress in the area of partnerships. 	<ol style="list-style-type: none"> 1. Achieved 2. Achieved
Strategic	Achieve strategic milestones	<ol style="list-style-type: none"> 1. Timely execute Financial Close following Renewable Polymers' positive FID. 2. Meet strategic milestones in relation to the Cosun Beet Company joint venture partnering. 	<ol style="list-style-type: none"> 1. Achieved 2. Not achieved
Strategic	Business & Technology Planning	<ol style="list-style-type: none"> 1. Meet strategic milestones in relation to Avantium's earlier-stage technologies. 	<ol style="list-style-type: none"> 1. Achieved
Commercial	Drive commercial performance	<ol style="list-style-type: none"> 1. Meet strategic milestones on Renewable Polymers offtake commitments. 2. Meet Catalysis business performance parameters. 	<ol style="list-style-type: none"> 1. Achieved 2. Not achieved
Operational	Drive operational performance	<ol style="list-style-type: none"> 1. Meet FDCA Flagship Plant EPC milestones and financials. 2. Meet Ray Technology™ operational milestones. 	<ol style="list-style-type: none"> 1. Partially achieved 2. Achieved
ESG	Chain Reaction 2030 implementation	<ol style="list-style-type: none"> 1. Ecological: complete certified LCAs for YXY Technology (PEF) and Ray Technology™ (plantMEG™, plantMPG™). 2. Operations: calculate direct GHG emissions from our FDCA Flagship Plant, Pilot Plants and laboratory activities and improve on the baseline. 3. Supply chain: develop and initiate a supplier code of conduct and product stewardship plan. 4. People: establish a diversity and inclusion plan (including KPIs) and improve on the baseline. 	<ol style="list-style-type: none"> 1. Achieved 2. Partially achieved 3. Achieved 4. Achieved
ESG	Safety and health	<ol style="list-style-type: none"> 1. Safety #1 organisation: 0 accidents using OSHA LTI classification. 2. Engage staff and minimise staff turnover <10% (FY). 	<ol style="list-style-type: none"> 1. Achieved 2. Achieved

iii) Long-Term Variable Remuneration in the Form of Shares (LTIP) and Options (ESOP)

On 5 October 2016, Avantium adopted the ESOP for all key employees, senior management and members of the Management Board and the LTIP for the members of the Management Board and the management team (collectively, the Incentive Plans). The ESOP furthermore allows for participation by members of the Supervisory Board. The Incentive Plans encourage a long-term focus and alignment with Avantium's strategy.

iii.a) Long-Term Investment Plan in the Form of Matching Shares

The members of the Management Board are obligated to invest the total non-cash component of their (net) bonus in shares to be delivered by the company (Investment Shares). The non-cash component percentage is 50%. The cash component of the bonus may, at the discretion of the relevant member of the Management Board, also be invested in Investment Shares. The Investment Shares are subject to a retention period of five years following the investment date. After the end of the retention period, Avantium will match the Investment Shares in a 1:1 ratio (Matching Shares); that is, one Matching Share is granted for each Investment Share. These Matching Shares are delivered by the company at the end of the five-year retention (lock-up) period of the Investment Shares. Only in the event that the member of the Management Board is no longer engaged by the company at the end of the retention period will the number of Matching Shares be decreased as provided for in the LTIP (depending on the employment termination date and cause of leave, the number of Matching Shares will be decreased pro rata parte, based on the number of full months of the Management Board member not being engaged).

The objective of the plan is that Management Board members build an equity position in the company, creating long-term value for, and so aligning their interests with, the company's stakeholders.

Based on the feedback from shareholders on the remuneration policy and the Remuneration Report 2021, the Remuneration Committee considers to adjust the 1:1 ratio for Matching Shares, to arrive at a mechanism in which Matching Shares are awarded conditionally subject to the achievement of the company's long-term strategic objectives upon which the Matching Shares will be released, including the ability for the Supervisory Board to determine an upward adjustment of the 1:1 ratio when such achievement exceeds the pre-determined objectives. Such will be reviewed in the context of the Remuneration Policy to be submitted for approval to the General Meeting in 2024. The LTIP plan rules will in such case need to be amended accordingly.

iii.b) Long-Term Variable Remuneration in the Form of Share Options (under the ESOP)

On an annual basis, share options under the ESOP (Options) may be awarded to members of the Management Board in accordance with the performance parameters pre-determined by the Supervisory Board. These parameters are consistent with the performance measures applied for the senior management and key employees of Avantium, to ensure optimal alignment with the employees of Avantium who receive Options. Options are awarded within a pre-determined range, as stated in the remuneration policy (Section 4.6), where the actual annual award is set by the Supervisory Board. Based on the feedback from shareholders, the Remuneration Committee wishes to clarify that the pre-determined performance parameters consist of a combination of (i) the company short-term and long-term targets, (ii) the performance targets that are determined for each of Avantium's technologies and (iii) individual targets for the members of the Members of the Management Board.

The Options are fully vesting on the third anniversary following the date of the award. The exercise period of the Options will be up to five years after the date of vesting. The Options vest at the end of a three-year vesting term and not on an annual pro rata basis during this three-year vesting period. Only in the event that the member of the Management Board is no longer employed by the company at the date of vesting will the number of options be decreased as provided for in the ESOP (depending on the employment termination date and cause of leave, the number of share options will be decreased pro rata parte, based on the number of full months of the Management Board member not being engaged during the three-year vesting period). Any required clarifications to the ESOP plan rules will be reviewed in the context of the Remuneration Policy to be submitted for approval to the General Meeting in 2024, and the ESOP plan rules will need to be amended accordingly.

iii.c) Adjustments to Variable Remuneration

In line with Dutch law, the variable remuneration of the members of the Management Board may be reduced, or Management Board members may be obliged to repay (part of) their remuneration to the company, if one of the circumstances as described in Section 5 (Management Board Remuneration: Adjustments to Variable Remuneration) of the remuneration policy apply. In 2022, no adjustments based upon this section of the remuneration policy were made.



iv) Allowance for Pension and Fringe Benefits

The members of the Management Board are allowed to participate in Avantium's pension plan, available to all Avantium employees, whereby Avantium carries the employer's contribution of the pension contributions. The pension plan is based on a defined contribution system.

Legislation in 2015 reduced the maximum pension accrued to 1.875% (from 2.15%) of the full pensionable salary. The members of the Management Board can choose to build up the part of the pensionable salary above €110,111 (2020) in a separate defined contribution plan. There are no arrangements for early retirement.

The members of the Management Board are entitled to additional remuneration elements, such as company car costs, travel expenses, social security costs and a contribution to health and disability insurance, all in line with Avantium policies, plans and arrangements as applicable to Avantium's employees. The table hereafter provides a breakdown of the aggregate remuneration of the members of the Management Board in 2022.

Employment Agreements and Severance Payments

The members of the Management Board continued their current employment agreements with Avantium Support B.V., a subsidiary of the company. These agreements are for an indefinite period of time and do not contain severance payment provisions. On 30 November 2022, the General Meeting appointed Boudewijn van Schaik as CFO with an effective date of 1 January 2023, pursuant to a management services agreement (the Agreement), being a services agreement (overeenkomst van opdracht) within the meaning of Article 7:400 of the Dutch Civil Code. This follows Article 2:132(3) of the Dutch Civil Code, which stipulates that agreements concluded between a Dutch listed company and a member of its management board cannot be qualified as an employment agreement.

The Supervisory Board may determine that a member of the Management Board is entitled to a severance payment for the loss of income resulting from a non-voluntary termination as Management Board member. In line with the Dutch Corporate Governance Code, any severance payment is limited to one year's base salary.

Total Remuneration Received by Members of the Management Board

(In €1,000)	Fixed remuneration		Variable			Total remuneration	% of fixed remuneration	% of variable remuneration
	Salary	Other benefits ¹⁵	Short-term bonus ¹⁶	Long-term award ¹⁷	Post-employee benefits			
Management Board member								
T.B. van Aken								
2022	273	24	165	71	20	553	57%	43%
2021	268	25	157	119	20	589	53%	47%
B.J.J.V. Welten								
2022	240	24	51	21	28	364	80%	20%
2021	235	27	98	25	27	411	70%	30%
Total - 2022	513	48	215	92	48	917	66%	34%
Total - 2021	503	52	255	144	46	1,000	60%	40%

The total remuneration based on IFRS in 2022 for Tom van Aken amounted to €597,000 (2021: €584,000) due to the share-based payment expenses of €115,000 recognised during the year (2021: €114,000). The total remuneration based on IFRS in 2022 for Bart Welten amounted to €374,000 (2021: €439,000) due to the share-based payment expenses of €31,000 recognised during the year (2021: €52,000).

Internal Pay Ratio

In setting the remuneration policy for the members of the Management Board, the Supervisory Board also takes into account the internal pay ratio. The internal pay ratio between the average pay of Avantium employees vis-à-vis the average pay of the CEO is calculated based on the average 2022 remuneration of all Avantium employees vis-à-vis the 2022 remuneration of the CEO. Since 2020, we have also included pension contributions and long-term incentive components.

The 2022 pay ratio is 6:1 (2021: 6:1) for the CEO. The pay ratio 2022 and 2021 is based on the specific guidance provided by the Monitoring Commissie Corporate Governance Code in December 2020 on the calculation methodology of the pay ratio.¹⁸

The following table provides an overview of the remuneration of the members of the Management Board compared with the average total remuneration of an Avantium employee (defined as gross wages, holiday allowance, other benefits, pension, Bonus and long-term awards) and company performance since the listing of the company's shares in 2017.

¹⁵ Other benefits mainly include contributions to social security plans and benefits in kind such as company cars, medical expenses and legal expenses.

¹⁶ Including the cash and non-cash part of the awarded bonus for the specific performance year.

¹⁷ Including the value of the various performance share-based plans that vested during the year. The value of the LTIP reward is calculated based on the number of matching shares that have vested and of the share price at the date of vesting. The value of the ESOP reward is calculated based on the number of share options that have vested during the year and the net of the share price at vesting date less the exercise price.

¹⁸ Starting as of 1 January 2021, the value of the share-based component of the remuneration is determined at the time of assignment in accordance with the applicable rules under IFRS. Before 1 January 2021, the value of the share-based component of the remuneration was determined based on the value of the options that vested during the year and the net of the share price at vesting date less the exercise price.



(In €1,000)	2022	% change	2021	% change	2020	% change	2019	% change	2018	% change	2017
Management Board member											
T.B. van Aken	553	-6%	589	34%	440	2%	432	41%	306	-17%	368
B.J.J.V. Welten	364	-12%	411	35%	304	0%	—	0%	—	0%	—
F.C.H. Roerink (former CFO)	—	0%	—	0%	—	-100%	616	120%	280	-13%	321
Average employee salary	96	6%	91	12%	81	15%	70	0%	70	7%	66

	2022	% change	2021	% change	2020 ¹⁹	% change	2019	% change	2018	% change	2017
Total company performance	83%	-1%	84%	100%	0%	-100%	65%	122%	29%	-66%	86%

The tables includes information on a five-year period as of 2017, the year Avantium became a publicly traded company.

It is noted that Frank Roerink's severance payment is included in his total remuneration for the year 2019.

The average total company performance over 2022 was 83%. The total company performance represents an average achievement score, as members of Avantium's employees are paid 50% on basis of company achievements (Strategic, Commercial, Operational and ESG target achievement) and 50% on the achievements of their respective business unit, being more granular financial, commercial, operational and organisational targets relevant for the specific business unit.

¹⁹ The company's performance and achievement of the performance measures for 2020 was set to zero percent herein; as the Management Board and senior management decided to forfeit their respective annual cash bonus, the company elected not to disclose the realised achievement of the 2020 performance targets.

Number of Investment Shares and Matching Shares Outstanding and Awarded to the Management Board

Management Board member	Specification of plan	The main conditions of share plans				Information regarding the reported financial year							
		Performance period	Award date	Vesting date	End of retention period	Number of awards outstanding 1 January	Shares allocated during the year	Shares forfeited during the year	Shares vested during the year	Value of matching shares vested during the year in EUR ²⁰	Matching shares unvested as at 31 December	Shares subject to retention period as at 31 December	Matching shares vested as at 31 December
T.B. van Aken, CEO	LTIP- Investment shares	2017-2018	16/3/2018	16/3/2018	16/3/2023	7,441	—	—	—	—	—	7,441	—
		2019-2020	14/5/2020	14/5/2023	14/5/2025	15,365	—	—	—	—	—	15,365	—
		2021-2022	18/5/2022	18/5/2025	18/5/2025	—	20,630	—	—	—	—	20,630	—
	LTIP- Matching shares	n/a	16/3/2018	16/3/2021	16/3/2023	7,441	—	—	—	—	—	—	7,441
		n/a	14/5/2020	14/5/2023	14/5/2025	15,365	—	—	5,122	15,493	5,122	—	10,243
	n/a	18/5/2022	18/5/2025	18/5/2025	—	20,630	—	4,584	14,051	16,046	—	4,584	
B.J.J.V. Welten, CFO	LTIP- Investment shares	2021-2022	18/5/2022	18/5/2025	18/5/2025	—	9,947	—	—	—	—	9,947	—
	LTIP- Matching shares	n/a	18/5/2022	18/5/2025	18/5/2025	—	9,947	(7,737)	2,210	6,775	—	—	2,210
F.C.H. Roerink, former CFO	LTIP- Investment shares	2017-2018	16/3/2018	16/3/2018	16/3/2023	5,789	—	—	—	—	—	5,789	—
	LTIP- Matching shares	n/a	16/3/2018	16/3/2021	16/3/2023	1,930	—	—	—	—	—	1,930	1,930
Total Management Board members						45,612	61,154	(7,737)	11,917	36,319	21,167	53,383	24,478
Total former Management Board members						7,719	—	—	—	—	—	7,719	1,930

²⁰ The value of matching shares vested during the year is expressed in EUR and is determined by the share price at vesting date.

Number of Options Outstanding and Awarded to the Management Board

Management Board member	Specification of plan	The main conditions of share option plans				Information regarding the reported financial year						
		Award date	Vesting date	Exercise period	Exercise price of the option in EUR	Number of options outstanding as at 1 January	Share options granted during the year	Share options forfeited during the year	Share options vested during the year	Value of share options vested during the year ²¹	Share options unvested as at 31 December	Share options vested as at 31 December
T.B. van Aken, CEO	ESOP	19/10/2006	19/10/2009	10 years	7.60	20,230	—	—	—	—	—	20,230
		1/10/2008	1/10/2011	10 years	0.10	20,657	—	—	—	—	—	20,657
		1/5/2009	1/5/2012	10 years	0.10	35,000	—	—	—	—	—	35,000
		1/5/2010	1/5/2013	10 years	0.10	29,770	—	—	—	—	—	29,770
		4/11/2010	4/11/2013	10 years	0.10	28,000	—	—	—	—	—	28,000
		30/11/2011	30/11/2014	10 years	0.10	135,000	—	—	—	—	—	135,000
		1/10/2015	15/3/2017	10 years	0.10	22,000	—	—	—	—	—	22,000
		1/10/2015	15/3/2017	10 years	9.80	7,500	—	—	—	—	—	7,500
		2/3/2017	15/3/2017	10 years	0.10	13,000	—	—	—	—	—	13,000
		2/3/2017	15/3/2017	10 years	9.80	18,000	—	—	—	—	—	18,000
		17/5/2017	17/5/2020	8 years	10.58	50,000	—	—	—	—	—	50,000
		28/3/2018	28/3/2021	8 years	5.34	50,000	—	—	—	—	—	50,000
		16/5/2019	16/5/2022	8 years	2.60	100,000	—	—	11,111	19,165	—	100,000
		14/5/2020	14/5/2023	8 years	3.59	50,000	—	—	16,667	19,237	5,556	44,444
19/5/2021	19/5/2024	8 years	4.56	50,000	—	—	16,667	—	22,222	27,778		
18/5/2022	19/5/2025	8 years	3.07	—	50,000	—	11,111	3,111	38,889	11,111		
B.J.J.V. Welten, CFO	ESOP	14/5/2020	14/5/2023	8 years	3.59	50,000	—	(5,556)	16,667	19,237	—	44,444
		19/5/2021	19/5/2024	8 years	4.56	30,000	—	(13,333)	10,000	—	—	16,667
		18/5/2022	19/5/2025	8 years	3.07	—	30,000	(23,333)	6,667	1,867	—	6,667
Total Management Board members						709,157	80,000	(42,222)	88,889	62,617	66,667	680,268

In 2022, 80,000 additional share options were granted to the Management Board. Boudewijn van Schaik (appointed by the General meeting on 30 November 2022, with an effective date of 1 January 2023) was awarded 50,000 share options on 30 December 2022 at an exercise price of €3.68 per option. The amount of share options that vested during the year amounted to 33 options.

The share-based payment expenses of the Management Board of €146,000 comprise the part of the share-based compensation (note 13) attributable to the share options granted in previous years.

²¹ The value of share options vested during the year is expressed in EUR and is determined by the share price at vesting date less the exercise price.



Number of Options Outstanding and Awarded to Former Management Board Member

Management Board member	Specification of plan	The main conditions of share option plans				Information regarding the reported financial year						
		Award date	Vesting date	Exercise period	Exercise price of the option in EUR	Number of options outstanding as at 1 January	Share options exercised during the year	Share options forfeited during the year	Share options vested during the year	Value of share options exercised during the year ²²	Share options unvested as at 31 December	Share options vested as at 31 December
F.C.H. Roerink, former CFO	ESOP	16/5/2019	16/5/2022	8 years	2.60	13,333	—	—	—	—	—	13,333
Total former Management Board members						13,333	—	—	—	—	—	13,333

²² The value of share options exercised during the year is expressed in EUR and is determined by the share price at exercise date less the exercise price.



Management Board Remuneration 2023

The Remuneration Committee intended to propose a revision of Avantium’s remuneration policy in 2023. After careful consideration, the Remuneration Committee concluded not to endorse any revisions this year but take more time to complete a more thorough review during 2023 and submit a revised remuneration policy for approval at the Annual General Meeting of 2024. Revisions this year would have primarily comprised adjustments resulting from the Committee’s due consideration to the feedback received from shareholders on the Remuneration Report 2021 and the remuneration policy for the members of the Management Board and the Supervisory Board. The Remuneration Committee concluded that the adjusted approach in reporting, including its level of reporting transparency on target setting and achievement, both retroactively for 2022 and in advance for 2023, may be addressed in the Remuneration Report 2022. It furthermore concluded that during 2023, the company is setting its next step in its journey to linking variable remuneration more directly to its sustainability objectives. As a technology leader in sustainable and circular chemicals and plastics, Avantium has to meet environmental, social and governance (ESG) standards and reports in a transparent way its progress of implementing its Sustainability Plan Chain Reaction 2030.

The Remuneration Committee furthermore concluded that given that the Management Board’s and senior management’s remuneration continues to fall within a competitive range of approximately 20% around the median market levels payable within the reference groups of industrial companies in our sector, it is also not required to propose any adjustments to the Remuneration Policy at this time.

For 2023, salary increases for the Management Board and senior management have not yet been considered; such may be addressed in due course. Any such adjustment should not result in significantly exceeding the median of the reference group, whereby the Supervisory Board is allowed to apply a purchasing power adjustment during the applicable tenures (as opposed to applying those only at the start of such tenures). During the years in which a benchmarking exercise is not performed, the Supervisory Board continues to be informed on any executive remuneration developments and receives market survey reports generally made available for the relevant industry and similarly situated companies.

These targets are only being disclosed to the extent they are not share-price or competition sensitive. For this reason, some of these targets are reflected with a generic description.

The maximum achievable bonus for Tom van Aken is 70% of his annual base salary.
The maximum achievable bonus for Boudewijn van Schaik is 50% of his annual base salary.

Performance measure	CEO	CFO
Strategic	30%	30%
Commercial	23%	23%
Operational	38%	38%
ESG	10%	10%
Total performance	100%	100%



Performance measure	Objective	Target	Weight Management Board	Financial	Non-Financial
ESG	Safety & Health	<ol style="list-style-type: none"> Zero accidents and Zero loss of containments as per Avantium's newly approved incident classification. Achieve Ecological, Operations, Suppliers and People targets (smart ESG targets have been defined) 	5.0%	0.0%	5.0%
ESG	Chain Reaction 2030 implementation	<ol style="list-style-type: none"> Define and plan how technologies impact carbon emission reduction, calculate and report reductions achieved Map scope 1, 2 and 3 emissions and implement ISO certified management systems (ISO 45001) Commitment of key suppliers for Code of Conduct Implement organization code of business conduct; implement KPI for diversity and improve on baseline 	5.0%	0.0%	5.0%
Strategic	Portfolio & Team	<ol style="list-style-type: none"> Reach engineering stage gate decision as next step of Ray Technology™ commercialisation Determine and execute technology portfolio changes in line with company strategy Strengthening of executive team to prepare company for next phase of commercialisation 	30.0%	0.0%	30.0%
Commercial	Drive commercial performance	<ol style="list-style-type: none"> Ensure full capacity loading for FDCA Flagship Plant Avantium Renewable Polymers: enter into licensing deal in line with company strategy Avantium R&D Solutions: execution of growth strategy (to be measured in revenues) Avantium Renewable Chemistries: enter into Ray Technology™ licensing deal in line with company strategy Attract industrial partners for commercialisation of Volta technology 	22.5%	22.5%	0.0%
Operational	Drive financial performance	<ol style="list-style-type: none"> Keep the FDCA Flagship Plant construction on track in terms of costs and schedule Realise significant increase of topline compared to 2022 Ensure the company is sufficiently funded for execution of strategy Control of expenses and company cash flows 	32.5%	32.5%	0.0%
Operational	Drive organizational performance	<ol style="list-style-type: none"> Staff retention: ensure staff turnover below 10% Recruitment: hiring of staff for FDCA Flagship Plant and Avantium R&D Solutions growth strategy 	5.0%	0.0%	5.0%
Total			100.0%	55.0%	45.0%

Lower threshold: for 2023, the Supervisory Board has set the lower performance threshold, at which the award of short-term annual variable remuneration (and subsequent ability to become eligible for participation in the long term variable remuneration (in the form of shares (LTIP) and share options (ESOP)) as follows: if (i) performance score of financial targets is below 20%; and (ii) the performance score on non-financial targets is below 15%, there will be no variable remuneration pay-out to the Management Board.



Supervisory Board Remuneration 2022

Remuneration Policy for the Supervisory Board

The remuneration of the members of the Supervisory Board consists of the following components:

- i. annual fee;
- ii. travel expenses and other expenses; and
- iii. one-off fixed awards of share options ("Options", pursuant to ESOP) related to the member's appointment.

i) Annual Fee

The remuneration policy determines the annual (gross) fees for each position of the Supervisory Board, separated into membership and chairpersonship of the Supervisory Board and membership and chairpersonship of a committee.

In line with the remuneration policy, the members of the Supervisory Board received the following annual (gross) fees:

- Membership of the Supervisory Board: €40,000;
- Chairpersonship of the Supervisory Board: €35,000 (additional);
- Membership of a committee of the Supervisory Board: €5,000 (per committee); and
- Chairpersonship of the Audit Committee of the Supervisory Board: €5,000 (additional).

The table hereafter provides a breakdown of the Supervisory Board members' remuneration in 2022.

Avantium does not grant any personal loans, guarantees or advance payments to members of the Supervisory Board.

ii) Travel Expenses and Other Expenses

Supervisory Board members are reimbursed for all reasonable costs incurred in connection with their attendance of meetings. Travel costs are reimbursed in line with Avantium's travel policy. Any other expenses are only reimbursed, either in whole or in part, if incurred with the prior consent of the Chair of the Supervisory Board.

iii) One-Off Fixed Awards of Options (ESOP) Related to the Member's Appointment

The ESOP allows for participation by members of the Supervisory Board. A member is, upon such member's appointment entitled to thirty thousand (30,000) Options. The Chair of the Supervisory Board is entitled to eighty five thousand (85,000) Options. A member may choose not to receive the award.

Based on the feedback by shareholders and in order to assess more explicitly the shareholders' perspective [view] on this remuneration element for Supervisory Board members, any such one-off fixed awards of share options to new member of the Supervisory Board upon their appointment will be submitted for approval by the General Meeting as a separate remuneration element from the annual fee. The Options vest at the end of a three-year vesting term and not on an annual pro rata basis during this three-year vesting period. Only if the membership of a member of the Supervisory Board is terminated or has ended prior to the date of vesting will the number of options be decreased as provided for in the ESOP (depending on the reasons for such earlier termination, on a monthly pro rata basis during a period of three years). A lock-up period of four (4) years applies from the date of the award, with the exception of a limited right of sale for sell to cover purpose. The exercise period of the Options will be up to four (4) years after the date that the awarded Options have fully vested.

Based on the General Meeting's perspective and shareholders' feedback following the 2023 General Meeting, the Remuneration Policy and ESOP plan rules (which may then need to be amended accordingly) will be reconsidered and to the extent required be reviewed prior to submission of the Supervisory Board Remuneration Policy for approval to the General Meeting in 2024.

Total Overview of Supervisory Board Remuneration 2022

(In €1,000)	Fixed remuneration		Variable remuneration		Total remuneration	% of fixed remuneration	% of variable remuneration
	Membership	Committees	Other compensation ²³	Long-term award ²⁴			
E. Moses	75	15	—	33	123	73%	27%
M.B.B. Jou	40	15	—	12	67	82%	18%
C.A. Arnold	10	4	3	—	17	82%	18%
M.G. Kleinsman	40	10	—	—	50	100%	—%
G.E. Schoolenberg	20	5	—	—	25	100%	—%
N. Björkman	40	15	—	2	57	96%	4%
Total - 2022	225	64	4	46	339	85%	15%

²³ Other compensation includes expenditures related to travel.

²⁴ Long-term award includes the value of the ESOP plan. The value of the ESOP reward is calculated based on the number of share options that have vested during the year and the net of the share price at vesting date less the exercise price.

The following table provides detail on the total remuneration received by each Supervisory Board member in accordance with the period the company's shares are traded on Euronext:

(In €1,000)	2022	2021	2020	2019	2018	2017
E. Moses	123	121	133	3	—	—
M.G. Kleinsman	50	50	50	50	50	27
M.B.B. Jou	67	70	47	—	—	—
N. Björkman	57	—	—	—	—	—
Total Supervisory Board members	297	241	230	53	50	27
Remuneration of former Supervisory Board members						
C.A. Arnold (member until 31 March 2022)	17	53	14	—	—	—
G.E. Schoolenberg (member until 1 September 2022)	25	44	13	—	—	—
D.J. Lucquin (member until 30 September 2020)	—	—	44	50	50	53
R.W. van Leen (member until 31 December 2019)	—	—	—	30	—	—
K. Verhaar (member until 20 December 2019)	—	—	—	90	80	6
G.E.A. Rijnen (member until 15 May 2019)	—	—	—	21	55	50
J.S. Wolfson (member until 15 May 2019)	—	—	—	18	50	45
Total former Supervisory Board members	42	97	71	209	235	154
Total remuneration	339	338	301	262	285	181

The total remuneration based on IFRS in 2022 for Edwin Moses amounted to €112,000 (2021: €130,000) due to the share-based payment expenses of €22,000 recognised during the year (2021: €51,000).

The total remuneration based on IFRS in 2022 for Michelle Jou amounted to €63,000 (2021: €73,000) due to the share-based payment expenses of €8,000 recognised during the year (2021: €18,000).

The total remuneration based on IFRS in 2022 for Nils Björkman amounted to €78,000 (2021: €14,000) due to the share-based payment expenses of €22,000 recognised during the year (2021: €nil).

The total remuneration based on IFRS in 2022 for Cynthia Arnold amounted to €26,000 (2021: €93,000) due to the share-based payment expenses of €9,000 recognised during the year (2021: €40,000).

Number of Options Supervisory Board

	The main conditions of share option plans					
	Specification of plan	Award date	Vesting date	Exercise period	Exercise price of the option in EUR	
E. Moses	ESOP	14/5/2020	14/5/2023	8 years	3.59	
M.B.B. Jou	ESOP	14/5/2020	14/5/2023	8 years	3.59	
N. Björkman	ESOP	18/5/2022	19/5/2025	8 years	3.07	
C.A. Arnold (former member)	ESOP	30/9/2020	30/9/2023	8 years	5.78	
J.S. Wolfson (former member)	ESOP	2/3/2017	2/3/2020	10 years	9.80	
J.M. van der Eijk (former member)	ESOP	2/3/2017	2/3/2020	10 years	9.80	

	Information regarding the reported financial year									
	Specification of plan	Number of options outstanding 1 January	Share options granted during the year	Share options exercised during the year	Share options forfeited during the year	Share options vested during the year	Value of share options vested during the year ²⁵	Value of share options exercised during the year ²⁶	Share options unvested as at 31 December	Share options vested as at 31 December
E. Moses	ESOP	85,000	—	—	—	28,333	32,703	—	9,444	75,556
M.B.B. Jou	ESOP	30,000	—	—	—	10,000	11,542	—	3,333	26,667
N. Björkman	ESOP	—	30,000	—	—	6,667	1,867	—	23,333	6,667
C.A. Arnold (former member)	ESOP	30,000	—	—	(15,000)	1,667	—	—	15,000	—
J.S. Wolfson (former member)	ESOP	4,000	—	—	—	—	—	—	—	4,000
J.M. van der Eijk (former member)	ESOP	4,000	—	—	—	—	—	—	—	4,000
Total Supervisory Board members		115,000	30,000	—	—	45,000	46,112	—	36,111	108,889
Total former Supervisory Board members		38,000	—	—	(15,000)	1,667	—	—	15,000	8,000

²⁵ The value of share options vested during the year is expressed in EUR and is determined by the share price at vesting date less the exercise price.

²⁶ The value of share options exercised during the year is expressed in EUR and is determined by the share price at exercise date less the exercise price.

As per 31 December 2022, the following Supervisory Board members held Options:

- Edwin Moses, Chair of the Supervisory Board: eighty-five thousand (85,000) options;
- Michelle Jou, member of the Supervisory Board: thirty thousand (30,000) options; and
- Nils Björkman, member of the Supervisory Board: thirty thousand (30,000) options.

Margret Kleinsman chose not to receive the Options award.



Deviation from the Dutch Corporate Governance Code Best Practice Provision 3.3.2: Remuneration of Supervisory Board Members

Best Practice Provision 3.3.2 states that Supervisory Board members may not be awarded remuneration in the form of shares and/or rights to shares. To continue to attract and retain top talent in a competitive global environment, and to help the Supervisory Board create sustainable added value, Avantium included in its Remuneration Policy, as adopted by Avantium's General Meeting of Shareholders on 14 May 2020, the option for Supervisory Board members to receive upon appointment a on-off fixed award of share options. Avantium's Employee Stock Option Plan, as adopted on 5 October 2016, allows for such award.

Based on the feedback from shareholders on the remuneration policy, the company, in particular the Remuneration Committee, understands that this deviation from the Dutch Corporate Governance Code Best Practice Provision 3.3.2 continues to be a controversial remuneration topic. The company would like to continue the dialogue on this topic in view of an updated remuneration policy. In order to assess more explicitly the shareholders' perspective [view] on this remuneration element for Supervisory Board members, any such one-off fixed awards of share options to new member of the Supervisory Board upon their appointment will be submitted for approval by the General Meeting as a separate remuneration element from the annual fee.

Deviation from the Dutch Corporate Governance Code Best Practice Provision 2.3.4: Composition of the Committees

Under this provision, the role of Chair of the Audit Committee or the Remuneration Committee may not be filled by the Chair of the Supervisory Board, nor by a former member of the Management Board of the company. Due to the size of Avantium's Supervisory Board, the chairmanship of the Remuneration Committee was filled by the Chair of the Supervisory Board in 2022. The Chair of the Supervisory Board has significant subject matter expertise on remuneration topics and is assisted in the Remuneration Committee by two Supervisory Board members with similar subject matter expertise. Where necessary, the Remuneration Committee is assisted by external advisors on relevant topics. The Supervisory Board will reconsider the composition of the Remuneration Committee in 2023, when the Supervisory Board will again consist of more than four people.

Corporate Governance

General

Avantium N.V. is a Dutch public limited company based and registered in Amsterdam, the Netherlands. Avantium's shares are listed on Euronext Amsterdam and Euronext Brussels (symbol: AVTX).

We have a two-tier governance structure consisting of the Management Board and the Supervisory Board. There is also a third governing body: the General Meeting of Shareholders. In the following sections, we provide information on these governing bodies and their responsibilities and duties. Sustainable long-term value creation is the key consideration for the Management Board and Supervisory Board when determining strategy and making decisions, with stakeholder interests taken into careful consideration.

Since the financial year 2017, Avantium has been subject to the 2016 Dutch Corporate Governance Code (the Dutch Code), most recently updated on 20 December 2022. The Dutch Code regulates the relationships between the Management Board, Supervisory Board and General Meeting of Shareholders. Listed companies in the Netherlands must render account for their compliance with the Dutch Code. Below, we give information on how Avantium applies the Dutch Code.

Avantium's corporate governance framework is based on the requirements of the Dutch Civil Code, the Dutch Code, the company's Articles of Association as amended on 25 January 2022, the applicable securities laws and the regulations concerning the Management Board and the Supervisory Board. Our Articles of Association, which are published online, include most of the Dutch Code's principles and best practice provisions applicable to a two-tier governance structure.

Management Board

The Management Board is the statutory executive body and, together with the Management Team, is responsible for the day-to-day management of Avantium. It formulates and implements our (business) strategy and policies in line with the associated risk profile and takes responsibility for internal control systems. The Management Board's duties may be divided among its members.

The Management Board may take any actions necessary or useful for achieving Avantium's objectives, except those prohibited by or expressly attributed to the General Meeting or Supervisory Board by law or by the Articles of Association.

In performing its duties, the Management Board must consider the interests of Avantium's stakeholders (including shareholders, employees, partners and customers) as well as the sustainability issues relevant to the business. The Management Board must submit certain important decisions to the Supervisory Board or the General Meeting for approval. The Management Board must, in a timely way, provide the Supervisory Board with all the information it needs to carry out its own duties.

Composition of the Management Board

The Management Board consists of at least two members. The Supervisory Board is authorised to make binding nominations for the appointment of a Management Board member to the General Meeting. Each Management Board member is appointed for no more than four years, with their appointment period ending immediately after the General Meeting held in the fourth calendar year after their initial appointment. A Management Board member may be reappointed for a term of no more than four years at a time.

On 30 September 2022, Avantium announced the nomination of Boudewijn van Schaik as a member of the Management Board and CFO of Avantium, effective 1 January 2023. Bart Welten retired as CFO of Avantium on 31 December 2022. On 30 November 2022, an Extraordinary General Meeting of Shareholders confirmed the appointment of Boudewijn van Schaik to the position of CFO and as a member of the Management Board, for a term ending directly after the General Meeting of 2027.

Name	Years in Management Board	Date of initial appointment	Date of re-appointment	Term ends in
Tom van Aken	17	2005	AGM 2021	AGM 2025
Boudewijn van Schaik	n.a.	1 January 2023	n.a.	AGM 2027
Resigned Management Board member				
Bart Welten	2	AGM 2020	n.a.	

Evaluation

At least once a year, the Management Board evaluates itself and its individual members. The performance of the Management Board and its individual members is also evaluated at every closed session of the Supervisory Board, with the findings communicated by the Chair to the Management Board.

Remuneration

Information on the remuneration policy for Management Board members and their individual remunerations can be found in the Remuneration Report 2022 (page 84).

Supervisory Board

The Supervisory Board supervises and advises the Management Board and guides the general course of company affairs and business. In performing their duties, the Supervisory Board members act in accordance with the interests of the company, considering stakeholder interests. It furthermore focuses on the effectiveness of internal risk management and control systems and the integrity and quality of the financial reporting.

The Supervisory Board is responsible for nominating and supervising an external accountant who audits, reports on and issues a statement concerning the company's annual financial statements to the General Meeting.

Composition of the Supervisory Board

Our Supervisory Board consists of at least three members and is authorised to make binding nominations for the appointment of a Supervisory Board member. It appoints one of its members to be Chair. In line with the Dutch Code, each member is appointed for no more than four years, with their appointment period ending immediately after the General Meeting held in the fourth calendar year after their initial appointment. The Supervisory Board member may then be reappointed for up to two further two-year periods.

For an appointment to continue beyond eight years, justification should be given in the consultative Report of the Supervisory Board.

In 2022, there were several changes to the composition of the Supervisory Board. Nils Björkman was appointed as a Supervisory Board member on 25 January 2022. Cynthia Arnold resigned as a Supervisory Board member as of 31 March 2022. Trudy Schoolenberg stepped down as Supervisory Board member as of 31 August 2022.

The Supervisory Board seeks to promote diversity among its members in terms of age, sex, nationality, industry experience, background, skills, knowledge and insights. As far as possible, we aim to create a balance among the Supervisory Board's members where this diversity is represented. To comply with Dutch legislation on gender balance, the Supervisory Board should consist of at least one-third female and at least one-third male members. At the end of 2022, the composition of the Supervisory Board met this gender ratio, with 50% female and 50% male members.

Retirement and re-Election Schedule

Name	(Re-)appointment date	Year of possible re-election	End of final term
E. Moses	20 December 2019	2023	2031
M.B.B. Jou	14 May 2020	2024	2032
M.G. Kleinsman	19 May 2021	2025	2029
N. Björkman	25 January 2022	2026	2034

Diversity and Inclusion

Avantium aspires to be an inclusive and diverse company with an open and inspiring culture, where people feel safe to develop and share ideas. The Avantium Diversity & Inclusion (D&I) Policy is published on our corporate website. More information on the results of our D&I Policy can be found on page 45.

The Supervisory Board has drawn up a profile for its size and composition, setting out (i) the size of the Supervisory Board, (ii) the desired expertise and backgrounds represented in the Supervisory Board, (iii) the desired diversity among Supervisory Board members and the desired independence of Supervisory Board members and (iv) the qualifications of the Supervisory Board. Avantium's Supervisory Board Profile can be found on our website.



Evaluation

At least once a year, the Supervisory Board evaluates its own performance as well as the performance of its Committees, the Management Board and all individual members thereof. More information on the evaluation of the Supervisory Board in 2022 can be found in the Report of the Supervisory Board (page 79).

Supervisory Board Committees

The Supervisory Board's Audit Committee, Industrialisation Committee, Remuneration Committee and Nomination Committee advise the Supervisory Board and inform its decision-making, although the Supervisory Board remains collectively responsible for the fulfilment of the duties delegated to its committees. The Committee Regulations are published on Avantium's [website](#).

Audit Committee

The Audit Committee assists the Supervisory Board in overseeing the integrity and quality of our financial reporting and the effectiveness of our internal risk management and control systems, including supervising the enforcement of the relevant legislation and regulations and the effect of codes of conduct. The Audit Committee supervises the financing of the company, assessing the external independent audit process and the scope and approach of the external auditor as well as monitoring progress and performance. The relationship with the external independent auditor is evaluated annually. Together with the Management Board, the Audit Committee reviews half-year and full-year financial statements, independent auditor reports and the Management Letter. The Audit Committee supervises the company's policy on tax planning and the applications of information and communication technology (ICT), including risks relating to cybersecurity.

Remuneration Committee

The Remuneration Committee reviews and makes recommendations regarding the remuneration policy for the Management Board and the Supervisory Board, for adoption by the General Meeting. The approved policy then forms the basis for the fixed and variable remuneration of the Management Board.

Nomination Committee

The Nomination Committee is tasked with advising on candidates to fill vacancies in the Management Board and Supervisory Board, assessing the functioning of both Boards and their members, supervising the policy of the Management Board on the selection criteria and appointment procedures for senior management and ensuring long-term succession planning.

Industrialisation Committee

The Industrialisation Committee has been established to serve as the Supervisory Board's advisory and risk review forum in providing oversight of the company's (i) technology strategy, (ii) industrialisation roadmaps and (iii) technology portfolio, all as determined, formulated and executed by the company's Management Board and senior management.

Board Compliance

Both the Management Board and the Supervisory Board, including the committees of the Supervisory Board, have their own regulations, which set rules regarding duties and responsibilities, composition and working methods. These regulations are available on our [website](#).

In line with the Supervisory Board Regulations, the Management Board Regulations and the Dutch Code, Board members must immediately report any real or potential conflict of interest to the Chair of the Supervisory Board and/or to the other members of the Management Board. In 2022, there were no reports of potential conflicts of interest relating to members of the Supervisory Board and Management

Board. The Supervisory Board was also able to carry out its tasks independently pursuant to principles 2.1.7 to 2.1.9 of the Dutch Code.

Annual General Meetings of Shareholders

An Annual General Meeting of Shareholders (General Meeting) is held within six months of the end of every financial year. The main purpose of the General Meeting is to decide on matters as specified in Avantium's Articles of Association and under Dutch law, such as the adoption of the financial statements and the discharge of the Management Board and Supervisory Board members of their respective management and supervision duties. Extraordinary General Meetings (EGMs) are held if the Management Board and Supervisory Board deem it necessary or at the request of one or more shareholders who, alone or jointly, represent at least one-tenth of Avantium's issued share capital.

A General Meeting is called by a convening notice sent by the Management Board or the Supervisory Board. Shareholders who, alone or jointly, represent at least 0.03% of the company's issued capital may ask for items to be added to the agenda. Every shareholder may attend, speak at and vote at the General Meeting. Unless Dutch law or the Articles of Association require a larger majority, resolutions of the General Meeting are adopted by a simple majority of the votes cast. Certain resolutions require a qualified majority of two-thirds of the votes cast, if less than half of the issued share capital is represented at the General Meeting.

The draft minutes must be published on our corporate website no later than three months after the General Meeting or EGM. Shareholders are given three months to respond to



the draft minutes, which are subsequently adopted and signed by the Chair of the Supervisory Board and the General Counsel, acting as the secretary to the General Meeting or EGM.

Governance Avantium Renewable Polymers B.V.

Avantium Renewable Polymers B.V., a 77.4% owned subsidiary of Avantium N.V., is a Dutch limited liability company based and registered in Amsterdam, the Netherlands. It acts as the holding company for Avantium RNP Flagship Plant B.V., which entity constructs the world's first commercial furandicarboxylic acid (FDCA) manufacturing plant, which will be operated by the Avantium Renewable Polymers group and is being located in Delfzijl, the Netherlands (the "FDCA Flagship Plant").

In view of the equity participation by the Bio Plastics Investment Groningen Consortium B.V. and Worley Nederland B.V., Avantium N.V. entered into a shareholders' agreement ("SHA") which governs the relationship between the shareholders of Avantium Renewable Polymers B.V. The SHA contains a number of specific governance mechanisms, in addition to the customary arrangements on governance matters.

Supervisory Board Avantium N.V.

The Supervisory Board of Avantium N.V. will, in its capacity as Supervisory Board to Avantium Renewable Polymers' major shareholder, also supervise the business of Avantium Renewable Polymers B.V. and in particular the engineering, construction and commissioning of the FDCA Flagship Plant. Avantium will procure that at least one of the members of the Supervisory Board of Avantium will have specific competences in this area of expertise.

Project Oversight Board

Avantium Renewable Polymers has installed a project oversight board (the "Project Oversight Board"), which

representatives will be appointed and dismissed in accordance with the Project Oversight Board's regulations. During the engineering, construction and commissioning of the FDCA Flagship Plant, the Project Oversight Board will meet at least once per two months. The minutes of the meetings of the Project Oversight Board will be provided to the shareholders of Avantium Renewable Polymers.

Shareholders' Committee

Avantium Renewable Polymers has a Shareholders' Committee consisting of one representative of each shareholder, which representative will be appointed and dismissed by such shareholder. The Shareholders' Committee meets at least once per three months. The Managing Director (or his replacement within the Management Board) attends these meetings and informs the members of the shareholders' committee of the progress and all other relevant matters regarding the FDCA Flagship Plant and Avantium Renewable Polymers' business in general.

Corporate Governance Statement

Since being listed on Euronext Amsterdam, Avantium has been required to abide by the Dutch Code. Avantium acknowledges the importance of good corporate governance and agrees with the principles of the Dutch Code. We have taken, and will take, further appropriate steps to apply its principles and best practice provisions.

Compliance with the Dutch Code

Avantium is committed to applying the principles and best practice provisions of the Dutch Code. Below, we list the principles and best practice provisions where we deviate from the Dutch Code.

Principle 1.3.6: Absence of Internal Audit Department

Avantium's internal audit function assesses the design and operation of our internal risk management and control

systems. The Management Board is responsible for the internal audit function; the Supervisory Board oversees this function and maintains regular contact with the people involved. In 2022, the duties and responsibilities of the internal audit function were allocated to various senior support staff functions within the company (e.g., Legal and Finance). These support staff functions have direct access to the Audit Committee and the external independent auditor. Minutes are taken to record how the Audit Committee is informed by the internal audit function. The Supervisory Board annually assesses whether or not the allocation to various senior support functions within the company is still adequate. The senior staff members rely on external subject matter expertise where appropriate.

Best Practice Provision 2.3.4: Composition of the Committees

Under this provision, the role of Chair of the Audit Committee or the Remuneration Committee may not be filled by the Chair of the Supervisory Board, nor by a former member of the Management Board of the company. Due to the size of Avantium's Supervisory Board, the chairmanship of the Remuneration Committee was filled by the Chair of the Supervisory Board in 2022. The Chair of the Supervisory Board has significant subject matter expertise on remuneration topics and is assisted in the Remuneration Committee by two Supervisory Board members with relevant experience and background. Where necessary, the Remuneration Committee is assisted by external advisors. The Supervisory Board will reconsider the composition of the Remuneration Committee in 2023, when it is anticipated that the Supervisory Board will again consist of more than four people.

Best Practice Provision 3.3.2: Remuneration of Supervisory Board Members

This provision states that Supervisory Board members may not receive remuneration in the form of shares and/or rights

to shares. To continue to attract and retain top talent in a competitive global environment, and to help the Supervisory Board create sustainable added value, Avantium included in its Remuneration Policy, as adopted by Avantium's General Meeting of Shareholders on 14 May 2020, the option for Supervisory Board members to receive upon appointment a one-off fixed award of share options. Avantium's Employee Stock Option Plan, as adopted on 5 October 2016, allows for such award.

The Chairperson is entitled to 85,000 options, and the other members are entitled to 30,000 options. A member may decline the award. It may be proposed to the General Meeting to make the foregoing fixed award once more upon re-appointment of a member for a period of four (4) years. Any Avantium Options or shares held by the Supervisory Board members serve as a long-term investment in Avantium and align members' interests with those of other shareholders. The company does not grant loans to members of the Supervisory Board. Reference is furthermore made to the Remuneration Report 2022.

Best Practice Provision 4.3.3: Cancelling the Binding Nature of a Nomination or Dismissal

This provision states that General Meetings of a company that does not have statutory two-tier status ('structuurregime') may, by an absolute majority of the votes cast, cancel the binding nature of a nomination for the appointment and/or dismissal of a Management Board or Supervisory Board member. It may be provided that this majority should represent a given proportion (maximum one-third) of the issued capital. If this proportion is not represented at the meeting, but an absolute majority of the votes cast is in favour of a resolution to cancel the binding nature of a nomination or dismissal, a new General Meeting may be convened where the resolution may be passed by an absolute majority of the votes cast, regardless of the proportion of the capital represented at the new meeting.

Avantium's Articles of Association allow the Supervisory Board to make binding nominations. If it makes a binding

nomination for the appointment of a Management Board or Supervisory Board member, the nominee shall be appointed regardless of the majority of the votes cast in favour. The General Meeting may override the binding nature of such a nomination by a majority of two-thirds of the votes cast, when these votes represent more than half of the issued share capital.

If the Supervisory Board has not made a binding nomination, the General Meeting can appoint a member of the Management Board or Supervisory Board at its discretion by a simple majority representing at least one-third of the issued share capital. In line with the company's Articles of Association, the General Meeting may at any time dismiss a member of the Management Board or the Supervisory Board. To pass, the resolution needs a two-thirds majority of the votes cast, representing more than half of the issued share capital. However, if the dismissal is proposed by the Supervisory Board, a simple majority is sufficient. Avantium deviates from the Dutch Code on this provision in order to safeguard the continuity of the company.

Decree Article 10 EU Takeover Directive

The information required by the Decree Article 10 EU Takeover Directive (Besluit artikel 10 overnamerichtlijn), to the extent applicable to the company, is included in this corporate governance section, as well as in the Investor Relations section of this annual report.

The contractual conditions of the company's key financing agreements (potentially) entitle the banks to claim early repayment of the amounts borrowed by the company and its subsidiaries in the event of a change of control over the company (as defined in the respective agreement).

In connection with the debt financing of €90 million committed from ABN AMRO Bank N.V. and its subsidiaries, ING Sustainable Investments B.V., Invest-NL Capital N.V., De Volksbank N.V. (trading as ASN Bank), and Coöperatieve

Rabobank U.A. (the Lenders), the company issued approximately 2.84 million warrants, convertible into the company's ordinary shares with a 1:1 conversion ratio for an exercise price of €0.10 per share (the Warrants) to the Lenders pursuant to the Warrant Agreement. The Warrants had anti-dilution protection for the equity raise of up to €45.0 million by the company in the offering of April 2022. The Warrants will become exercisable when the FDCA Flagship Plant is operational or when other additional conditions included in the Warrant Agreement have been met. Such additional conditions include, a change of control, certain joint ventures, permitted acquisitions, disposals and certain other events.

Certain government grants and subsidies are subject to restrictions, such as change of control clauses and other requirements, that could potentially lead to the amount of such grants or subsidies being reduced.



Financial Statements 2022





Contents

Consolidated Financial Statements 2022

113

Consolidated Statement of Financial Position	113
Consolidated Statement of Comprehensive Income	114
Consolidated Statement of Changes in Equity	115
Consolidated Statement of Cash Flows	117

Main Notes to the Consolidated Financial Statements

118

1. General Information	118
2. Summary of Significant Accounting Policies (including Going Concern)	118
3. Financial Risk Management	129
4. Critical Accounting Estimates and Judgments	132

Notes to the Consolidated Statement of Financial Position

134

5. Property, Plant and Equipment	134
6. Intangible Assets	135
7. Leases	136
8. Inventories	137
9. Trade and Other Receivables	137
10. Cash and Cash Equivalents	138
11. Share Capital and Other Reserves	138
12. Non controlling interest	139

13. Share-based payment	139
14. Earnings per share	141
15. Trade and other payables	142
16. Borrowings	142
17. Provisions	143
18. Financial Liability	143

Notes to the Consolidated Statement of Comprehensive Income

144

19. Revenues	144
20. Other Income	145
21. Segment Information	145
22. Expenses by Nature	146
23. Employee Benefits	147
24. Finance Income and Costs	147
25. Income Tax Expense	147
26. Dividends	148

Other Notes to the Consolidated Financial Statements

149

27. Contingencies	149
28. Commitments & Guarantees	149
29. Related-Party Transactions	149
30. Proposed Appropriation of Result	151
31. Events After the Balance Sheet Date	151

Company Financial Statements 2022

152

Company Balance Sheet	152
Company Income Statement	153

Notes to the Company Financial Statements

154

32. General information	154
33. Equity attributable to equity holders	154
34. Financial fixed assets	154
35. Receivables from group companies	155
36. Cash and cash equivalents	155
37. Payables to group companies	155
38. Provisions	155
39. Borrowings	156
40. Financial Liability	156
41. Commitment contingencies	157
42. Audit fees	157
43. Remuneration of the management board and the supervisory board	157
44. Employee Information	157

Other information

158

Independent Auditor's Report	159
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Consolidated Financial Statements 2022

Consolidated Statement of Financial Position

As at December 31

in Euro x 1,000	Notes	2022	2021
ASSETS			
Non-current assets			
Property, plant and equipment	5	60,394	23,324
Intangible assets	6	1,974	1,835
Right-of-use assets	7	9,945	9,479
Non-current prepayments	9	15,248	—
Total non-current assets		87,561	34,638
Current assets			
Inventories	8	1,567	1,238
Trade and other receivables	9	8,035	6,888
Cash and cash equivalents	10	64,870	34,911
Total current assets		74,472	43,037
Total assets		162,033	77,675

in Euro x 1,000	Notes	2022	2021
EQUITY			
Equity attributable to owners of the parent			
Ordinary shares	11	4,261	3,129
Share premium		270,829	230,252
Other reserves	11	12,785	11,936
Accumulated losses		(206,747)	(195,291)
Total equity attributable to the owners of the parent		81,128	50,026
Non-controlling interest	12	10,042	—
Total equity		91,170	50,026
LIABILITIES			
Non-current liabilities			
Borrowings	16	12,856	—
Financial liability	18	14,091	—
Lease liabilities	7	10,046	9,099
Total non-current liabilities		36,993	9,099
Current liabilities			
Lease liabilities	7	1,897	1,604
Trade and other payables	15	31,738	16,750
Provisions for other liabilities and charges	17	236	196
Total current liabilities		33,870	18,550
Total liabilities		70,863	27,649
Total equity and liabilities		162,033	77,675

The accompanying notes are an integral part of these consolidated financial statements.



Consolidated Statement of Comprehensive Income

For the financial year ended December 31

<i>in Euro x 1,000</i>	Notes	2022	2021
Revenues	19	17,826	10,917
Other income	20	7,626	6,686
Total revenues and other income		25,452	17,603
Operating expenses			
Raw materials and contract costs	22	(3,770)	(3,042)
Employee benefit expenses	22; 23	(23,401)	(19,226)
Office and housing expenses	22	(3,062)	(1,968)
Patent, license, legal and advisory expenses	22	(6,766)	(4,312)
Laboratory expenses	22	(3,272)	(2,864)
Advertising and representation expenses	22	(1,329)	(707)
Other operating expenses	22	(1,538)	(1,568)
Net operating expenses		(43,138)	(33,687)
EBITDA²⁷		(17,687)	(16,084)
Depreciation, amortisation and impairment charge	22	(8,578)	(7,837)
EBIT²⁸		(26,265)	(23,921)
Finance income	24	12	2
Finance costs	24	(2,459)	(497)
Fair value remeasurement	18	(2,841)	—
Loss before income tax		(31,554)	(24,416)
Income tax expense	25	—	—
Loss for the period		(31,554)	(24,416)
Other comprehensive income		—	—
Total comprehensive expense for the year		(31,554)	(24,416)
Loss attributable to:			
Owners of the parent		(29,583)	(24,416)
Owners of Non-controlling interest		(1,970)	—
		(31,554)	(24,416)

<i>in Euro x 1,000</i>	Notes	2022	2021
Total comprehensive expense attributable to:			
Owners of the parent		(29,583)	(24,416)
Owners of Non-controlling interest		(1,970)	—
		(31,554)	(24,416)

<i>in Euro</i>	Note	2022	2021
Earnings per share for loss from continuing operations attributable to the ordinary equity holders of the company			
Basic earnings per share	14	(0.80)	(0.82)
Diluted earnings per share	14	(0.80)	(0.82)
Earnings per share for loss attributable to the ordinary equity holders of the company			
Basic earnings per share	14	(0.80)	(0.82)
Diluted earnings per share	14	(0.80)	(0.82)

The accompanying notes are an integral part of these consolidated financial statements.

²⁷ EBITDA is an important measurement of the company's financial performance before taking the cost of capital, depreciation and taxes into consideration. EBITDA margins provide a view of operational efficiency and enable a more accurate and relevant comparison between peer companies.

²⁸ EBIT: Earnings Before Interest and Taxes is used in the annual report as a measure, since it provides a view on the core operations of the company alone without the capital structure and tax expenses.



Consolidated Statement of Changes in Equity

For the year ended December 31

in Euro x 1,000	Attributable to equity holders of the company					
	Ordinary shares	Share premium	Other reserves	Accumulated losses	Non-controlling interest	Total Equity
Balance at 1 January 2021	2,591	204,296	10,407	(171,057)	—	46,238
Comprehensive expense						
Result for the year	—	—	—	(24,416)	—	(24,416)
Other Comprehensive expense for the year	—	—	—	—	—	—
Total Comprehensive expense for the year	—	—	—	(24,416)	—	(24,416)
Transactions with owners						
– Employee share schemes - value of Employee services	—	—	828	—	—	828
– Share-based payment - purchase of intangible assets	—	—	884	—	—	884
– Transfer value share scheme to accumulated losses	—	—	(183)	183	—	—
– Issue of ordinary shares due to capital raise	521	25,855	—	—	—	26,376
– Issue of ordinary shares option plan	17	101	—	—	—	117
Total transactions with owners	537	25,956	1,528	183	—	28,205
Balance at 31 December 2021	3,129	230,252	11,936	(195,291)	—	50,026



in Euro x 1,000	Attributable to equity holders of the company					
	Ordinary shares	Share premium	Other reserves	Accumulated losses	Non-controlling interest	Total Equity
Balance at 1 January 2022	3,129	230,252	11,936	(195,291)	—	50,026
Comprehensive expense						
Result for the year	—	—	—	(29,583)	(1,970)	(31,554)
Other Comprehensive expense for the year	—	—	—	—	—	—
Total Comprehensive expense for the year	—	—	—	(29,583)	(1,970)	(31,554)
Transactions with owners						
– Employee share schemes-value of Employee services	—	—	809	—	—	809
– Employee share schemes – LTIP investment shares granted	—	—	180	—	—	180
– Transfer value share scheme to accumulated losses	—	—	(139)	139	—	—
– Issue of ordinary shares from the capital raise	1,125	40,427	—	—	—	41,552
– Issue of ordinary shares from share option plan	7	151	—	—	—	158
Total transactions with owners	1,132	40,577	849	139	—	42,698
Disposal of subsidiary	—	—	—	17,987	12,013	30,000
Balance at 31 December 2022	4,261	270,829	12,785	(206,747)	10,042	91,170

The accompanying notes are an integral part of these consolidated financial statements.



Consolidated Statement of Cash Flows

For the year ended December 31

<i>in Euro x 1,000</i>	Notes	2022	2021
Cash flows from operating activities			
Loss for the year from continuing operations		(31,554)	(24,416)
Adjustments for:			
– Depreciation of property, plant and equipment	5	5,721	5,778
– Amortisation	6	35	56
– Depreciation of right of use assets	7	2,387	2,003
– Share-based payment	13	809	1,711
– Finance costs - net	24	2,448	495
– Fair value remeasurement	18	2,841	—
– Impairment of property, plant and equipment	5	435	22
– Lease adjustment		—	28
Changes in working capital (excluding exchange differences on consolidation):			
– Increase in inventories	8	(329)	(12)
– (Increase)/decrease in trade and other receivables	9	(1,422)	456
– Increase in trade and other payables	15	18,728	1,429
– Increase in provisions	17	40	51
		139	(12,398)
Interest paid on current accounts	24	—	(120)
Interest received on current accounts	24	12	2
Other interest and bank charges		(1,554)	(94)

<i>in Euro x 1,000</i>	Notes	2022	2021
Net cash used in operating activities		(1,404)	(12,610)
Cash flows from investing activities			
Purchases of property, plant and equipment (PPE)	5	(43,226)	(3,926)
Purchases of intangible assets	6	(174)	(6)
Transaction with non-controlling interest	12	20,002	—
Net cash used in investing activities		(23,399)	(3,932)
Cash flows from financing activities			
Net proceeds from Capital raise		41,552	26,376
Net proceeds of option exercises		158	117
Proceeds from borrowings	16	15,000	—
Principal elements of lease payments	7	(1,947)	(1,663)
Net cash generated from financing activities		54,762	24,830
Net increase in cash and cash equivalents		29,959	8,288
Cash and cash equivalents at beginning of the year	10	34,911	26,626
Effect of exchange rate changes	24	(1)	(2)
Cash and cash equivalents from continuing operations at end of financial year	10	64,870	34,911
Cash and cash equivalents at end of financial year	10	64,870	34,911

The accompanying notes are an integral part of these consolidated financial statements.



Main Notes to the Consolidated Financial Statements

1. General Information

Avantium N.V. ('the company') is a company incorporated and domiciled in the Netherlands, with its statutory seat at Zekeringstraat 29-31, 1014 BV in Amsterdam. The company is listed on Euronext Amsterdam and Brussels. The consolidated financial statements of the company for the year ended 31 December 2022 comprise of the company and its subsidiaries (together referred to as 'the group'). The company is also the ultimate parent of the group.

The company is primarily involved in developing and commercialising next generation bio-based plastics and chemicals based on our unique technological capabilities in advanced catalysis research & development. Avantium also provides R&D solutions in the field of sustainable chemistry and is the leading provider of advanced catalyst testing technology and services to accelerate catalyst R&D.

For setting the principles for the recognition and measurement of assets and liabilities and determination of the result of its company financial statements, Avantium N.V. makes use of the option provided in Section 2:362 (8) of the Dutch Civil Code. This means that the principles of the recognition and measurements of assets and liabilities and determination of the result (hereafter referred to as accounting policies) of the company financial statements of Avantium N.V. are the same as those applied for the consolidated financial statements under IFRS (refer to note 2). By applying this option, reconciliation is maintained between the group's and the company's equity.

These consolidated financial statements were approved for issue by both the Supervisory Board and the Management Board on 21 March 2023.

2. Summary of Significant Accounting Policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

2.1. Basis of Preparation

The consolidated financial statements of Avantium N.V. have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. The consolidated financial statements have been prepared under the historical cost convention unless otherwise stated.

2.1.1 Going Concern

The financial statements have been prepared on a going concern basis.

Avantium N.V. ("Avantium")

Avantium is a leading technology company in renewable chemistry, dedicated to developing and commercialising breakthrough technologies for the production of chemicals from renewable sources and circular plastic materials.

Avantium consists of three business segments in various stages of maturity: Avantium R&D Solutions, Avantium Renewable Polymers and Avantium Renewable Chemistries.

Avantium R&D solutions is our main revenue-generating business unit, providing R&D solutions in the field of sustainable chemistry and advanced catalyst testing systems and services for international blue-chip players.

Avantium Renewable Polymers commercialises its YXY® Technology for the production of furandicarboxylic acid (FDCA), which is a key ingredient for polyethylene furanoate (PEF). PEF is a novel, 100% plant-based and fully recyclable polymer with the potential to outperform today's packaging materials, such as plastic, glass and aluminium, especially in the packaging, film and textile sectors, which are large and growing markets. Avantium Renewable Polymers has operated a Pilot Plant in Geleen since 2011 and is currently constructing its FDCA Flagship Plant at the Chemie Park Delfzijl site in Groningen, with a capacity of 5 kilotonnes per annum. Handover from engineering to operations is scheduled for the first quarter of 2024, after which we expect to commission and start up the FDCA Flagship Plant for the commercial production of FDCA and PEF.



Avantium entered into a non-exclusive industrial technology license agreement with Origin Materials, providing Origin access to relevant parts of Avantium's YXY® Technology to enable the conversion of Origin-produced CMF (chloromethylfurfural) derivatives into FDCA at a 100 kilotonnes per annum scale facility. This will enable the use of second generation, renewable feedstocks for the production of FDCA and PEF. Under the agreement, Avantium is eligible to receive license fee milestone payments and royalties for each metric ton of FDCA produced at the licensed plant, in line with industry practices. Avantium received a non-refundable payment of €5 million in 2022. As a result of signing the industrial technology license agreement, Origin Materials paid Avantium a milestone fee of €7.5 million in February 2023.

Avantium Renewable Chemistries develops, among other technologies, plantMEG™ (mono-ethylene glycol), which is a plant-based and competitive alternative for fossil-based MEG. This is an important chemical building block for PET and PEF resin, both of which are used in bottles and packaging; fibres for clothing, furniture and the automotive industry; and solvents and coolants. Avantium Renewable Chemistries opened a demonstration plant in Delfzijl in 2019, which became fully operational in 2020. Avantium plans to scale up the plantMEG™ technology in order to subsequently implement its licensing business model.

Funding Avantium

Avantium's consolidated cash position was €64.9 million as at 31 December 2022. Excluding Avantium Renewable Polymers, Avantium's cash position was €47.9 million. Included in the €47.9 million is a €5.0 million cash deposit reserve held in the name of Avantium N.V. for any potential future equity funding needs during the construction of the FDCA Flagship Plant. It has been agreed with the consortium of lenders that Avantium Renewable Polymers B.V. will at all times have sufficient funding available for the construction of the FDCA Flagship Plant. The reserved cash is available to meet any funding shortfall that may arise, and this is assessed together with the Lenders upon each utilization of the debt facility. The cash in this deposit account remains at all times in full control and ownership of Avantium and its consolidated group.

With the funding obtained in April 2022 from the capital raise, the material uncertainty that existed on the company's ability to continue as a going concern was resolved in April 2022.

In addition to this, Avantium successfully secured debt financing in December 2021, with the first and second drawdowns taking place in November 2022 and January 2023, respectively. Avantium Renewable Polymers expects to meet the conditions precedent to drawdown on the loan in the upcoming period.

Avantium therefore expects to have sufficient cash flow to meet the requirements for working capital, capital expenditures and R&D for at least 12 months after the signing date of these financial statements.

In light of the above, management has assessed the going concern assumption on the basis of which Avantium's financial statements for 2022 have been prepared. The company continues to adopt the going concern basis in preparing its consolidated financial statements.

Due to Avantium's nature as a technology development company, with significant R&D expenses, and the need to invest in scaling our novel technologies and to demonstrate them at commercial scale, the company remains dependent on attracting additional external funding, in particular as the significant income growth from our own operations and licensing is expected to be a few years away. Avantium therefore continues to explore and evaluate various funding options to strengthen its financial position.

2.1.2 Changes in Accounting Policy and Disclosures

New Standards, Amendments and Interpretations not yet Adopted

There were no changes to the financial reporting requirements this year that affected the disclosures in the financial statements of the Group.

New Standards, Amendments and Interpretations not yet Adopted

A number of new standards and amendments to standards and interpretations have been published that are not mandatory for 31 December 2022 reporting periods and have not been early adopted by the company. These standards are not expected to have a material impact on the company in the current or future reporting periods and on foreseeable future transactions.

Use of Estimates

The preparation of financial statements in accordance with IFRS requires the use of certain accounting estimates. It also requires management to exercise its judgement in the process of applying the group's accounting policies. Estimates and judgments are continually evaluated, and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

2.2 Consolidation

2.2.1 Subsidiaries

Subsidiaries are all entities over which the group has control. The group controls an entity when the group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the group. They are deconsolidated from the date that control ceases.

The consolidated companies are listed below (indicating the consolidation percentage):

- Avantium Technologies B.V., Amsterdam (100%)
- Avantium Support B.V., Amsterdam (100%)
- Renewable Technologies B.V. Amsterdam (100%)
- Avantium Chemicals B.V., Amsterdam (100%)
- Avantium Knowledge Centre B.V., Amsterdam (100%)
- Furanix Technologies B.V., Amsterdam (100%)
- YXY Technologies B.V., Amsterdam (100%)
- Stichting Administratiekantoor Avantium, Amsterdam (100%)
- Stichting Stock Options Avantium, Amsterdam (100%)
- Feedstock Technologies B.V., Amsterdam (100%)
- Avantium Renewable Polymers B.V., Amsterdam (100%)
- Avantium RNP Flagship Plant B.V., Amsterdam (100%)
- Avantium Japan K.K., Tokyo (100%)
- Synvina C.V., Amsterdam (100%)

Inter-company transactions, balances and unrealised gains on transactions between group companies are eliminated. Unrealised losses are also eliminated. When necessary, amounts reported by subsidiaries have been adjusted to conform to the group's accounting policies.

2.2.2 Changes in Ownership Interests in Subsidiaries Without Change of Control

Transactions with non-controlling interest that do not result in loss of control are accounted for as equity transactions. The difference between fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to non-controlling interest are also recorded in equity.

On 31 March 2022, there was a change in ownership of Avantium Renewable Polymers B.V., a subsidiary of Avantium N.V. Worley Nederland B.V. and Bio Plastics Investment Groningen B.V. together have acquired a 22.6% shareholding in Avantium Renewable Polymers B.V., while Avantium continues to hold 77.4% of the equity. The change in shareholding did not result in Avantium N.V. losing control over the subsidiary Avantium Renewable Polymers B.V. This resulted in an amount of €18.0 million to be presented as a profit in the Consolidated Statement of Changes in Equity. The details of the transactions between the equity participants are as follows:

(In Euro x 1,000)	31 March 2022
Fair value of the consideration received	30,000
Increase in the non-controlling interest	(12,013)
Adjustment to equity attributable to owners of the parents	17,987

2.2.3 Disposal of Subsidiaries

When the group ceases to have control, any retained interest in the entity is remeasured to its fair value at the date when control is lost with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognised in other comprehensive income are reclassified to profit or loss.

2.2.4 Non-Controlling interest

Non-controlling interest are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition.

2.2.5 Principles of Consolidation and Equity Accounting

When the group ceases to consolidate or equity account for an investment because of a loss of control, joint control or significant influence, any retained interest in the entity is remeasured to its fair value with the change in carrying amount recognised in profit or loss. This fair value becomes the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognised in other comprehensive income are reclassified to profit or loss.

If the ownership interest in a joint venture or an associate is reduced but joint control or significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income are reclassified to profit or loss where appropriate.

2.2.6 Segment Reporting

Operating segments are reported in a manner consistent with the business responsibilities and internal reporting. The Management Board has appointed the management team which assesses the financial performance and position of the group, and makes strategic decisions. The management team, consists of the Chief Executive officer, the Chief Financial Officer, the Chief Technology Officer, the Group Legal Counsel, the Managing Director of Avantium Renewable Chemistries, the Managing Director of Avantium R&D Solutions and the Managing Director of Avantium Renewable Polymers.



2.3 Foreign Currency Translation

Functional and Presentation Currency

Items included in the financial statements of each of the group's entities are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). The consolidated financial statements are presented in euros, which is the company's functional currency.

Transactions and Balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuations where items are remeasured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the statement of comprehensive income.

Foreign exchange gains and losses that relate to borrowings and cash and cash equivalents are presented in the statement of comprehensive income within 'finance income or cost'.

Group Companies

The results and financial position of all the group entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- Assets and liabilities for each balance sheet presented are translated at the closing rate at the date of that balance sheet.
- Income and expenses for each statement of comprehensive income are translated at the average exchange rates.
- All resulting exchange differences are recognised as a separate component of other comprehensive income.

2.4 Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingencies at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. The use of estimates is or could be a significant factor affecting the reported carrying values of property, plant and equipment, intangibles, trade and other receivables and trade and other payables. Despite management's best efforts to accurately estimate such amounts, future results could materially differ from those estimates.

2.5 Property, Plant and Equipment

Property, plant and equipment comprise mainly of laboratory equipment, hardware and leasehold improvements. Leasehold improvements include machinery that is located in at the various Pilot Plant sites. All property, plant and equipment is stated at historical cost less accumulated depreciation. Historical cost includes expenditures that are directly attributable to the acquisition of the items.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the group and the cost of the item can be measured reliably. All other repairs and maintenance charges are expensed in the financial period in which they are incurred.

Depreciation is calculated using the straight-line method to allocate their cost of the assets to their residual values over their estimated useful lives as follows:

■ Leasehold improvements	5-20 years
■ Machinery, laboratory equipment and vehicles	5 -7 years
■ Computer hardware	3 years
■ Office furniture and equipment	3-5 years

Gains and losses on disposals are determined by comparing the proceeds with the carrying amount. Gains and losses are included in the consolidated statement of comprehensive income.

2.6 Intangible Assets

Research and Development

Research expenditures are recognised as expenses as incurred. Development costs that are directly attributable to the design and testing of identifiable and unique products controlled by the group are recognised as intangible assets when the following criteria are fulfilled:

- It is technically feasible to complete the intangible asset so that it will be available for use or sale.
- Management intends to complete the intangible asset and use or sell it.
- There is an ability to use or sell the intangible asset.
- It can be demonstrated how the intangible asset will generate probable future economic benefits.



- Adequate technical, financial and other resources to complete the development and to use or sell the intangible asset are available.
- The expenditure attributable to the intangible asset during its development can be reliably measured.

Other development expenditures that do not meet these criteria are recognised as an expense as incurred. Development costs previously recognised as an expense are not recognised as an asset in a subsequent period. Capitalised development costs are recorded as intangible assets and amortised from the point at which the asset is ready for use on a straight-line basis over its estimated useful life of five years. Intangible assets not ready for use are tested for impairment at least on an annual basis.

Amortisation of development costs is included in depreciation, amortisation and impairment charge in the statement of comprehensive income. All development costs arose from internal development.

Computer Software and Other Intangibles

Acquired computer software licenses are capitalised on the basis of the costs incurred to acquire and use the specific software. These costs are amortised straight-line over their estimated useful lives of three years.

Costs associated with developing or maintaining computer software programmes are recognised as expenses as incurred. Development costs that are directly attributable to the design and testing of identifiable and unique software products controlled by the group, that will probably generate economic benefits exceeding costs beyond one year, are recognised as intangible assets.

Other intangibles consisting of an in-kind contribution of a shareholder for their software at the foundation of the group and compensation paid to a third party to exclusively use parts of their technology. Amortisation is calculated using the straight-line method over the estimated useful life of three years.

Intellectual Property

Following the acquisition of Liquid Light on 30 December 2016, the company records intellectual property (patent portfolio acquired) on its consolidated balance sheet. The intellectual property is stated at historical cost, which will subsequently be lowered with accumulated amortisation in the following years, when the technology on which the intellectual property is filed is ready to deploy commercially.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the group and the cost of the item can be measured reliably.

Amortisation is calculated using the straight-line method to allocate their cost of the assets to their residual values over their estimated useful lives (average lifetime of patent portfolio) as follows:

- Intellectual property 5-20 years

License rights

Acquired licenses that grants the company the right to use technologies not owned/developed by the company are recorded on its consolidated balance sheet. The license rights are stated at historical cost, which will subsequently be lowered with accumulated amortisation in the following years.

License rights contain variable royalty fee payment terms that are linked to production of the License Products once the FDCA Flagship Plant is constructed and starts production. The fees will equal to \$20 USD per metric ton of Licensed Products produced from the FDCA Flagship Plant. Variable royalty fee payments that depend on the volume of production of the Licensed Products will be recognised in profit or loss in the period in which the condition that triggers those payments.

Amortisation is calculated using the straight-line method to allocate their cost of the assets to their residual values over their estimated useful lives (average lifetime of license rights) as follows:

- License rights 5-20 years

2.7 Impairment of Non-Financial Assets

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

2.8 Non-Current Assets (or Disposal Groups) Held for Sale

Non-current assets (or disposal groups) are classified as assets held for sale when their carrying amount is to be recovered principally through a sale transaction and a sale is considered highly probable. They are stated at the lower of carrying amount and fair value less costs to sell.

2.9 Financial Assets

2.9.1 Classification

The group classifies its financial assets in assets to be measured at amortised cost.

The classification depends on the company's business model for managing the financial assets and the contractual terms of the cash flows. Management determines the classification of its financial assets at initial recognition. The group classifies its financial assets as assets held for collection of contractual cash flows.

2.9.2 Recognition and Measurement

Regular purchases and sales of financial assets are recognised on the trade-date, the date on which the group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the financial assets expire or if the company transfers the financial asset to another party and does not retain control or substantially all risks and rewards of the asset. Financial liabilities are derecognised when the company's obligations specified in the contract expire or are discharged or cancelled.

Financial assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest

income from these financial assets is included in finance income using the effective interest rate method. Any gain or loss arising on derecognition is recognised directly in the statement of comprehensive income and presented in other gains/ (losses). Impairment losses are presented as separate line item in the statement of comprehensive income.

2.10 Offsetting Financial Instruments

Financial assets and liabilities are offset and the net amount reported in the balance sheet when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the company or the counterparty.

2.11 Impairment of Financial Assets

Assets Carried at Amortised Cost

Impairment provisions for trade receivables are recognised based on the simplified approach within IFRS 9 to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables and contract assets.

To measure the expected credit losses, trade receivables and contract assets have been grouped based on shared credit risk characteristics and the days past due. The contract assets relate to unbilled work in progress and have substantially the same risk characteristics as the trade receivables for the same types of contracts. The group has therefore concluded that the expected loss rates for trade receivables are a reasonable approximation of the loss rates for the contract assets.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised (such as an improvement in the debtor's credit rating), the reversal of the previously recognised impairment loss is recognised in the consolidated statement of comprehensive income.

Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable



cash inflows which are largely independent of the cash inflows from other assets or groups of assets (cash-generating units).

2.12 Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is determined using the first-in, first-out (FIFO) method. The cost of raw materials, finished goods and work in progress comprises all purchase costs including charges incurred to bring inventories to their current location and into their current state. It excludes borrowing costs. Net realisable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

2.13 Trade Receivables

Trade receivables are amounts due from customers for products sold or services performed in the ordinary course of business. If collection is expected in one year or less (or in the normal operating cycle of the business if longer), they are classified as current assets. If not, they are presented as non-current assets.

Trade receivables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, less provision for impairment. Refer to note 2.11 for further information about the group's impairment policy on financial assets.

2.14 Cash and Cash Equivalents

In the consolidated statement of cash flows, cash and cash equivalents includes cash in hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less and bank overdrafts. In the consolidated statement of financial position, bank overdrafts are shown within borrowings in current liabilities.

Restricted Cash

The restricted cash includes cash deposits, which is measured at an amount equal to the current outstanding bank guarantees issued to third parties and/or cash deposits held in designated accounts for an equity reserve as agreed with lenders. The restricted cash is not available for use by the company to meet the short-term cash obligations. In the consolidated statement of financial position the restricted cash is shown within cash and cash equivalents as current assets.

2.15 Share Capital

Ordinary Shares

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of new ordinary shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Treasury Shares

Where any group company or liquidity provider appointed by the group, purchases the company's equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs (net of income taxes), is deducted from equity attributable to the company's equity holders until the shares are cancelled or reissued. Where such ordinary shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs and the related income tax effects, is included in equity attributable to the company's equity holders. No gain or loss is recognised in the statement of comprehensive income on the purchase, sale, issuance or cancellation of the company's own equity instruments.

2.16 Trade and Other Payables

Trade payables are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Accounts payable are classified as current liabilities if payment is due within one year or less (or in the normal operating cycle of the business if longer). If not, they are presented as non-current liabilities.

Trade payables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method.

2.17 Current and Deferred Income Tax

The tax expense for the year comprises current and deferred tax. Tax is recognised in the statement of comprehensive income, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case, the tax is also recognised in other comprehensive income or directly in equity respectively.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the balance sheet date in the countries where the company's subsidiaries and associates operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to



interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, the deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the balance sheet date and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

2.18 Employee Benefits

Pension Obligations

The group operates a defined contribution pension plan for all employees funded through payments to an insurance company. The group has no legal or constructive obligations to pay further contributions if the plan does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior years. The contributions are recognised as employee benefit expense when they are due. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

Share-Based Payments

The group operates a share-based compensation plans for its employees, which consist of an Employee Stock Option Plan (ESOP) and a Long-term Incentive Plan (LTIP), also refer to note 13. These plans are classified as an equity-settled share-based payment plans.

Share options granted to employees are measured at the fair value of the equity instruments granted under the indirect method of measurement. Fair value is determined through the use of an option-pricing model considering, amongst others, the following variables:

- a) The exercise price of the option
- b) The expected life of the option
- c) The current value of the underlying shares
- d) The expected volatility of the share price
- e) The dividends expected on the shares
- f) The risk-free interest rate for the life of the option

For the company's share option plan, management's judgment is that the Black-Scholes valuation model is most appropriate for determining fair values as this model allows accounting for non-transferability and early exercise. Since the company became listed in March 2017, there is published share price information available to determine the fair value of its shares and the expected volatility of that value. These assumptions and estimates are further discussed in note 13 to the IFRS consolidated financial statements. The result of the share option valuations and the related compensation expense is dependent on the model and input parameters used.

For the equity-settled Avantium ESOP, the fair value of the grant is determined at the grant date. For the LTIP, the fair value is determined by the share price of the award at the grant date.

The fair value of the employee services received in exchange for the grant of the awards is recognised as an expense. For share-based payments that do not vest until the employees have completed a specified period of service, the group recognises the cost of services received as the employees render service during that period.

At each balance sheet date, the company revises its estimates of the number of awards that are expected to become exercisable. It recognises the impact of the revision of original estimates, if any, in the statement of comprehensive income and a corresponding adjustment to equity.

The proceeds received from exercised options net of any directly attributable transaction costs are credited to share capital (nominal value) and share premium.

Profit-sharing and Bonus Plans

The group recognises a liability and an expense for bonuses and profit-sharing where contractually obliged or where there is a past practice that has created a constructive obligation.

Termination Benefits

Termination benefits are payable when employment is terminated by the group before the normal retirement date, or when an employee accepts voluntary redundancy in exchange for these benefits. The group recognises termination benefits at the earlier of the following dates: (a) when the group can no longer withdraw the offer of those benefits; and (b) when the entity



recognises costs for a restructuring that is within the scope of IAS 37 and involves the payment of termination benefits. In the case of an offer made to encourage voluntary redundancy, the termination benefits are measured based on the number of employees expected to accept the offer. Benefits falling due more than 12 months after the end of the reporting period are discounted to present value.

2.19 Provisions

Provisions are recognised when the group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount can be reliably estimated.

The group provides for the estimated cost of product warranties at the time revenue is recognised and the group has a constructive obligation. Warranty provision is established based on the group's best estimates of the amounts necessary to settle future and existing claims on products sold as of the balance sheet date.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation.

2.20 Revenue Recognition

Revenue comprises the fair value of the consideration received or receivable for the sale of goods and services in the ordinary course of the group's activities. Revenue is shown net of value-added tax, returns, rebates and discounts and after eliminating sales within the group.

The group recognises revenue when specific criteria have been met for each of the group's activities as described below. The group bases its estimates on historical results, taking into consideration the type of customer, the type of transaction and the specifics of each arrangement.

Sales of Goods

For the supply of goods, revenue is recognised at a point in time, as soon as the control relating to the title of the goods have been transferred to the customer and the entity has a present right to payment. In practice, this is at the shipment date or after installation (if applicable).

Contracts related to sale of goods are typically the following:

- System parts
- Consumables

- Material offtake and collaboration agreements originating from Avantium Renewable Polymers, Avantium Renewable Chemistries and other early stage technologies.

A receivable is recognised when the goods are shipped as this is the point in time that the consideration is unconditional because only the passage of time is required before the payment is due.

Construction Contracts

Revenue and expenses related to Flowrence systems are accounted over time, which recognises revenue as performance of the contract progresses. The company satisfies the criteria prescribed under IFRS 15 for recognising revenue over time, since each sales contract agreed with a customer relates to the creation of a Flowrence system, a tailor-made machine, with varying components for the various chemistries which cannot be used for alternative purposes by the company and the company has an enforceable right to payment for the performance completed to date. The customer has full control over the Flowrence as it is being created. The customer can direct the specifics of how the asset is to be used and has input on the varying components of the Flowrence being created. The stage of completion is measured by referring to the contract costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Costs incurred in the year in connection with future activity on a contract are excluded from contract costs in determining the stage of completion.

On the balance sheet, the group reports the net contract position for each contract as either a contract asset or a contract liability. A contract represents a contract asset where costs incurred plus recognised profits (less recognised losses) exceed progress billings; a contract represents a contract liability where the opposite is the case.

Variations in contract work, claims and incentive payments are included in contract revenue to the extent that may have been agreed with the customer and can be reliably measured.

Where the income of a revenue contract cannot be estimated reliably, contract revenue that is likely to be recovered is recognised to the extent of contract costs incurred. Contract costs are recognised as expenses in the period in which they are incurred.

Multiple Element Arrangements

In certain circumstances, it is necessary to apply the recognition criteria to the separately identifiable components of a single transaction in order to reflect the substance of the transaction. Conversely, the recognition criteria are applied to two or more transactions together when they are linked in such a way that the commercial effect cannot be understood without reference to the series of transactions as a whole.



The group offers arrangements whereby a customer purchases systems and installations services under one arrangement. When such multiple element arrangements exist, an element is accounted for as a separable element if it has value to the customer on a standalone basis and the fair value can be determined objectively and reliably. The transaction price is allocated to each separate element based on the stand-alone selling prices.

When Catalysis systems revenues and installation service revenues are identified as separable elements in a multiple element transaction, the systems revenue recognised is determined based on the standalone selling price of the systems in relation to the transaction price of the arrangement taken as a whole and is recognised as discussed above. The revenue relating to the installation service element, which represents the standalone selling price of the installation services in relation to the transaction price of the arrangement, is recognised on completion of the installation services.

This separation is justified due to the fact that the supply and installation of the goods are offered to the customer separately as the installation can also be executed by an independent third party.

Timing of payment by the customer from the supply of goods is based on the contractual identified instalments. This could result, on a product by product basis, in advanced payments. These amounts are reported as contract liabilities on the balance sheet under other current liabilities.

Sales of Services

Revenue from the sales of services is recognised over time recognising revenue based on the actual services provided to the end of the accounting period as a proportion of the total services to be performed.

Timing of payment by the customer from sale of services is based on the contractual identified technical milestones. This could result, on a project by project basis, in contract assets or contract liabilities. These amounts are reported on the balance sheet under other receivables or other current liabilities.

As part of the Renewable Chemistries business development agreements, which constitute solely a step-in, management identified this as one-off revenue recognition at moment of signing the agreements, in accordance with IFRS 15, since it is deemed that once the agreement is signed, no future obligation is to be fulfilled.

As part of the Renewable Polymers business non-refundable technical due diligence procedures

were performed. At the completion of the technical due diligence procedures revenue was recognised.

If circumstances arise that may change the original estimates of revenues, costs or extent of progress toward completion, estimates are revised. These revisions may result in increases or decreases in estimated revenues or costs and are reflected in income in the period in which the circumstances that give rise to the revision become known by management.

2.21 Grants

Grants and subsidies from third parties are recognised at their fair value when there is a reasonable assurance that the grant will be received, and the group will comply with all attached conditions. Any outstanding receivables related to these grants are recorded as other receivables under current receivables.

Government grants pre-financed amounts received are deferred and recognised in the income statement over the period necessary to match them with the costs that they are intended to compensate.

Government grants relating to property, plant and equipment are included in non-current liabilities as deferred government grants and are credited to the income statement on a straight-line basis over the expected lives of the related assets.

2.22 Interest Income and Expense

Interest income and interest expense is recognised using the effective interest method. When a loan or receivable is impaired, the group reduces the carrying amount to its recoverable amount, being the estimated future cash flow discounted at the original effective interest rate of the instrument and continues unwinding the discount as interest income. Interest income on impaired loan and receivables is recognised using the original effective interest rate.

All borrowing costs are recognised in the income statement using the effective interest rate method.



2.23 Leases

The group leases various offices and a number of vehicles. Rental contracts are generally made for fixed periods of 3 to 10 years but may have extension options. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

Contracts may contain both lease and non-lease components. The group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices.

Leases are recognised as right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the group. Each lease payment is allocated between the lease liability and finance cost. The finance cost is charged to the statement of comprehensive income over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. Right-of-use asset are depreciated on a straight-line basis over the remaining term of the lease or over the remaining economic life of the asset, if this is judged to be shorter than the lease term.

Assets and liabilities arising from a lease are initially measured on a present value basis.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants other than the security deposits in the leased assets that are held by the lessor. Leased assets may not be used as security for borrowing purposes.

Lease Liability

Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payments are based on an index or a rate - decommissioning costs; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

The group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Right-of-Use Assets

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of the lease liability;
- any lease payments made at or before the commencement date less any lease incentives received - any initial direct costs; and
- onerous contract provisions.

Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

The group has no financial lease obligations.

2.24. Financial Liability

Financial liabilities are recognised when the group becomes a party to the contractual provision of a financial instrument. Financial liabilities are derecognised when the group's obligations specified in the contract expire or are discharged or cancelled.

All financial liabilities are recognised initially at fair value and, in the case of loans and borrowings, net of directly attributable transaction costs.

2.24.1 Classification

The Group classifies all financial liabilities as subsequently measured at amortised cost, except for derivatives. Any difference between the proceeds and redemption value is recognised in the income statement over the period of the loans and short-term borrowings using the effective interest method.

Financial liabilities are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the balance sheet date.

2.24.2 Recognition and Measurement

The derivatives are measured initially and subsequently at fair value through profit or loss at each reporting date. Gains and losses resulting from the fair value remeasurement are recognised in the income statement as fair value gains(losses) on financial instruments.

2.25 Earnings per Share

Basic Earnings per Share

Basic earnings per share is calculated by dividing:

- The profit attributable to owners of the company, excluding any costs of servicing equity other than ordinary shares
- By the weighted average number of ordinary shares outstanding during the financial year, excluding treasury shares (note 14).

Diluted Earnings per Share

Diluted earnings per share adjusts the figures used in the determination of basic earnings per share to take into account:

- The after-income tax effect of interest and other financing costs associated with dilutive potential ordinary shares
- The weighted average number of additional ordinary shares that would have been outstanding assuming the conversion of all dilutive potential ordinary shares.

2.26 Cash Flow Statement

The cash flow statement is presented using the indirect method. Cash flow in foreign currencies are converted at the exchange rate on the date of the cash flow, or based on the average rate. A distinction is made in the cash flow statement between the cash flows from operating, investment and financing activities.

3. Financial Risk Management

3.1 Financial Risk Factors

The group's activities expose it to a variety of financial risks: market risk (including currency risk, interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. The group's risk management programme focuses on the unpredictable nature of financial markets and seeks to limit any potential adverse effects on financial performance.

Risk management is carried out by the central Finance & Accounting department (Group F&A) under policies approved by the Management Board. Group F&A identifies, evaluates and covers financial risks in close cooperation with the group's operating units. The board provides principles for overall risk management, as well as written policies covering specific areas such as foreign-exchange risk, interest rate risk, credit risk, use of non-derivative financial instruments, and investment of excess liquidity.

Financial instrument by category

Non-Current Financial assets as at December 31:

<i>in Euro x 1,000</i>	Notes	2022	2021
Prepayments	9	15,248	—

Non-Current Financial liabilities as at December 31:

<i>in Euro x 1,000</i>	Notes	2022	2021
Borrowings	16	12,856	—
Lease liability	7	10,046	9,099
Financial liability	18	14,091	—

Current Financial assets as at December 31:

<i>in Euro x 1,000</i>	Notes	2022	2021
Trade receivables	9	2,634	1,015
Prepayments	9	1,179	367
Other receivables	9	4,372	5,657
Cash and cash equivalents	10	64,870	34,911

Current Financial liabilities as at December 31:

<i>in Euro x 1,000</i>	Notes	2022	2021
Trade payables	15	8,628	4,714
Other liabilities	15	14,614	7,123
Deferred government grant	15	8,496	4,913
Lease liabilities	7	1,897	1,604

The carrying amounts of these financial assets and liabilities are assumed to approximate their fair values due to their short-term nature. Also refer to note 15 for an overview of trade and other payables.

Interest Rate Risk

The most significant interest rate risk for the company relates to borrowings (refer to note 16). As at 31 December 2022 the borrowings of the company consisted of a first drawdown on a three-year Debt Facilities Agreement amounting to €15.0 million. This Debt Facilities Agreement is based on EURIBOR. The accrued cash and PIK interest expense at 31 December 2022 amounted to €182,000.

Interest rate risk is the risk that changes in the market interest rates affect the fair value or cash flows of a financial instrument. If market interest rates had been 50 basis points higher on average during 2022, with all other variables held constant, net interest expenses for the year would have been €8,125 higher (2021: nil). The opposite applies in the case of a 50 basis points decrease in the interest rates.

Currency Risk

The group operates internationally and is exposed to foreign exchange risk primarily in relation to the US dollar. Foreign exchange risk arises from future commercial transactions, recognised assets and liabilities. Management has set up a policy that requires group companies to manage their foreign exchange risk against their functional currency. The group companies are required to close commercial transactions in euros. Certain US-based customers negotiate US-dollar contracts. There are a limited number of these contracts, and the group companies

can only close these with management's written approval. The group's operations are therefore not subject to significant foreign exchange rate risks. Foreign exchange risk arises when future commercial transactions or recognised assets and liabilities are denominated in a currency that is not the entity's functional currency.

The group outstanding trade receivables in US dollars of \$3,000 (2021: \$nil). The group had no trade receivables in another foreign currency. The group had outstanding trade payables in US dollars of \$65,000 (2021: \$1,545,000), in British pound of £13,000 (2021: £13,000) and in Japanese Yen of ¥347,000 (2021: ¥8,404,000).

If at 31 December 2022, the euro had weakened by 10% against the US dollar with all other variables held constant, post-tax result for the year would have been €6,000 higher (2021: €132,000 higher). The US dollar cash position as at 31 December 2022 is \$19,039 (2021: \$26,069). The Japanese Yen cash position as at 31 December 2022 is ¥2,907,000 (2021: ¥5,134,000). the group had no cash position in other foreign currencies.

Credit Risk

Credit risk is managed on group basis. The group does not have any significant concentrations of credit risk and is limited to outstanding trade receivables, cash and cash equivalents. On 31 December 2022, the largest single client exposure consisted of 24% of the outstanding trade receivables. The group clients are subject to creditworthiness tests. Sales are subject to payment conditions varying between payments in advance and 30 days after invoice date. For certain projects, deviations to this rule may apply only after approval of group F&A, in which case additional security, including guarantees and documentary credits, may be required. Management does not expect any losses from non-performance by its clients nor from concentration of this risk.

In 2022, €0 (2021: €0) of trade or other receivables was written off; €1,837,000 was past due, of which 58% had been paid before 4 March 2023.

The amount of trade and other receivables past due as at December 31, were as follows:

<i>in Euro x 1,000</i>	2022	2021
More than 1 month past due	1,425	181
More than 3 months past due	65	—
More than 6 months past due	347	283
	1,837	464

Impairment provisions for trade receivables are recognised based on the simplified approach within IFRS 9 to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables and contract assets.

To measure the expected credit losses, trade receivables and contract assets have been grouped based on shared credit risk characteristics and the days past due. The contract assets relate to unbilled work in progress and have substantially the same risk characteristics as the trade receivables for the same types of contracts. The group has therefore concluded no provision for credit losses is required on trade receivables and contract assets, since after careful consideration of each customer's payment profile and likelihood to default on payments, the credit losses was deemed to be immaterial.

Trade receivables and contract assets are written off where there is no reasonable expectation of recovery. Indicators that there is no reasonable expectation of recovery include, amongst others, the failure of a customer to engage in a repayment plan with the group, and a failure to make contractual payment for a period of greater than 6 months past due. Management has therefore concluded that a provision of doubtful debt of €150,000 on the trade receivables had to be recognised as at 31 December 2021. As at 31 December 2022 this position remained unchanged.

The maximum exposure to credit risk at the reporting date is the carrying value of each class of receivable mentioned above. The group does not hold any collateral as security. The long-term credit ratings of banks used by the group, as at 31 December 2022 at Moody's and S&P subsequently, are as follows. Group funds are held at Rabobank with a long-term credit rating of Aa2 and A+, ABN AMRO bank with a long-term credit rating of between A1 and A, and at ING Bank with a long-term credit rating between A- and A+.

Liquidity Risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of committed credit facilities and the ability to close out market positions.

The table below analyses the group's financial liabilities into relevant maturity groupings based on the remaining period at the balance sheet to the contractual maturity. The amounts disclosed in the table are the contractual discounted cash flows for continuing operations. The specific time buckets are not mandated by the standard but are based on a choice of management. The tables include both interest and principal cash flows:

As at December 31, 2022:

<i>in Euro x 1,000</i>	Less than 1 year	Between 1 and 2 years	Between 2 and 5 year	Over 5 years	Total
Borrowings	—	—	(12,856)	—	(12,856)
Lease liabilities	(1,897)	(1,791)	(6,378)	(1,877)	(11,943)
Financial liability	—	(14,091)	—	—	(14,091)
Trade payables	(8,628)	—	—	—	(8,628)
Deferred government grant	(8,496)	—	—	—	(8,496)
Other current liabilities	(14,614)	—	—	—	(14,614)
	(33,634)	(15,882)	(19,234)	(1,877)	(70,627)

As at December 31, 2021:

<i>in Euro x 1,000</i>	Less than 1 year	Between 1 and 2 years	Between 2 and 5 year	Over 5 years	Total
Lease liabilities	(1,604)	(1,497)	(5,408)	(2,194)	(10,703)
Trade payables	(4,714)	—	—	—	(4,714)
Deferred government grant	(4,913)	—	—	—	(4,913)
Other current liabilities	(7,123)	—	—	—	(7,123)
	(18,354)	(1,497)	(5,408)	(2,194)	(27,453)

The carrying amounts of these financial liabilities are assumed to approximate their fair values due to their short-term nature.

Fair value

The group applies the following hierarchy for determining and disclosing the fair value of the financial instruments by valuation technique:

Level 1: Quoted (unadjusted) prices in active markets for identical assets or liabilities;

Level 2: Valuation techniques whereby the lowest-level input as significant for valuation at fair value is directly or indirectly observable;

Level 3: Valuation techniques whereby the lowest level input as significant for valuation at fair value is not observable.

Changes in the fair value of the financial instruments measured at fair value are recognised in the Income Statement.

Trade and Other Receivables, Payables to Suppliers, Other liabilities due to expire within one year are included in the financial statements at amortized cost. The amortized cost is considered to be a reflection of fair value due to the short duration.

The fair value measurement for borrowings are categorized within level 3 of the fair value hierarchy. The fair value is determined based on the discounted cash flow method.

The financial liability (warrants) are categorized within level 2 of the fair value hierarchy as this is not a trading instrument.

3.2 Capital Management

The group's objective when managing capital is to safeguard its ability to continue as a going concern (also refer to 2.1.1) in order to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital. To maintain or adjust the capital structure, the group monitors capital on the basis of its adjusted solvency ratio. This ratio is calculated as adjusted equity divided by the adjusted balance sheet total.

The adjusted equity is calculated as equity:

- Minus the intangible assets, participating interests and receivables from shareholders

The adjusted balance sheet total is calculated as total assets:

- Minus the intangible assets, participating interest, receivables from shareholders and shares held in the own company

The adjusted solvency ratios as at December 31, were as follows:

<i>in Euro x 1,000</i>	2022	2021
Equity attributable to owners of the parent	81,128	50,026
Intangible assets	(1,974)	(1,835)
Adjusted equity total	79,154	48,191
Adjusted balance sheet total	160,059	75,840
Adjusted solvency ratio	49%	64%

4. Critical Accounting Estimates and Judgments

The preparation of financial statements in accordance with IFRS requires the use of certain accounting estimates. It also requires management to exercise its judgement in the process of applying the group's accounting policies. Estimates and judgments are continually evaluated, and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

Income Taxes

The group, which has a history of recent tax losses, recognises deferred tax assets arising from unused tax losses or tax credits only to the extent that the relevant fiscal unity has sufficient taxable temporary differences or there is convincing other evidence that sufficient taxable profit will be available against which the unused tax losses or unused tax credits can be utilised by the fiscal unity. Management's judgment is that there is not a high degree of certainty that sufficient profits will be earned to utilise the losses. Consequently, based on management's judgment, sufficient convincing other evidence is not available, and a deferred tax asset is therefore not recognised.

Share-based Payments

Share options granted to employees are measured at the fair value of the options granted (indirect method of measurement). For the company's share option plan, management's judgment is that the Black-Scholes valuation method is most appropriate for determining fair values. The assumptions and estimates used in the valuation are further discussed in note 13 to the consolidated financial statements.

The result of the share option valuations and the related compensation expense is dependent on the model and input parameters used. Even though management considers the fair values reasonable and defensible based on the methodologies applied and the information available, others might derive at a different fair value for the options granted under the company's share option plan.

Research and Development Expenditures

The project stage forms the basis in the decision of whether costs made for the group's product development programmes should be capitalised or not. Management judgment is required in determining when the group should start capitalising development costs as intangible assets.



Management determined that for a system, commercial feasibility is, in general, probable when the group has built a successful prototype and has interested customers for the commercial product. Management determined that for product development, (note 2.6) commercial feasibility is, in general, probable when the group has successfully completed essential testing phases and are in a late stage of discussions with potential partners for commercialisation opportunities.

Revenue Recognition

The group recognises revenue over time or at point in time depending on the agreed contract performance obligations. For Flowrence® systems and services contracts the group recognises revenue over time as performance of the contract progresses. The performance on a contract relates to fixed-price contracts to construct tailor-made Flowrence® systems which the customers control and cannot be of alternative use to the company. For the Flowrence® systems, the stage of completion is measured by reference to the total contract costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Value is delivered to customers up to each of these points. For services, in order to recognise revenue over time, the group is required to estimate the series of distinct services performed to date as a proportion of the total services to be performed, where also stage gates are present, and value is added up to that point. To define the recognised revenues, the group estimates the required total costs (Flowrence®) or man-hours (services) to complete each project. On a regular basis a review of the total costs or man-hours is performed.

Going Concern

For the critical accounting judgment with regard to the going concern assumption, see note 2.1.1.

Government Grants

The group uses the percentage-of-completion (POC) method in accounting for its government grants it has been awarded. For grant programmes, use of the POC method requires the group to estimate the services/actions performed to date as a proportion of the total services or actions to be performed. For further considerations and assumptions with regard to the critical accounting estimate in relation to government grants, see note 2.21.

Impairment

Judgments and estimates are required, not only to determine whether there is an indication that an asset may be impaired, but also whether indications exist that impairment losses previously recognized may no longer exist or may have decreased (impairment reversal). After indications of impairment have been identified, judgments and estimates are also involved in the determination of the recoverable amount of a non-current asset. The recoverable amount is determined based on the higher of the fair value less cost to sell and the value-in-use. These involve estimates of expected future cash flows (based on future growth rates and remaining useful life) and residual value assumptions, as well as discount rates to calculate the present value of the future cash flows.

Notes to the Consolidated Statement of Financial Position

5. Property, Plant and Equipment

<i>in Euro x 1,000</i>	Leasehold improvements	Laboratory equipment	Hardware	Office furniture and equipment	Construction in progress	Total
At 1 January 2021						
Cost	25,364	34,519	3,174	2,127	4,060	69,244
Accumulated depreciation	(12,305)	(26,999)	(2,712)	(2,030)	—	(44,045)
Net book amount	13,058	7,521	463	97	4,060	25,198
Year ended 31 December 2021						
Opening net book amount	13,058	7,521	463	97	4,060	25,199
Additions	847	166	55	3	2,855	3,926
Disposals	—	(80)	—	—	—	(80)
Transfers	—	137	—	—	(137)	—
Accumulated depreciation on disposals	—	59	—	—	—	59
Impairment charge	—	—	—	—	—	—
Depreciation charge	(3,377)	(2,154)	(182)	(66)	—	(5,778)
Closing net book amount	10,528	5,649	336	34	6,777	23,325
At 31 December 2021						
Cost	26,209	34,743	3,229	2,131	6,777	73,089
Accumulated depreciation	(15,682)	(29,094)	(2,893)	(2,096)	—	(49,765)
Net book amount	10,528	5,649	336	34	6,777	23,324
Year ended 31 December 2022						
Opening net book amount	10,528	5,649	336	34	6,777	23,324
Additions	48	21	75	76	43,006	43,226
Disposals	—	—	—	—	—	—
Transfers	—	107	3	—	(110)	—
Accumulated depreciation on disposals	—	—	—	—	—	—
Impairment charge	(355)	(66)	(11)	(3)	—	(435)
Depreciation charge	(3,501)	(2,018)	(161)	(42)	—	(5,721)
Closing net book amount	6,720	3,693	242	66	49,674	60,394
At 31 December 2022						
Cost	25,902	34,804	3,296	2,204	49,674	115,880
Accumulated depreciation	(19,182)	(31,112)	(3,054)	(2,138)	—	(55,486)
Net book amount	6,720	3,693	242	66	49,674	60,394

The additions in property plant and equipment during 2022 predominantly related to investments made by the Avantium Renewable Polymers segment as the construction of the FDCA Flagship Plant started in April 2022.

The Avantium Renewable Chemistries segment invested mainly in safety related upgrades for the Pilot Plant in Delfzijl and the Avantium R&D Solutions segment invested in product innovation and equipment upgrades.

On 31 December 2022 an impairment loss was recognised which predominantly related to an impairment of leasehold improvements in the Pilot Plant in Delfzijl. The leasehold improvement was no longer operating as intended by management. The property, plant and equipment of €60,394,000 are pledged under the Debt Facilities Agreement.

6. Intangible Assets

<i>(In Euro x 1,000)</i>	Development costs	Software	Intellectual Property	License rights	Other	Total
At 1 January 2021						
Cost	2,159	7,193	433	—	1,064	10,848
Accumulated amortization and impairment	(2,159)	(7,163)	—	—	(967)	(10,289)
Net book amount	—	30	433	—	97	559
Year ended 31 December 2021						
Opening net book amount	—	30	433	—	97	559
Additions	—	6	—	1,326	—	1,331
Amortization charge	—	(36)	—	—	(20)	(56)
Closing net book amount	—	—	433	1,326	77	1,835
At 31 December 2021						
Cost	2,159	7,199	433	1,326	1,064	12,180
Accumulated amortization and impairment	(2,159)	(7,199)	—	—	(987)	(10,345)
Net book amount	—	—	433	1,326	77	1,835
Year ended 31 December 2022						
Opening net book amount	—	—	433	1,326	77	1,835
Additions	—	174	—	—	—	174
Transfers	—	77	—	—	(77)	—
Amortization charge	—	(35)	—	—	—	(35)
Closing net book amount	—	216	433	1,326	—	1,974
At 31 December 2022						
Cost	2,159	7,450	433	1,326	987	12,354
Accumulated amortization and impairment	(2,159)	(7,234)	—	—	(987)	(10,380)
Net book amount	—	216	433	1,326	—	1,974

The additions in intangible assets during 2022 predominantly relate to the implementation of a new ERP software package for the company. The Intellectual Property of €433,000 is pledged under the Debt Facilities Agreement.

Development Costs

The development costs consist of the development and prototype expenses of the Flowrence system and are all fully amortised.

Software and Other Intangibles

Software mainly comprises purchased general laboratory and office-related software.

Other intangibles are the in-kind contribution of a shareholder relating to software at the foundation of the group and compensation paid to a third party to exclusively use parts of their technology.

Intellectual Property

Following the Liquid Light acquisition in 2016, the company records intellectual property (patent portfolio acquired) on its consolidated balance sheet, which will subsequently be lowered with accumulated amortisation the following years, when the technology on which the intellectual property is filed, is ready to deploy commercially. As at 31 December 2022, the recoverable amount of the intellectual property exceeds the carrying amount.

Total of research expenditures recognised as an expense in the consolidated statement of comprehensive income amounted to €1,037,000 (2021: €1,011,000) and mainly constitute of early stage research trials.

License Rights

The license rights consists of the licenses acquired for technologies not owned or developed by the company.

Included in the license rights is the Eastman license acquired by Avantium Renewable Polymers during 2021. As part of the license agreement, royalty fees will be payable to Eastman. The fees will equal to \$20 USD per metric ton of Licensed Products produced from the FDCA Flagship Plant. The commencement of the operations will be in 2024. The foregoing running royalty will be payable by Avantium in shares of Avantium N.V. (in equivalent value) on a semi-annual basis for the first two years of operation of the FDCA Flagship Plant, after which all such payments will be paid in cash. Avantium may decide how it proposes to settle the royalty fees for the first two years.

7. Leases

This note provides information for leases where the group is a lessee.

Amounts Recognised in the Balance Sheet

The balance sheet shows the following amounts relating to leases:

<i>in Euro x 1,000</i>	31-12-2022	31-12-2021
Properties	9,893	9,372
Motor vehicles	52	107
Total right-of-use assets	9,945	9,479

<i>in Euro x 1,000</i>	31-12-2022	31-12-2021
Current lease liabilities	1,897	1,604
Non-current lease liabilities	10,046	9,099
Total Lease liabilities	11,943	10,703

Additions to the right-of-use assets during the 2022 financial year were €1,183,138 (2021: nil). The increase in the right-of-use assets are due to new lease agreements and modifications in the existing lease agreements. The lease modifications are due to lease terms being modified and lease assumptions changing.

Amounts Recognised in the Statement of Comprehensive Income

The statement of comprehensive income shows the following amounts relating to leases:

<i>in Euro x 1,000</i>	2022	2021
Properties	2,323	1,842
Motor vehicles	64	161
Total depreciation charge of right-of-use assets	2,387	2,003

<i>in Euro x 1,000</i>	2022	2021
Interest expense included in finance cost	316	230
Total interest charge on lease liabilities	316	230

The cash flow net of VAT related to principal elements of the lease payments amounted to €1,947,457 (2021: €1,663,000).

Some of the lease agreements contain variable lease elements that are linked to the usage of the lease, which is not included in the measurement of the lease liability. The variable lease payments for the year not included in the measurement of the lease liability amounted to €810,000 (2021: €349,000).

The short term and low value lease expenses for 2022 amounted to €67,000 (2021: €54,000) .

8. Inventories

(In Euro x 1,000)	31-12-2022	31-12-2021
Raw materials	1,136	883
Work in progress	431	355
	1,567	1,238

The costs of inventories recognised as an expense and included in raw materials and contract costs, amounted to €316,000 (2021: €260,000).

9. Trade and Other Receivables

(In Euro x 1,000)	31-12-2022	31-12-2021
Trade receivables	2,634	1,015
Less: Allowance for doubtful debt	(150)	(150)
Social security and other taxes	997	881
Prepayments: Non-current and current	16,427	367
Contract assets	2,379	3,514
Other receivables	996	1,262
Non-current and Current portion	23,283	6,888

Prepayments includes a contribution in kind recognised by Avantium RNP Flagship B.V. on 31 March 2022, which consists of shares in Avantium Renewable Polymers B.V. paid upfront to Worley for services that will delivered under the contraction agreement for the FDCA Flagship plant. The prepayment is released equally over 24 months starting from April 2022. As at 31 December 2022, the remaining balance is €6.2 million. Prepayments also includes a prepaid expense of €11.3 million recognised by Avantium N.V. The prepaid expense relates to the warrants issued, as part of the debt financing agreement, to the respective banks.

The prepayment will be expensed as a finance cost at each drawdown of the facility on a pro-rata basis. As at 31 December 2022 the prepaid expense balance relating to the warrants is €9.0 million. Refer to note 3.1 for the split between the non-current and current prepayments.

Contract assets relating to systems contracts are unbilled revenues, where the company has recognised revenue to date under the percentage-of completion method, however is not yet in the position to bill these revenues to customers as the invoicing milestone has not yet been reached. Contract assets relating to services are unbilled revenues, where the company has rendered particular services over time for which the invoicing milestone has not yet been reached.

The other receivables comprise primarily of funding to be received in relation to government grants where the company has already complied with the attached conditions under the specific grant program (€576,000) and deposits held at third parties (€336,000).

In 2022, €0 (2021: €0) of trade receivables was written off and €1,837,000 (30 days or more after invoice date) was past due, of which 58% was paid before 4 March 2023 and of the remaining 42%, 19% is for a customer for which a provision for doubtful debt was recognised.

Trade receivables and contract assets are written off where there is no reasonable expectation of recovery. The company assessed the trade receivables balance as at 31 December 2022 and concluded that the provision for doubtful debt of €150,000 recognised during 2020 still represents the expectation of recovery (see also note 3.1). The carrying amounts of these financial assets are assumed to approximate their fair values.

Impairment provisions for trade receivables are recognised based on the simplified approach within IFRS 9 to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables and contract assets.

To measure the expected credit losses, trade receivables and contract assets have been grouped based on shared credit risk characteristics and the days past due. The contract assets relate to unbilled work in progress and have substantially the same risk characteristics as the trade receivables for the same types of contracts. The group has therefore concluded no provision for credit losses is required on trade receivables and contract assets, since after careful consideration of each customer's payment profile and likelihood to default on payments, the credit losses was deemed to be immaterial.

Trade receivables of €2,634,000 are pledged under the Debt Facilities Agreement.

10. Cash and Cash Equivalents

(In Euro x 1,000)	31-12-2022	31-12-2021
Cash at bank and on hand	58,370	33,411
Restricted cash	6,500	1,500
Cash and cash equivalents for cash flow purposes	64,870	34,911

The carrying amounts of these financial assets are assumed to approximate their fair values. A notional cash pool agreement is in place for all Rabobank accounts where balances are netted on a daily basis. Within the cash pool, there are €0 overdrafts.

The cash and cash equivalents presented in the consolidated statement of financial position and the consolidated statement of cash flow include restricted cash of €6.5 million. Of the €6.5 million, €5.0 million relates to a cash deposit held in the name of Avantium N.V. for any potential future equity funding needs during the construction of the FDCA Flagship Plant. It has been agreed with the consortium of lenders that Avantium Renewable Polymers B.V. will at all times have sufficient funding available for the construction of the FDCA Flagship Plant. The reserved cash is available to meet any funding shortfall that may arise, and this is assessed together with the Lenders upon each utilization of the debt facility. The cash in this deposit account remains at all times in full control and ownership of Avantium and its consolidated group. The residual €1.5 million, relates to a deposit held with Rabobank, which represents an amount equal to the estimated required guarantee capacity for the short term needs of the company. As at 31 December 2022, €772,000 of this guarantee capacity has utilised for issued bank guarantees to third parties. For further information on commitments issued to third parties, refer to note 28.

11. Share Capital and Other Reserves

Avantium N.V. listed on Euronext Amsterdam and Euronext Brussels.

11.1 Ordinary Shares

On 14 April 2022, Avantium successfully raised €45.0 million by means of a public offering with a priority allocation for its existing shareholders, a retail offering and a private placement. The company issued 11,250,000 new shares, which represented 36% of the issued share capital. Pricing of the capital increase was fixed at €4.00 per share, a 20% discount versus the previous closing price.

The authorised share capital at 31 December 2022 therefore amounted to €10,000,000 consisting of 100,000,000 ordinary shares, with a nominal value of €0.10 each. The issued share capital at 31 December 2022 comprises 42,605,893 ordinary shares (2021: 31,286,447). In 2022, 69,446 options were exercised by employees, from these option exercises, 69,446 resulted in additional ordinary shares issued. At 31 December 2022, zero (2021: zero) shares were held by the Stichting Administratiekantoor Avantium (the Foundation) and nil employee shares were repurchased. All 42,605,893 shares issued are fully paid and stated at its par value of €0.10 each.

11.2 Other Reserves

The costs of equity settled share-based payments to employees are recognised in the statement of comprehensive income, together with a corresponding increase in equity during the vesting period, taking into account (deferral of) corporate income taxes. The accumulated expense of the share incentive plan recognised in the statement of comprehensive income is shown as part of the equity category 'other reserves' in the consolidated statement of changes in equity.

Additionally, included in the "other reserve " category is the share-based payment for the Eastman license acquired in 2021. The settlement of the share-based payment will be in two equal instalments. The first instalment will be made at the starting date of construction of the FDCA Flagship Plant or 8 months after the Final Investment Decision, which ever is sooner. The second instalment will be made at the completion date of construction of the FDCA Flagship Plant or 24 months after the Final Investment decision, which ever is sooner. Avantium has the option to settle the outstanding amounts in shares or cash.

On 31 March 2022, a profit was recognised on the sale of the 22.6% shareholding to the non-controlling interest parties. Refer to note 2.2.2. for the detail on the change in ownership in Avantium Renewable Polymers B.V.

11.3 Currency Translation Difference

The group does not hold a company reporting in any other currency than euros and therefore does not hold a currency translation reserve.

11.4 Treasury Shares

The total value of treasury shares outstanding at 31 December 2022 is €616,000 (2021: €616,000).

12. Non-controlling interest

The table summarises the information relating to the Group's subsidiary, Avantium Renewable Polymers B.V., that has a Non-Controlling Interest amounting to 22.64%.

On 31 March 2022, there was a change in ownership of Avantium Renewable Polymers B.V., a subsidiary of Avantium N.V. Worley Nederland B.V. and Bio Plastics Investment Groningen B.V. together have acquired a 22.6% shareholding in Avantium Renewable Polymers B.V., while Avantium continues to hold 77.4% of the equity.

Summarised balance sheet

Avantium Renewable Polymers B.V.

(In Euro x 1,000)	31-12-2022
Non-current assets	61,993
Non-current liabilities	(17,244)
Net non-current assets	44,749
Current assets	21,995
Current liabilities	(22,389)
Net current assets	(394)
Accumulated Non-Controlling interest	10,042

Summarised Statement of Comprehensive Income

Avantium Renewable Polymers B.V.

(In Euro x 1,000)	2022
Revenue	6,056
Other Income	3,660
Net operating expenses	(16,633)
EBITDA	(6,917)
Loss for the period	(11,026)
Loss allocated to Non-Controlling interest	(1,970)

The loss allocated to Non-Controlling interest constitutes to 22.64% of the loss for the period for Avantium Renewable Polymers B.V.

Summarised Statement of Cash Flow

Avantium Renewable Polymers B.V.

(In Euro x 1,000)	2022
Cash flows from operating activities	5,244
Cash flows from investing activities	(42,366)
Cash flows from financing activities	47,930
Net increase in cash and cash equivalents	10,808

13. Share-based Payment

The group operates share-based compensation plans for its employees, which consists of an Employee Share Option Plan (ESOP) and a Long-term Incentive Plan (LTIP). These plans are classified as equity-settled share-based payment plans.

Long-term Investment Plan (LTIP)

The members of the Management Team are obligated to invest a percentage of their (net) bonus in (depository receipts for) shares to be delivered by the company under the LTIP. Each Investment share relates to one share. The cash component of the bonus may, at the discretion of the relevant member of the Management Team, also be invested in Investment shares. The Investment shares are subject to a retention period of five years, during which the investment shares cannot be sold. After the end of the retention period, the company will match the (depository receipts for) shares granted under the LTIP at a 1:1 ratio, i.e. one Matching share is granted for each Investment share.

The entitlement to receive Matching shares will be reduced as follows in the case of termination: 100% if the termination date is prior to the first anniversary of the date of Award; 66.67% if the termination date is prior to the second anniversary but after the first anniversary of the date of Award; 33.33% if the termination date is prior to the third anniversary but after the second anniversary of the date of Award.

In 2022, 145,172 additional were granted under the Long term Investment Plan (LTIP). These awards consist of 72,586 Investment shares and 72,586 Matching shares.

The movements in outstanding LTIP awards with the Management Board and senior management can be summarised as follows:

Long-term Investment Plan	2022		2021	
	Number of awards	Weighted Average share price at grant date (in Euro)	Number of awards	Weighted Average share price at grant date (in Euro)
Number of awards outstanding 1 January	175,755	4.49	179,494	4.45
Number of matching shares forfeited	(7,737)	2.50	(3,739)	2.93
Number of awards granted (including matching shares)	145,172	3.07	—	—
Number of awards outstanding 31 December	313,190	3.88	175,755	4.49

LTIP awards outstanding at the end of the year had the following share price at grant date:

Grant date	Share price at grant date	
	in Euro	Number of awards
1 July 2017	10.50	5,418
16 March 2018	5.36	65,155
21 March 2019	2.64	16,681
14 May 2020	3.59	88,501
18 May 2022	3.07	137,435
At 31 December 2022		313,190

The fair value of LTIP awards under the Long-term Investment Plan is determined by the share price at grant date and the weighted average fair value of LTIP awards granted during 2022 was €3.07 per award.

Employee Share Option Plan (ESOP)

On an annual basis and on certain other occasions set out in the plan rules, options under the Employee Share Option Plan (ESOP) may be conditionally granted to eligible employees of the company. The options will vest yearly over a three-year vesting period. The vested options have an exercise period of five years after vesting, after which the option expires.

In 2022, 520,000 share options were granted. In 2022, 69,446 options were exercised with a weighted-average share price of €3.57 at the date of exercise by the employees.

Further details on the grants in 2022 can be found in the table below.

Grant date	Plan	Number of ESOP options granted	Exercise price in Euro per option
19 May 2022	ESOP	459,000	3.07
30 December 2022	ESOP	61,000	3.65

The movements in outstanding options with the Management Board, senior management and certain other employees can be summarised as follows:

Share Option	2022		2021	
	Number of options	Weighted Average exercise price (in Euro)	Number of options	Weighted Average exercise price (in Euro)
Number of options outstanding 1 January	2,717,985	2.52	2,500,324	2.44
Number of options exercised	(69,446)	3.57	(167,688)	6.13
Number of options forfeited	(87,531)	4.27	(32,151)	4.25
Number of options granted	520,000	3.13	417,500	4.56
Number of options outstanding 31 December	3,081,008	2.55	2,717,985	2.52

Share options outstanding at December 31, 2022, amounted to 3,081,008. The exercise prices range from €0.10 to €10.58. The weighted average remaining contractual term for options outstanding at December 31, 2022, was 4.1 years.

Avantium N.V. has issued shares resulting from the exercise of options to the Stichting Administratiekantoor Avantium (the Foundation).

The Foundation has issued depository receipts to members of the Management Board, senior management and certain other employees. The Foundation is a consolidated special purpose entity set up by Avantium N.V. The shares held by the Foundation, however, only represent the voting rights associated with the issued shares and depository receipts representing all economic benefits issued by the Foundation to members of the Management Board, senior management and certain other employees, and consequently the shares held by the Foundation are not considered treasury shares.

The number of options which are exercisable at the end of the period (i.e. vested, but not yet exercised) amounted to 1,647,835.

The fair value of options under the equity-settled share-based payment plans is determined using the Black-Scholes valuation model and the weighted average fair value of options granted during 2022 was €1.53 per option (2021: €1.98).

The significant inputs into this model were as follows:

	30 December 2022	19 May 2022
Exercise price	€3.65	€3.07
Volatility	45%	45%
Risk free interest rate	2.51%	1.03%
Dividend yield	—	—
Expected life	7.6 years	7.6 years
Early exercise rate	5%	5%

The historical volatility used is based on the volatility of the company's own shares in combination with the historical volatility of a peer group (five companies in total which are considered to be comparable listed companies), of which the daily stock returns over a period equal to the maturities of each plan related to the valuation dates was used.

During the year, a reclassification was made from other reserves to retained earnings, totalling €139,147, to reflect the effect of exercised and expired options in 2022.

14. Earnings per Share

Earnings per Share

Earnings per share for the years 2022 and 2021 are derived below:

In Euro	31-12-2022	31-12-2021
Loss from continuing operations	(31,553,590)	(24,416,470)
Loss for the period - basic	(31,553,590)	(24,416,470)
Dilutive adjustments	—	—
Loss for the period - diluted	(31,553,590)	(24,416,470)
Weighted average number of ordinary shares -basic	39,390,687	29,756,527
<i>Number</i>		
Options per end of the year	3,081,008	2,717,985
LTIP awards per end of the year	313,190	175,755
Effect of anti-dilutive securities	3,394,198	2,893,740
Weighted average number of shares - diluted	39,390,687	29,756,527
<i>In Euro</i>		
Earnings per share - basic	(0.80)	(0.82)
Earnings per share - diluted	(0.80)	(0.82)

Basic earnings per share are calculated by dividing the net result for the period by the weighted average number of ordinary shares. Diluted earnings per share are calculated by dividing the net results for the period on a diluted basis by the weighted average number of shares on a diluted basis. As the company is in a loss-making position, the options and LTIP awards have an antidilutive impact on the diluted earnings per share, for this reason the options and LTIP awards for the year are not considered in the calculation of diluted earnings per share.

15. Trade and Other payables

<i>(In Euro x 1,000)</i>	31-12-2022	31-12-2021
Trade payables	8,628	4,714
Interest payable on borrowings	182	—
Social security and other taxes	776	360
Holiday pay and holiday days	1,463	1,338
Contract liabilities	1,623	1,328
Deferred government grants	8,496	4,913
Other current liabilities	10,569	4,096
	31,738	16,750

The other current liabilities comprise primarily of other staff pay related accruals (€2,232,000) and accrued expenses (€7,654,000). Deferred government grants comprise of advances received in relation to government grants. The carrying amounts of these financial liabilities are assumed to approximate their fair values.

Contract liabilities relating to systems contracts are balances due to customers under construction contracts. These arise if a particular milestone payment exceeds the revenue recognised to date under the percentage-of-completion method. Contract liabilities relating to services are balances due to customers under services contracts. These arise if particular services are to be rendered over time for which a prepayment has been received.

The following table shows how much of the revenue recognised in the current reporting period relates to carried-forward contract liabilities:

<i>In Euro x 1,000)</i>	2022	2021
Revenue recognized that was included in the contract liability balance at the beginning of the period		
– Systems contracts	287	110
– Services contracts	(14)	385
– Renewable chemistries	—	—
	273	495

16. Borrowings

<i>In Euro x 1,000)</i>	2022
Balance as at 1 January 2022	—
Debt Facilities drawdown	12,750
Effective Interest	106
Repayment of Debt Facilities	—
Balance as at 31 December 2022	12,856

<i>In Euro x 1,000)</i>	31-12-2022
Current Debt Facilities	—
Non-current Debt Facilities	12,856
Total Debt Facilities	12,856

A three-year Debt Facilities Agreement of €90.0 million was signed with a consortium of lenders on 31 March 2022. This financing consists of three facilities. Facility A, €30.0 million, which is borrowed by Avantium N.V. and passed through to Avantium Renewable Polymers B.V. as an intercompany loan. Facility B1 and Facility B2, amounting to €45.0 million and €15.0 million, respectively, are borrowed directly by Avantium Renewable Polymers B.V. The interest on the Debt Facilities Agreement consists of three components: cash interest, accrued interest and warrants (refer to note 18). Cash and accrued interest is EURIBOR based. The repayment of the loan amount is due on 31 March 2025. The cash interest is paid on a quarterly basis and PIK interest is capitalised on the principal balance of the Facility on a quarterly basis starting as of 21 February 2023 for Facility A.

The Debt Facilities Agreement contains customary technical and commercial conditions precedent and a customary security package including amongst others security on: all material assets, IP rights, receivables of Avantium, Avantium Renewable Polymers B.V., the holding entity of the FDCA Flagship Plant, and of several other group companies, the shares in Avantium Renewable Polymers B.V. and these other group entities, the loan(s) of Avantium and Avantium Renewable Polymers B.V. to Avantium RNP Flagship B.V. and the FDCA Flagship Plant itself and the FDCA Pilot Plant.

The carrying amounts of the fixed, intangible assets, trade receivables pledged as security for current and non-current borrowings are disclosed in note 5, 6 and 9.

On 21 November 2022 the first drawdown of the loan was executed for €15.0 million. On this date, the Debt Facilities Agreement was amended and restated reflecting the current status of

the business. The annual effective interest rate on the first drawdown is 12%. As at 31 December 2022 the fair value of the loan equals the carrying amount (refer to note 3.1).

During 2022 annual commitment fees of €1.5 million were paid to the relevant banks.

During 2022 Avantium complied with the financial and other required covenants confirmed on a monthly basis to the lenders. This confirmation will continue to take place on a monthly basis in 2023.

Bank Overdrafts

As at 31 December 2022, the group had no overdraft facilities with any bank.

17. Provisions for Other Liabilities and Charges

<i>(In Euro x 1,000)</i>	Warranty provision
Balance at 1 January 2021	145
Additional provision	78
Unused amounts reversed	(21)
Settlement of provision	—
Used during the year	(5)
At Balance at 31 December 2021	196
Balance at 1 January 2022	196
Additional provision	79
Unused amounts reversed	(28)
Used during the year	(12)
Balance at 31 December 2022	236

Warranty

The provision for warranty consists of estimated costs for repairs of installed products during the warranty period of one year. This estimate is based on historical experience of broken or repaired units and the costs associated with that. This provision is current (shorter than one year). Unused amounts are reversed after expiration of the warranty period.

18. Financial Liability

<i>In Euro x 1,000)</i>	2022
Balance as at 1 January 2022	—
Warrants issued	11,250
Fair value remeasurement	2,841
Balance as at 31 December 2022	14,091

On 31 March 2022, Avantium N.V. issued 2.84 million warrants to the consortium of banks as part of the €90 million debt financing package for the FDCA Flagship Plant. The warrants are convertible into the company's ordinary shares with a 1:1 conversion ratio for an exercise price of €0.10 per share.

The warrants had an anti-dilution protection for the equity raise that took place in April 2022. As a result, on 14 April 2022, 1.02 million additional warrants were issued to the warrant holders, to compensate for the dilutive effect of the equity offering according to the debt financing agreement with the lenders.

The warrants will become exercisable when the FDCA Flagship Plant is operational or when other additional conditions included in the warrant Agreement have been met. Such additional conditions include, a change of control, certain joint ventures, permitted acquisitions, disposals and certain other events.

The initial recognition of the warrants amounted to €11.3 million. The warrants are recognised under IFRS 9 Financial Instruments as a Financial Liability. The warrants are measured subsequently at fair value through profit or loss at each reporting date.

The fair value of the warrants on 31 December 2022 is €14.1 million. The increase in the share price of €0.74 resulted in the increase in the fair value of the warrants. The subsequent fair value remeasurement of the warrants resulted in a loss for the year ended 31 December 2022 of €2.8 million, recognised under fair value remeasurement in the Statement of Comprehensive Income. Refer to note 3.1.

Notes to the Consolidated Statement of Comprehensive Income

19. Revenues

Reported consolidated revenue from continuing operations increased by 63% from €10.9 million in 2021 to €17.8 million in 2022. All revenue is recognised at a point in time, except for revenues from Systems and Services contracts in R&D solutions where revenue is generated over time (see note 2.20 for further information). Revenues per segment are reported under note 21.

All revenue reported originates in the Netherlands.

Avantium Renewable Polymers, received a non-refundable payment of €5.0 million for technical due diligence procedures performed during 2022.

The following table depicts the disaggregation of revenue from contracts with customers:

2022 (in Euro x 1,000)	R&D Solutions services revenue	R&D Solutions systems revenue	Renewable Chemistry development agreements	Renewable Polymers agreements	Un-allocated revenue	Total
Segment revenue	2,904	8,397	100	6,056	369	17,826
Revenue from external customers	2,904	8,397	100	6,056	369	17,826
Timing of revenue recognition						
– At a point in time	—	821	100	6,056	369	7,346
– Over time	2,904	7,576	—	—	—	10,480
Total	2,904	8,397	100	6,056	369	17,826

2021 (in Euro x 1,000)	R&D Solutions services revenue	R&D Solutions systems revenue	Renewable Chemistry development agreements	Renewable Polymers agreements	Un-allocated revenue	Total
Segment revenue	3,227	6,802	500	388	—	10,917
Revenue from external customers	3,227	6,802	500	388	—	10,917
Timing of revenue recognition						
– At a point in time	—	599	500	388	—	1,487
– Over time	3,227	6,203	—	—	—	9,430
Total	3,227	6,802	500	388	—	10,917

As of 31 December 2022, the aggregate amount of the transaction price in R&D Solutions allocated to the remaining performance obligations is €6.2 million (2021: €6.1 million) and the group will recognise this revenue as the progress on each contract is completed, which is estimated to occur over the next 9–24 months.

20. Other Income

(In Euro x 1,000)	2022	2021
Grants recognised	7,626	6,686
	7,626	6,686

The group recognised total government grants of €7,626,000 (2021: €6,686,000) to contribute to Avantium's development programmes, where efforts are focused on developing a new catalytic process for making plant-based mono-ethylene glycol and for developing an economical viable chemical process to convert ligno-cellulosic biomass into high quality glucose as feedstock for bio-based chemical in Avantium Renewable Chemistries. In Avantium Renewable Polymers efforts are focussed on its plant-to-plastics YXY® Technology to build the FDCA Flagship Plant and to develop a wide range of FDCA and PEF applications.

EU grants attributable to the Volta technology, enables Avantium to perform R&D work to accelerate the progress on converting CO₂ to higher value chemicals and eventually syngas.

21. Segment Information

Description of the Segments and Principal Activities

In the company, the Management Team consists of the Chief Executive Officer, Chief Financial Officer, Chief Technology Officer, Group Legal Counsel, and the Managing Directors of Avantium Renewable Chemistries, Avantium R&D Solutions, and Avantium Renewable Polymers. It has identified three separate business segments:

- In October, our Avantium Catalysis business unit launched a new strategy and a new name – Avantium R&D Solutions – marking a decisive shift towards R&D in sustainable chemistry. This decision is not only a response to changing industry demand, but also a means of better aligning this business unit with Avantium's overall strategic direction and purpose: to help transition industry to more sustainable and circular solutions. Avantium R&D Solutions Avantium also provides R&D solutions in the field of sustainable chemistry and is the leading provider of advanced catalyst testing technology and services to accelerate catalyst R&D. With the scalable catalyst testing system, Flowrence®, Avantium R&D Solutions helps customers reach their sustainability, profit and growth targets.
- Avantium Renewable Chemistries develops and commercialises plantMEG™. PlantMEG™ is a plant-based and competitive alternative for fossil-based MEG – an important chemical building block for PET and PEF resin, both of which are used in bottles and packaging; fibres for clothing, furniture and the automotive industry; and solvents and coolants. The common basis, on which each activity rests, is formed by Avantium's unique technological capabilities

that have been validated through the execution of millions of experiments, covering a broad range of chemistries, including highly complex and challenging R&D projects. The portfolio of programmes includes the Volta programme, and the Dawn Technology™ and Ray Technology™.

- Avantium Renewable Polymers aims to commercialise our YXY® plants-to-plastics Technology. This technology catalytically converts plant-based sugars into FDCA (furanedicarboxylic acid) and materials such as the new plant-based packaging material PEF (polyethylene furanoate). PEF is a 100% plant-based, 100% recyclable plastic with superior performance properties compared to today's widely used petroleum-based packaging materials.

Avantium has one employee employed in Japan, all other employees of Avantium are employed in the Netherlands. The average number of full time equivalent employees of the group per business segment and other departments is as follows:

(in full time equivalent employees)	2022	2021
R&D Solutions	48	48
Renewable Chemistries	69	69
Renewable Polymers	63	55
Unallocated	46	40
Total average number of FTE during the year	226	213

EBITDA

The main KPI of the company within the profit & loss account is EBITDA. Note that the EBITDA figure excludes company overheads and shared service activities.

The EBITDA is calculated in the following manner: Profit/loss for the period plus Finance costs-net plus depreciation, amortisation and impairment charge.

The EBITDA figures of the business segments are as follows.

(In Euro x 1,000)	2022	2021
R&D Solutions	2,326	2,705
Renewable Chemistries	(3,624)	(2,320)
Renewable Polymers	(6,917)	(7,094)
Total EBITDA of business segments	(8,215)	(6,708)

Revenues per Segment

<i>(In Euro x 1,000)</i>	2022	2021
R&D Solutions	11,301	10,029
Renewable Chemistries	100	500
Renewable Polymers	6,056	388
Unallocated items	369	—
Total segment revenue	17,826	10,917

Revenue is only generated from external customers and no transactions with other segments have taken place.

Other Income per Segment

<i>(In Euro x 1,000)</i>	2022	2021
R&D Solutions	279	279
Renewable Chemistries	3,536	3,610
Renewable Polymers	3,660	2,683
Unallocated items	150	114
Total segment other income	7,626	6,686

Reconciliation

<i>(In Euro x 1,000)</i>	2022	2021
Total EBITDA of business segments	(8,215)	(6,708)
Amortisation	(35)	(56)
Depreciation of property, plant and equipment	(5,721)	(5,778)
Depreciation of right of use assets	(2,387)	(2,003)
Impairment of property, plant and equipment (PPE)	(435)	—
Finance costs - net	(2,448)	(495)
Share based compensation	(1,114)	(828)
Rent	(984)	(241)
Fair value remeasurement	(2,841)	—
Company overheads/other	(7,374)	(8,307)
Loss before income tax from continuing operations	(31,554)	(24,416)

The 'Other' costs category comprises mainly of company overhead costs.

Depreciation and Amortisation

<i>(In Euro x 1,000)</i>	2022	2021
R&D Solutions	(332)	(396)
Renewable Chemistries	(3,617)	(3,547)
Renewable Polymers	(2,203)	(1,932)
Unallocated items	(1,991)	(1,962)
Total Depreciation and amortisation	(8,143)	(7,837)

22. Expenses by Nature

Net operating expenses in 2022 amounted to €43.1 million (2021: €33.7 million). The increase is predominantly the result of higher employee benefit expenses, increased spend on patent, license, legal and advisory expenses and higher office and housing expenses.

Employee benefit expenses in 2022 amounted to €23,401,000 (2021: €19,226,000) and includes wages and salaries, social security costs, share options granted to directors and employees, pension costs, and government grants received. The increase is mainly as a result of the planned increase in staffing as the average FTE count during the year increased with approximately 13 FTE YoY. Furthermore, there was a substantial increase in temporary staffing and external recruitment services as a result of the scale up of the FDCA Flagship Plant activities.

Patent, license, legal and advisory costs in 2022 amounted to €6,766,000 (2021: €4,312,000). The increase predominantly related to the professional services and bank and advisory fees incurred for Debt Facilities Agreement obtained in relation to the construction of the FDCA Flagship Plant.

Office and housing expenses in 2022 amounted to €3,062,000 (2021: €1,968,000) and comprises of short-term rental agreements, other facility related costs, telephony and other IT related office materials and costs. The increase in office and housing expenses is predominantly related to an increase in short-term leases and an increase in utilities as a result of rising gas and electricity prices during 2022.

Laboratory expenses in 2022 amounted to €3,272,000 (2021: €2,864,000) and comprises of laboratory consumables, spare parts, maintenance and repair work in the laboratory, and small laboratory projects. The increase in laboratory expenses is mainly a result of the restart of the Pilot Plant in Delfzijl in the second quarter of 2022, after the Pilot Plant was shut down due to the accident that took place in the first quarter of 2021.

Other operating expenses in 2022 amounted to €1,538,000 (2021: €1,568,000) and comprises of external development costs, such as trials, and other general costs including company insurances. The decrease is mainly related to lower cost for insurances, as the prior year included a number of one-off settlements.

Advertising and representation expenses in 2022 amounted to €1,329,000 (2021: €707,000) and comprises of external and internal marketing, communications, and business development efforts, including travel. Wages for internal business development staff is excluded, as this is included under employee benefit expenses. The increase is due to travel again possible to most countries after the relaxation of travel restrictions in relation to COVID-19.

Depreciation, amortisation and impairment charges increased to €8,578,000 (2021: €7,837,000). During 2022, the company impaired Property, Plant and equipment, which resulted in a net impairment loss of €435,000. The depreciation of right of use assets increased in 2022 and is mainly the result of an increase and/or modification in the lease portfolio of the company during the year.

Raw materials and contract costs in 2022 amounted to €3,770,000 (2021: €3,042,000) and comprises of cost of goods sold, costs of laboratory consumables directly attributable to revenue projects, and other specific costs related to revenues. The increase is mainly as a result of the higher revenues recorded for the year in the R&D solutions business segment.

23. Employee Benefit Expenses

(In Euro x 1,000)	2022	2021
Wages and salaries	22,574	18,776
Government grants R&D (WBSO)	(3,791)	(3,316)
Social security costs	2,405	1,990
ESOP expense (note 13)	808	828
LTIP awards expense (note 13)	306	—
Pension costs - defined contribution plans	1,099	948
	23,401	19,226
Number of full time equivalent employees at the end of the year	249	213

The average number of FTEs during 2022 was 226 (2021: 213).

In 2022, €3,791,000 (2021: €3,316,000) government grants in the form of WBSO were recognised directly as an offset of employee benefit expenses.

24. Finance Income and Costs

(In Euro x 1,000)	2022	2021
Finance costs:		
Net foreign exchange (gains) loss	20	2
Interest current accounts	—	120
Financing component of lease payments	316	230
Interest on borrowings	182	—
Other bank and commitment fees	1,547	—
Effective interest	106	—
Other finance costs	288	144
Finance costs	2,459	497
Finance income:		
Interest current accounts	(12)	(2)
Finance income	(12)	(2)
Finance costs - net	2,448	495

25. Income Tax Expense

The company forms a tax group with its subsidiaries for corporate income tax purposes (fiscal unity). Under the standard conditions, the members of the tax group are jointly and severally liable for income taxes payable by the group.

The company does not recognise any deferred tax asset in relation to the losses carried forward as it is not considered probable that there will be sufficient taxable profit against which the unused tax losses can be utilised in the following year(s).

No tax charge or tax income were recognised in 2022, since the company recorded a net loss of €29.6 million. The company did record a taxable profit in 2021, which amounted to €32.2 million. The 2021 taxable profit was the consequence of Avantium Renewable Polymers B.V. and Furanix Technologies B.V. leaving the Avantium N.V. fiscal unity, resulting in a taxable revaluation of certain assets within the Avantium N.V. fiscal unity. This tax profit was fully compensated by existing carry forward tax losses of the Avantium N.V. fiscal unity.

Avantium Renewable Polymers B.V., Furanix Technologies B.V. and Avantium RNP Flagship Plant B.V. formed a new fiscal unity starting 1 January 2022 (the Avantium Renewable Polymers B.V. fiscal unity). The Avantium N.V. fiscal unity transferred €40.6 million of its carry forward tax



losses to Avantium Renewable Polymers B.V. and Furanix Technologies B.V. who left the Avantium N.V. fiscal unity on 31 December 2021. The total tax losses carry forward for the Avantium Renewable Polymers B.V. fiscal unity as of 31 December 2022 is approximately €51.6 million.

Total remaining amount of tax losses carry forward for the Avantium N.V. fiscal unity as of 31 December 2022 is approximately €126.1 million (2021: €146.2 million).

These losses are subject to the new tax loss utilisation rules which applied as of 1 January 2022. As part of the new rules, an indefinite carry forward loss set-off will apply as of 1 January 2022 (the current carry-forward period is six years, the carry-back period is and will remain one year). However, tax losses will only be fully available for carry-forward and carry-back set off up to an amount of €1 million of taxable profit per year. In the case of a profit which is higher than €1 million, the amount above €1 million can only be set off up to 50% of that higher taxable profit.

The company does not use contrived or abnormal tax structures that are intended for tax avoidance.

<i>(In Euro x 1,000)</i>	2022	2021
Loss before tax	(31,554)	(24,416)
Tax at applicable tax rate in the Netherlands of 25.8% (2021: 25%)	8,141	6,104
Non-deductable expenses	748	590
Subtotal	8,889	6,694
Derecognition of deferred tax assets	(8,889)	—
Tax profit as a result from revaluation of certain assets	—	(13,970)
Utilisation of previously unrecognised deferred tax assets	—	7,276
Tax charge	—	—

The nominal tax rates and amount in 2022 are 15% up to €395,000 and 25.8% over €395,000.

26. Dividends

The company declared no dividends for any of the years presented in these consolidated financial statements.

Other Notes to the Consolidated Financial Statements

27. Contingencies

During 2022, the company had no contingencies to report.

28. Commitments & Guarantees

Commitments

Purchase commitments for property, plant and equipment aggregated €47,519,000.

Guarantees

The company has a €3.0 million cash-collateralised guarantee facility in place.

This guarantee facility is also disclosed as part of the cash equivalents in note 10, which represents an amount equal to the current guarantees issued to third parties totalling €772,000. These guarantees are predominantly issued in relation to payments from customers following a systems deal for which a bank guarantee had to be issued.

29. Related-party Transactions

Identification of Related Parties

Key management is defined as those persons having legal authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of that entity. Our key management comprises the members of the Management Board and the Supervisory Board.

Key Management Changes 2022

At the Extraordinary General Meeting of Shareholders (EGM) held on 25 January 2022, Nils Björkman was appointed as a member of the supervisory board for a term of four years.

Cynthia Arnold resigned as Supervisory Board member per end of March 2022.

Trudy Schoolenberg resigned as Supervisory Board member per September 2022.

The following persons were members of the Supervisory Board on 31 December 2022:

- Edwin Moses, Chairperson
- Margret Kleinsman, Vice Chairperson
- Michelle Jou
- Nils Björkman

Key Management Remuneration Policy

Avantium does not grant its key management with any personal loans, guarantees or advance payments. For further information on the remuneration policy refer to the [Remuneration Report](#).

Key Management Remuneration 2022

The total remuneration paid to members of the Management Board and independent members of the Supervisory Board amounted to €971,000 (2021: €1,023,000) and €354,000 (2021: €403,000) respectively.



The following table provides a breakdown of the remuneration in 2022 of the members of the Management Board:

<i>(In Euro x 1,000)</i> Management Board	Salary	Other benefits ¹	Cash bonus	Investment share bonus	Share-based payments	Post-employee benefits	Severance payments	Total Remuneration
T.B. van Aken								
2022	273	24	82	82	115	20	—	597
2021	268	25	78	78	114	20	—	584
B.J.J.V. Welten								
2022	240	24	51	—	31	28	—	374
2021	235	27	49	49	52	27	—	439
Total - 2022	513	48	133	82	146	48	—	971
Total - 2021	503	52	128	128	167	46	—	1,023

¹ Other benefits mainly include contributions to social security plans, benefits in kind such as company cars, medical expenses and legal expenses.

The following table provides a breakdown of the remuneration in 2022 of the members of the Supervisory Board:

(In Euro x 1,000)	Annual fee ²		Share-based payments		Travel expenses		Total	
	2022	2021	2022	2021	2022	2021	2022	2021
Supervisory Board member								
E. Moses	90	79	22	51	—	—	112	130
M.G. Kleinsman	50	50	—	—	—	—	50	50
M.B.B. Jou	55	55	8	18	—	—	63	73
N. Björkman	55	13	22	—	—	—	78	14
Total Supervisory Board members	250	197	52	69	—	—	302	267
Former Supervisory Board members								
CA. Arnold	14	48	9	40	3	5	26	93
G.E. Schoolenberg	25	44	—	—	—	—	25	44
Total former Supervisory Board members	39	92	9	40	3	5	51	137

² The membership fee included within the annual fee excludes the fee covering the onboarding period prior to the respective appointments, being equal to the prorated base membership fee (€40,000 on pro rate basis).

30. Proposed Appropriation of Result

In anticipation of the Annual General Meeting's adoption of the annual accounts, the net loss for the year of €29,583,197 has been added to accumulated losses.

On 30 January 2023, Avantium N.V. and Avantium Renewable Polymers fulfilled all conditions precedent to execute the second drawdown of €15.0 million under the Debt Facilities Agreement and subsequently received the proceeds from the borrowings.

31. Events After the Balance Sheet Date

On 21 February 2023, Avantium Renewable Polymers and Origin Materials Inc. entered into a technology partnership, which includes a non exclusive industrial technology license agreement, a conditional offtake agreement, as well as certain ancillary arrangements to accelerate the mass production of FDCA and PEF for use in advanced chemicals and plastics. Under the terms of the transaction, Avantium received an upfront payment of €5.0 million in 2022. As a result of signing the industrial technology license agreement, Origin Materials has paid Avantium a milestone fee of €7.5 million.

An additional loan of €2.5 million was provided by Stichting Fonds Leefbaarheid, Zorg en Energie Groningen (Fonds Nieuwe Doen) to Avantium RNP Flagship Plant B.V. The proceeds from the borrowing was received in February 2023. The interest rate on the loan is 4.75% payable on monthly basis. The maturity of the loan is 36 months.



Company Financial Statements 2022

Company Balance Sheet

As at December 31

The balance sheet has been prepared after appropriation of current year result.

(In Euro x 1,000)	Note	2022	2021
ASSETS			
Non-current assets			
Financial fixed assets	34	46,648	3,902
Receivables from group companies	35	63,368	72,473
Right-of-use assets		6,697	7,210
Other receivables		9,000	—
Total non-current assets		125,713	83,585
Current assets			
Other receivables		32	419
Cash and cash equivalents	36	45,416	28,506
Total current assets		45,448	28,925
Total assets		171,162	112,510
EQUITY			
Equity attributable to owners of the parent			
Ordinary shares	11	4,261	3,129
Share premium		270,829	230,252
Other reserves	11	12,785	11,936
Accumulated losses		(206,747)	(195,291)
Total equity		81,128	50,026
LIABILITIES			
Non-current liabilities			

(In Euro x 1,000)	Note	2022	2021
Payables to group companies	37	52,264	52,284
Provisions	38	24	1,729
Borrowings	39	12,856	—
Financial liability	40	14,091	—
Lease liabilities		7,904	8,028
Total Non-current liabilities		87,139	62,040
Current liabilities			
Trade payables		263	229
Other current liabilities		2,631	215
Total current liabilities		2,894	444
Total liabilities		90,034	62,484
Total equity and liabilities		171,162	112,510



Company Income Statement

For the financial year ended December 31

<i>in Euro x 1,000</i>	2022	2021
Other revenues	—	—
Operating expenses		
Employee benefit expenses	(822)	(848)
Office and housing expenses	(9)	13
Patent, license, legal and advisory expenses	(199)	(188)
Reversal due for onerous contract	—	—
Other operating expenses	(27)	(23)
Depreciation, amortisation and impairment charge	(1,350)	(1,313)
Operating loss	(2,407)	(2,359)
Fair value measurement	(2,841)	—
Finance costs - net	(467)	(382)
Result before income tax	(5,715)	(2,741)
Income tax expense	—	—
Result subsidiaries	(23,868)	(21,676)
Loss for the period	(29,583)	(24,416)

Notes to the Company Financial Statements

32. General Information

The company statements are part of the 2022 financial statements of Avantium N.V.

The financial statements of the company are prepared in accordance with the provision of Part 9, Book 2 of the Dutch Civil Code. For setting the principles for the recognition and measurement of assets and liabilities and determination of the result of its company financial statements, Avantium N.V. makes use of the option provided in Section 2:362 (8) of the Dutch Civil Code. These principles also include the classification and presentation of financial instruments, being equity instruments or financial liabilities. This means that the principles of the recognition and measurements of assets and liabilities and determination of the result (hereinafter referred to as accounting policies) of the company financial statements of Avantium N.V. are the same as those applied for the consolidated financial statements under IFRS (refer to note 2). By applying this option, reconciliation is maintained between the group's equity and the company's equity.

In the company financial statements, investments in group companies are stated as net asset value, in accordance with the equity method, if the company effectively exercises influence of significance over the operational and financial activities of these investments. The net asset value is determined on the basis of the accounting principles applied by the company. In case the net asset value of an investment in a group company is negative, any existing loans to group companies considered as net investment are impaired. A provision for any remaining equity deficit is recognised when an outflow of resources is probable and can be reliably estimated.

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. Please refer to the notes to the consolidated financial statements for a description of these principles.

33. Equity Attributable to Equity Holders of the Company

For details of the movements in and components of equity, reference is made to the consolidated statement of changes in equity of the consolidated financial statements and the notes to these.

34. Financial Fixed Assets

The company directly held interests in the following subsidiaries on 31 December 2022:

- Avantium Technologies B.V., Amsterdam (100%)
- Renewable Technologies B.V., Amsterdam (100%)
- Avantium Support B.V., Amsterdam (100%)
- Avantium Knowledge Centre B.V., Amsterdam (100%)
- Feedstock Technologies B.V., Amsterdam (100%)
- Avantium Renewable Polymers B.V., Amsterdam (77.4%)
- Synvina C.V., Amsterdam (100%)

On 31 March 2022, there was a change in ownership of Avantium Renewable Polymers B.V., a subsidiary of Avantium N.V. Worley Nederland B.V. and Bio Plastics Investment Groningen B.V. together have acquired a 22.6% shareholding in Avantium Renewable Polymers B.V., while Avantium continued to hold 77.4% of the equity. The change in shareholding did not result in Avantium N.V. losing control over the subsidiary, Avantium Renewable Polymers B.V.

At Financial Close on 31 March 2022, Avantium N.V. fulfilled the total committed equity investment into Avantium Renewable Polymers B.V. of €45.0 million.

The movements in financial fixed assets can be summarised as follows:

<i>(In Euro x 1,000)</i>	Financial fixed assets
On 1 January 2021	31,585
Share of loss in group companies	(3,651)
Other equity movements in subsidiaries	(24,032)
On December 31, 2021	3,902

<i>(In Euro x 1,000)</i>	Financial fixed assets
On January 1, 2022	3,902
Share of loss in group companies	(14,624)
Other equity movements in subsidiaries	57,370
On December 31, 2022	46,648

35. Receivables from group companies

<i>(In Euro x 1,000)</i>	2022	2021
Group receivables outstanding 1 January	72,473	44,300
Movements in receivables from group companies	(9,105)	28,173
Group receivables outstanding 31 December	63,368	72,473

The fair value of the intercompany amounts in Avantium N.V. to group companies approximates their book values.

The movement in group receivables includes the loan of €15.0 million to Avantium Renewable Polymers B.V. The loan is repayable to Avantium N.V. on 31 March 2025. Refer to note 39 for Borrowings.

At Financial Close on 31 March 2022, Avantium N.V. fulfilled the total committed equity investment into Avantium Renewable Polymers B.V. of €45.0 million. With this also a number of group receivables between the group entities and Avantium Renewable Polymers B.V. where distributed and assigned to Avantium N.V.

36. Cash and Cash equivalents

<i>(In Euro x 1,000)</i>	31-12-2022	31-12-2021
Cash at bank and on hand	38,916	27,006
Restricted cash	6,500	1,500
Cash and cash equivalents for cash flow purposes	45,416	28,506

The cash and cash equivalents include restricted cash of €6.5 million. Of the €6.5 million, €5.0 million relates to a cash deposit held in the name of Avantium N.V. for any potential future equity funding needs during the construction of the FDCA Flagship Plant. It has been agreed with the consortium of lenders that Avantium Renewable Polymers B.V. will at all times have sufficient funding available for the construction of the FDCA Flagship Plant. The reserved cash is available to meet any funding shortfall that may arise, and this is assessed together with the Lenders upon each utilization of the debt facility. The cash in this deposit account remains at all times in full control and ownership of Avantium and its consolidated group. The residual €1.5 million, relates to a deposit held with Rabobank, which represents an amount equal to the estimated required guarantee capacity for the short term needs of the company. As at 31 December 2022, €772,000 of this guarantee capacity has utilised for issued bank guarantees to third parties.

37. Payables to group companies

<i>(In Euro x 1,000)</i>	2022	2021
Group payables outstanding 1 January	(52,284)	(51,896)
Movements in payables to group companies	19	(387)
Group payables outstanding 31 December	(52,264)	(52,284)

The fair value of the intercompany amounts in Avantium N.V. to group companies approximates their book values.

38. Provisions

a) Provisions for the year were as follows:

<i>(In Euro x 1,000)</i>	Provisions
On 1 January 2021	(24)
Share of loss in group companies	—
Movements in provisions	(1,705)
On December 31, 2021	(1,729)

<i>(In Euro x 1,000)</i>	Provisions
On January 1, 2022	(1,729)
Share of loss in group companies	—
Movements in provisions	1,705
On December 31, 2022	(24)

The provisions for financial fixed assets with a negative net equity as at 31 December 2022 relate to the following:

- Equity deficit of Feedstock Technologies B.V. of €24,000 (2021: €24,000)
- Equity deficit of Avantium Renewable Polymers B.V. of €nil (2021: €1,704,000)

39. Borrowings

<i>In Euro x 1,000</i>	2022
Balance as at 1 January 2022	—
Debt Facilities drawdown	12,750
Effective Interest	106
Repayment of Debt Facilities	—
Balance as at 31 December 2022	12,856

<i>In Euro x 1,000</i>	31-12-2022
Current Debt Facilities	—
Non-current Debt Facilities	12,856
Total Debt Facilities	12,856

<i>in Euro x 1,000</i>	Less than 1 year	Between 1 and 2 years	Between 2 and 5 year	Over 5 years	Total
Borrowings	—	—	12,856	—	12,856
	—	—	12,856	—	12,856

A three-year Debt Facilities Agreement of €90.0 million was signed with a consortium of lenders on 31 March 2022. This financing consists of three facilities. Facility A, €30.0 million, which is borrowed by Avantium N.V. and passed through to Avantium Renewable Polymers B.V. as an intercompany loan. Facility B1 and Facility B2, amounting to €45.0 million and €15.0 million, respectively, are borrowed directly by Avantium Renewable Polymers BV. The interest on the Debt Facilities Agreement consists of three components: cash interest, accrued interest and warrants (refer to note 40). Cash and accrued interest is EURIBOR based. The repayment of the loan amount is due on 31 March 2025. The cash interest is paid on a quarterly basis and PIK interest is capitalised on the principal balance of the Facility on a quarterly basis starting as of 21 February 2023 for Facility A.

The Debt Facilities Agreement contains customary technical and commercial conditions precedent and a customary security package including amongst others security on: all material assets, IP rights, receivables of Avantium, Avantium Renewable Polymers B.V., the holding entity of the FDCA Flagship Plant, and of several other group companies, the shares in Avantium Renewable Polymers B.V. and these other group entities, the loan(s) of Avantium and Avantium Renewable Polymers B.V. to Avantium RNP Flagship B.V. and the FDCA Flagship Plant itself and the FDCA Pilot Plant.

For the carrying amounts of the fixed, intangible assets, trade receivables pledged as security for current and non-current borrowings refer to the consolidated financial statements.

On 21 November 2022 the first drawdown of the loan was executed for €15.0 million. On this date, the Debt Facilities Agreement was amended and restated reflecting the current status of the business. The annual effective interest rate on the first drawdown is 12%. As at 31 December 2022 the fair value of the loan equals the carrying amount.

During 2022 Avantium complied with the financial and other required covenants confirmed on a monthly basis to the lenders. This confirmation will continue to take place on a monthly basis in 2023.

40. Financial Liability

<i>In Euro x 1,000</i>	2022
Balance as at 1 January 2022	—
Warrants issued	11,250
Fair value remeasurement	2,841
Balance as at 31 December 2022	14,091

<i>in Euro x 1,000</i>	Less than 1 year	Between 1 and 2 years	Between 2 and 5 year	Over 5 years	Total
Financial Liability	—	14,091	—	—	14,091
	—	14,091	—	—	14,091

On 31 March 2022, Avantium N.V. issued 2.84 million warrants, with an exercise price of €0.10, to the consortium of banks as part of the €90 million debt financing package for the FDCA Flagship Plant.

On 14 April 2022, 1.02 million additional warrants were issued to the warrant holders, to compensate for the dilutive effect of the equity offering according to the debt financing agreement with the lenders.

The initial recognition of the warrants amounted to €11.3 million. The warrants are recognised under IFRS 9 *Financial Instruments* as a Financial Liability. The warrants are measured subsequently at fair value through profit or loss at each reporting date.



The fair value of the warrants on 31 December 2022 is €14.1 million. The increase in the share price of €0.74 resulted in the increase in the fair value of the warrants. The subsequent fair value remeasurement of the warrants resulted in a loss for the year ended 31 December 2022 of €2.84 million, recognised under fair value remeasurement in the Statement of Comprehensive Income.

41. Commitment and Contingencies

The company is part of a fiscal unity for corporate income taxes. As a consequence, the company bears joint and several liability for the debts with respect to corporate income taxes. The company settles corporate income taxes, in principle, based on the results before taxes of the subsidiaries belonging to the fiscal unity.

Avantium has issued joint and several liability for the debts arising out of the legal acts of these subsidiaries, in accordance with Section 403 Part 9, Book 2 of the Dutch Civil Code. Each of these subsidiaries has filed Avantium's 403 declaration with the Dutch trade register:

- Avantium Support B.V.
- Avantium Technologies B.V.
- Avantium Chemicals B.V.

42. Audit Fees

The fees listed below relate to the procedures applied to the company and its consolidated group entities by PricewaterhouseCoopers Accountants N.V., the Netherlands, the independent external auditor as referred to in section 1(1) of the Dutch Accounting Firms Oversight Act (Dutch acronym: Wta), as well as by other Dutch and foreign-based PricewaterhouseCoopers Accountants N.V. individual partnerships and legal entities, including their tax services and advisory groups:

(In Euro x 1,000)	2022	2021
Audit of the financial statements	278	377
Other audit procedures	—	—
Tax services	—	—
Other non-audit services	1	1
Total	279	378

43. Remuneration of the Management Board and the Supervisory Board

The remuneration of the Supervisory Board amounted to €354,000 (2021: €403,000). The total remuneration paid to or for the benefit of members of the Management Board in 2022 amounted to €971,000 (2021: €1,023,000). For further details, refer to note 29 of the consolidated financial statements.

44. Employee Information

The company had no employees in 2022 (2021: nil).

Signing

Amsterdam, 21 March 2023

Avantium N.V. (Chamber of Commerce number: 34138918)

Management Board

Tom van Aken, Chief Executive Officer

Bart Welten, Chief Financial Officer (resigned per 31 December 2022)

Boudewijn van Schaik (appointed per 1 January 2023)

Supervisory Board

Edwin Moses, Chairperson

Nils Bjorkman

Margret Kleinsman

Michelle Jou

The financial statements are authorised for issue by the Management Board on 21 March 2023.

T.B. van Aken

B.W. van Schaik

Chief Executive Officer

Chief Financial Officer



Other Information

Articles of Association Governing Profit Appropriation

According to article 31 of the company's Articles of Association, the Annual General Meeting determines the appropriation of the company's net result for the year.



Independent Auditor's Report

To: the General Meeting and the Supervisory Board of Avantium N.V.

Report on the financial statements 2022

Our opinion

In our opinion, the financial statements of Avantium N.V. ('the Company') give a true and fair view of the financial position of the Company and the Group (the company together with its subsidiaries) as at 31 December 2022, and of its result and its cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union ('EU-IFRS') and with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the accompanying financial statements 2022 of Avantium N.V., Amsterdam. The financial statements comprise the consolidated financial statements of the Group and the company financial statements.

The consolidated financial statements comprise:

- the consolidated statement of financial position as at 31 December 2022;
- the following statements for 2022: the consolidated statements of comprehensive income, changes in equity and cash flows; and
- the notes, comprising significant accounting policies and other explanatory information.

The company financial statements comprise:

- the company balance sheet as at 31 December 2022;
- the company income statement for the year then ended;
- the notes, comprising the accounting policies applied and other explanatory information.

The financial reporting framework applied in the preparation of the financial statements is EU-IFRS and the relevant provisions of Part 9 of Book 2 of the Dutch Civil Code for the consolidated financial statements and Part 9 of Book 2 of the Dutch Civil Code for the company financial statements.

The basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. We have further described our responsibilities under those standards in the section 'Our responsibilities for the audit of the financial statements' of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of Avantium N.V. in accordance with the European Union Regulation on specific requirements regarding statutory audit of public-interest entities, the 'Wet toezicht accountantsorganisaties' (Wta, Audit firms supervision act), the 'Verordening inzake de onafhankelijkheid van accountants bij assuranceopdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

Our audit approach

We designed our audit procedures with respect to the key audit matter, fraud and going concern, and the matters resulting from that, in the context of our audit of the financial statements as a whole and in forming our opinion thereon. The information in support of our opinion, such as our findings and observations related to the key audit matter, our audit approach regarding fraud risks and our audit approach regarding going concern was addressed in this context and we do not provide a separate opinion or conclusion on these matters.



Overview and context

Avantium N.V. is a chemical technology company, developing and commercialising innovative renewable chemistry solutions. As of 31 December 2022, the company consisted of three business units (Renewable Polymers, Renewable Chemistries and R&D Solutions), which were subject to our audit procedures as set out in the section 'The scope of our group audit'. We paid specific attention to the areas of focus driven by the operations of the Group, as set out below.

The financial close on 31 March 2022, related to the Final Investment Decision (FID), and the first draw of the debt financing characterised the financial year 2022. Together with the funding obtained in April 2022 from the capital raise Avantium concluded to have sufficient cash and cash flow to meet the requirements for working capital, capital expenditures and R&D for at least twelve months after the signing date of the financial statements as noted in section 2.1.1. Going Concern of the annual report. As the financing and construction of the FDCA Flagship Plant was fundamental to the company, we have considered this matter, together with the related accounting implications, as a Key audit matter as described in the section 'Key audit matter'.

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where the Management Board made important judgements, for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. In these considerations, we paid attention to, amongst others, the assumptions underlying the physical and transition risk related to climate change. In note 4 Critical Accounting Estimates and Judgments of the financial statements, the Company describes the areas of judgement in applying accounting policies and the key sources of estimation uncertainty.

Other areas of focus, that were not considered as key audit matters, were going concern, project revenue recognition, accounting for government grants and accounting for share-based payments. As in all of our audits, we also addressed the risk of management override of controls, including evaluating whether there was evidence of bias by the Management Board that may represent a risk of material misstatement due to fraud.

Avantium N.V. assessed the possible effects of climate change and its plans to meet the net zero commitments on its financial position, refer to the sections The World Around Us and Operations of the Management Board Report. We discussed Avantium N.V.'s assessment and governance thereof with the Management Board and evaluated the potential impact on the financial position including underlying assumptions and estimates. Avantium's management has concluded that climate change does not negatively impact the financial position of the company. The expected effects of climate change are not considered to be a key audit matter.

We ensured that the audit teams at group level included the appropriate skills and competences which are needed for the audit of a listed chemical technology company. We therefore included experts and specialists in the areas of IT audit, financial instruments and share-based payments in our team.

The outline of our audit approach was as follows:



Materiality

- Overall materiality: €1,000,000.

Audit scope

- All group components were in scope, being Renewable Polymers, Renewable Chemistries and R&D Solutions business unit. We audited all group components as part of our audit.
- For all components, the group engagement team performed the work.

Key audit matters

The financing of and accounting implications of the construction of the FDCA Flagship Plant.

Materiality

The scope of our audit was influenced by the application of materiality, which is further explained in the section 'Our responsibilities for the audit of the financial statements'.

Based on our professional judgement we determined certain quantitative thresholds for materiality, including the overall materiality for the financial statements as a whole as set out in the table below. These, together with qualitative considerations, helped us to determine the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and to evaluate the effect of identified misstatements, both individually and in aggregate, on the financial statements as a whole and on our opinion.

Overall group materiality €1,000,000 (2021: €750,000).	
Basis for determining materiality	We used our professional judgement to determine overall materiality. As a basis for our judgement, we used 3.2% of the result before income tax.
Rationale for benchmark applied	We used the result before income tax as the primary benchmark, a generally accepted auditing practice, based on our analysis of the common information needs of the users of the financial statements. On this basis, we believe that the result before income tax is the most relevant metric for the financial performance of the company.

We also take misstatements and/or possible misstatements into account that, in our judgement, are material for qualitative reasons.

We agreed with the Supervisory Board that we would report to them any misstatement identified during our audit above €50,000 (2021: €37,500) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

The scope of our group audit

Avantium N.V. is the parent company of a group of entities. The financial information of this group is included in the consolidated financial statements of Avantium N.V.

The group engagement team performed the audit work on all components, the group consolidation and financial statement disclosures. By performing these procedures, we have been able to obtain sufficient and appropriate audit evidence on the Group's financial information, as a whole, to provide a basis for our opinion on the financial statements.



Audit approach fraud risks

We identified and assessed the risks of material misstatements of the financial statements due to fraud. During our audit we obtained an understanding of Avantium N.V. and its environment and the components of the internal control system. This included management's risk assessment process, management's process for responding to the risks of fraud and monitoring the internal control system and how the supervisory board exercised oversight, as well as the outcomes.

We refer to section Risk and Opportunity Management of the annual report where the Management Board reflects on its response to fraud risk.

We evaluated the design and relevant aspects of the internal control system with respect to the risks of material misstatements due to fraud and in particular the fraud risk assessment, as well as the Code of Good Business Conduct, whistle-blower procedures, policies around agents and Confidant policies, among other things. We evaluated the design and the implementation and, where considered appropriate, tested the operating effectiveness of internal controls designed to mitigate fraud risks.

We asked members of the Management Board and the Supervisory Board whether they are aware of any actual or suspected fraud. This did not result in signals of actual or suspected fraud that may lead to a material misstatement.

As part of our process of identifying fraud risks, we evaluated fraud risk factors with respect to financial reporting fraud, misappropriation of assets and bribery and corruption. We evaluated whether these factors indicate that a risk of material misstatement due to fraud is present.

We identified the following fraud risks and performed the following specific procedures:



Identified fraud risk	Our audit work and observations
<p>Risk of management override of controls</p> <p>In our audit we paid attention to the risk of management override of controls, including the risk of potential misstatements as a result of fraud in estimates. This included risks of potential misstatements due to fraud based on an analysis of potential interests of management.</p> <p>In this context we paid specific attention to tendencies in judgments and conclusions with respect to estimates as there could be incentives for and pressure on management to realize results as included in the budget.</p>	<p>We have, to the extent relevant to our audit, evaluated the design of the internal control environment that reduces the risk of breach of internal control.</p> <p>Also, we paid specific attention to user access management in the IT system.</p> <p>We selected journal entries based on risk criteria and conducted specific audit activities for these entries, as part of which we also paid attention to significant transactions outside the normal course of business.</p> <p>We also performed specific audit procedures regarding important management's estimates as it relates to going concern, impairment assessment of property, plant and equipment, project cost estimates as well as government grants and share-based payments related estimates. In our assessment, we paid specific attention to the inherent risk of bias of the management on estimates.</p> <p>Our audit procedures did not lead to specific indications of fraud or suspicions of fraud with respect to management override of controls.</p>

We incorporated an element of unpredictability in our audit and we reviewed lawyer's letters. During the audit, we remained alert to indications of fraud. We also considered the outcome of our other audit procedures and evaluated whether any findings were indicative of fraud or non-compliance of laws and regulations. Whenever we identify any indications of fraud, we re-evaluate our fraud risk assessment and its impact on our audit procedures.

Identified fraud risk	Our audit work and observations
<p>Risk of fraud in revenue recognition</p> <p>As part of our risk assessment and based on a presumption that there are risks of fraud in revenue recognition, we evaluated which types of revenue transactions or assertions give rise to the risk of fraud in revenue recognition.</p> <p>Avantium R&D Solutions Services & Systems is the company's main revenue-generating business. Avantium recognises revenue over time or at point in time depending on the agreed contract performance obligations.</p> <p>There might be an incentive for management to shift revenue between the periods in order to satisfy stakeholders and/or reach KPIs outlined in compensation plans.</p> <p>We consider cut-off as an assertion relevant for the risk of fraud in revenue recognition for R&D Solutions service projects and testing systems.</p> <p>Revenue from Renewable Polymers Material offtake agreements consists of a €5 million non-refundable payment for technical due diligence procedures performed, and the sale of samples. Revenue for these transactions is recognized at a point in time and is not considered complex. Therefore, we did not identify a fraud risk in any assertion for this revenue stream.</p>	<p>Where relevant to our audit, we assessed the design of the internal control measures related to revenue reporting and in the processes for generating and processing journal entries related to the revenue.</p> <p>We have used a primarily substantive testing approach with respect to the cost to complete by performing procedures to compare actual hours with budgeted hours and to determine the progress of the contracts. In addition, we have performed substantive testing on revenue transactions around year-end.</p> <p>Our audit procedures did not lead to specific indications of fraud or suspicions of fraud with respect to revenue recognition.</p>



Audit approach going concern

As disclosed in section 'Going concern' in note 2.1.1 of the financial statements, management performed their assessment of the entity's ability to continue as a going concern for at least 12 months from the date of preparation of the financial statements and has not identified events or conditions that may cast significant doubt on the entity's ability to continue as a going concern (hereafter: going concern risks). Our procedures to evaluate management's going concern assessment included, amongst others:

- Considered whether management's going concern assessment includes all relevant information of which we are aware as a result of our audit and inquiring with management regarding management's most important assumptions underlying its going concern assessment.
- Analysed the financial position per balance sheet date compared to prior year as well as the liquidity scenarios and sensitivity analysis, including the assessment of the progress of the construction of the Flagship Plant.
- Read minutes of the meetings of shareholders, those charged with governance and relevant committees, as well as agreements reached with the equity partners, banks and other investors for reference to the financial close for the FDCA Flagship Plant of Avantium Renewable Polymers financing package and the capital raise.
- Evaluated the latest available cash flow forecast and sensitivity analysis, corroborated these with management's budgets, performed look-back procedures, assessed if the cash flow forecast is in line with all relevant information of which we are aware as a result of our audit.
- Analysing whether the current and the required financing has been secured to enable the continuation of the entirety of the entity's operations, including compliance with relevant covenants and future conditions required from the lenders.
- Assessed the disclosure of the facts and circumstances around the financing of the FDCA Flagship Plant and the funding of the other ongoing operations in the financial statements.
- Assessed the accounting paper and disclosure of reserved cash account as indicated in the key audit matter.
- Performing inquiries of management as to its knowledge of going concern risks beyond the period of management's assessment.
- Inquired with management as to their knowledge of going-concern risks beyond the period of management's assessment.

We concluded that management's use of the going concern basis of accounting is appropriate and that the various elements to going concern assessment are adequately disclosed in note 2.1.1 Going concern of the financial statements, and based on the audit evidence obtained, that no material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern.

Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in the audit of the financial statements. We have communicated the key audit matter to the supervisory board. The key audit matter is not a comprehensive reflection of all matters identified by our audit and that we discussed. In this section, we described the key audit matter and included a summary of the audit procedures we performed on this matter.

We addressed the key audit matters in the context of our audit of the financial statements as a whole, and in forming our opinion thereon. We do not provide separate opinions on these matters or on specific elements of the financial statements. Any comment or observation we made on the results of our procedures should be read in this context.

**Key audit matter****Our audit work and observations****The financing of and accounting implications of the construction of the FDCA Flagship Plant**

Due to Avantium's nature as a technology development company, with significant R&D expenses and net cash outflow year over year, the company remains focused on timely attracting additional external funding. The required funding depends on the progress made in the development of the various technologies of Avantium and strategic choices by management.

Per April 2022, after Financial Close, Avantium needed to implement a number of accounting treatments new to the company. In March 31 2022 (financial close), Avantium secured debt financing with the first draw taking place in November 2022. The debt financing agreement with the consortium of banks included the issuance of warrants and a pledged equity reserve account. The total financing package includes significant amounts in equity by minority shareholders.

Separately, Avantium has agreed to enter into a technical due diligence by Origin Materials Inc. which resulted in a €5 million non-refundable payment which significantly impacted the financials of Avantium Renewable Polymers B.V. and Avantium.

We focused on this matter because of the significant focus on it by the Management Board throughout the year and because of the complexity of these new accounting treatments to Avantium.

We gained a complete understanding of the relevant accounting topics by having inquiries with members of the Management Board on a recurring basis throughout the year, reading minutes of the meetings of shareholders, those charged with governance and relevant committees, as well as inspecting agreements reached with the equity partners, engineering partner, banks and other investors for reference.

We obtained position papers from the Management Board explaining the proposed accounting, presentation and disclosure of the relevant topics. We involved PwC IFRS experts to assist us in reviewing some of the position papers.

We inspected the Debt Facilities agreement as included in note 16. We vouched the 2022 draw with the bank statements and recalculated the effective interest rate. The carrying amount of the bank loan approximates the fair value; the effective interest rate approximates the average interest rate.

The warrants in note 18 are appropriately recognised under IFRS 9 Financial Instruments. We recalculated the initial recognition with the use of the agreement, without exception. We assessed that the fair value adjustment was correctly calculated with the share price at balance sheet date and recognised in the Statement of Comprehensive Income. We evaluated that the presentation and disclosure requirements for warrants under financial liabilities are appropriately applied.

Based on IFRS 10 we agreed that Avantium N.V. maintains control over Avantium Renewable Polymers having 77.4% of the shares. The presentation and disclosure of the non-controlling interest within equity, Statement of Comprehensive Income, Cash Flow statement, accounting policies and the disclosure note are appropriate.

The reserved cash as described in note 10 has been assessed. We evaluated management's position paper on the classification of the balance. We agree with the conclusion that the funds are restricted cash and conclude the explanation in disclosure note 10 to be appropriate. The effect of this restricted cash for Avantium N.V. has been appropriately included in management's going concern assessment.

We concur with management, regarding the Origin Material technical due diligence transaction, that the calculations, accounting, presentation and disclosures are in line with the agreement and are performed in line with IFRS.



Report on the other information included in the annual report

The annual report contains other information. This includes all information in the annual report in addition to the financial statements and our auditor's report thereon.

Based on the procedures performed as set out below, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements; and
- contains all the information regarding the directors' report and the other information that is required by Part 9 of Book 2 and regarding the remuneration report required by the sections 2:135b and 2:145 subsection 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and the understanding obtained in our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing our procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of such procedures was substantially less than the scope of those procedures performed in our audit of the financial statements.

The Management Board is responsible for the preparation of the other information, including the directors' report and the other information in accordance with Part 9 of Book 2 of the Dutch Civil Code. The Management Board and the Supervisory Board are responsible for ensuring that the remuneration report is drawn up and published in accordance with sections 2:135b and 2:145 subsection 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements and ESEF

Our appointment

We were appointed as auditors of Avantium N.V. by the supervisory board following the passing of a resolution by the shareholders at the annual general meeting held on 18 May 2022. Our appointment has been renewed annually by shareholders and now represents a total period of uninterrupted engagement of 19 years.

European Single Electronic Format (ESEF)

Avantium N.V. has prepared the annual report in ESEF. The requirements for this are set out in the Delegated Regulation (EU) 2019/815 with regard to regulatory technical standards on the specification of a single electronic reporting format (hereinafter: the RTS on ESEF).

In our opinion, the annual report prepared in XHTML format, including the (partially) marked-up consolidated financial statements, as included in the reporting package by Avantium N.V., complies in all material respects with the RTS on ESEF.

Management is responsible for preparing the annual report, including the financial statements in accordance with the RTS on ESEF, whereby management combines the various components into a single reporting package.

Our responsibility is to obtain reasonable assurance for our opinion whether the annual report in this reporting package complies with the RTS on ESEF.

We performed our examination in accordance with Dutch law, including Dutch Standard 3950N 'Assuranceopdrachten inzake het voldoen aan de criteria voor het opstellen van een digitaal verantwoordingsdocument' (assurance engagements relating to compliance with criteria for digital reporting).

Our examination included amongst others:

- Obtaining an understanding of the entity's financial reporting process, including the preparation of the reporting package.
- Identifying and assessing the risks that the annual report does not comply in all material respects with the RTS on ESEF and designing and performing further assurance procedures responsive to those risks to provide a basis for our opinion, including:
- obtaining the reporting package and performing validations to determine whether the reporting package containing the Inline XBRL instance document and the XBRL extension taxonomy files have been prepared in accordance with the technical specifications as included in the RTS on ESEF.
- Examining the information related to the consolidated financial statements in the reporting package to determine whether all required mark-ups have been applied and whether these are in accordance with the RTS on ESEF.

No prohibited non-audit services

To the best of our knowledge and belief, we have not provided prohibited non-audit services as referred to in article 5(1) of the European Regulation on specific requirements regarding statutory audit of public-interest entities.

Services rendered

The services, in addition to the audit, that we have provided to the company or its controlled entities, for the period to which our statutory audit relates, are disclosed in note 42 to the financial statements.



Responsibilities for the financial statements and the audit

Responsibilities of the Management Board and the Supervisory Board for the financial statements

The Management Board is responsible for:

- the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code; and for
- such internal control as the Management Board determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, management is responsible for assessing the Company's ability to continue as a going-concern. Based on the financial reporting frameworks mentioned, management should prepare the financial statements using the going-concern basis of accounting unless management either intends to liquidate the Company or to cease operations or has no realistic alternative but to do so. Management should disclose in the financial statements any event and circumstances that may cast significant doubt on the Company's ability to continue as a going concern.

The Supervisory Board is responsible for overseeing the company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our responsibility is to plan and perform an audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence to provide a basis for our opinion. Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error and to issue an auditor's report that includes our opinion. Reasonable assurance is a high but not absolute level of assurance, which makes it possible that we may not detect all material misstatements. Misstatements may arise due to fraud or error. They are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A more detailed description of our responsibilities is set out in the appendix to our report.

Rotterdam, 21 March 2023

PricewaterhouseCoopers Accountants N.V.

Original has been signed by A.F. Westerman RA



Appendix to our auditor's report on the financial statements 2022 of Avantium N.V.

In addition to what is included in our auditor's report, we have further set out in this appendix our responsibilities for the audit of the financial statements and explained what an audit involves.

The auditor's responsibilities for the audit of the financial statements

We have exercised professional judgement and have maintained professional scepticism throughout the audit in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit consisted, among other things of the following:

- Identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the intentional override of internal control
- Obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Concluding on the appropriateness of management's use of the going-concern basis of accounting, and based on the audit evidence obtained, concluding whether a material uncertainty exists related to events and/or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report and are made in the context of our opinion on the financial statements as a whole. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluating the overall presentation, structure and content of the financial statements, including the disclosures, and evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Considering our ultimate responsibility for the opinion on the consolidated financial statements, we are responsible for the direction, supervision and performance of the group audit. In this context, we have determined the nature and extent of the audit procedures for components of the Group to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole. Determining factors are the geographic structure of the Group, the significance and/or risk profile of group entities or activities, the accounting processes and controls, and the industry in which the Group operates. On this basis, we selected group entities for which an audit or review of financial information or specific balances was considered necessary.

We communicate with the supervisory board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit. In this respect, we also issue an additional report to the audit committee in accordance with article 11 of the EU Regulation on specific requirements regarding statutory audit of public-interest entities. The information included in this additional report is consistent with our audit opinion in this auditor's report.

We provide the supervisory board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related actions taken to eliminate threats or safeguards applied.

From the matters communicated with the supervisory board, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.



Sustainability Statements

Sustainability Strategy	170
Sustainability Governance	170
Boundaries	170
Scope	171
References	174





Sustainability Strategy

Sustainability is the main driver for everything we do at Avantium. Our vision is a fossil-free world – and we help to deliver it by developing and commercialising disruptive technologies that enable and accelerate this shift. We work together with like-minded partners to test these technologies and bring them to the world – where their sustainability potential will help addressing the global need to reduce plastic waste, tackling climate change and transitioning into a circular, sustainable bio-based economy.

At Avantium, science meets business. People are our main asset, and we therefore put a lot of time and focus into taking care of our team and attracting new talent, in line with our goal of being among the best employers in the Netherlands. We also engage with students and other audiences across the world to show that, when it comes to the chemical industry, there is a better way: we can and must create value more sustainably.

Sustainability Governance

Although Avantium started its sustainable business journey in 2000 when it was founded, it took more than a decade to formalise its sustainability strategy. We first engaged with internal and external stakeholders in 2019 to determine the most important sustainability topics that we need to work on. This engagement process resulted in Avantium's [Sustainability Manifesto](#), outlining our pathway for tackling the global climate emergency.

In 2021, our sustainability strategy was published under the name of [Chain Reaction 2030](#), highlighting key stepping stones along the way to achieving Avantium's ambitious vision of a fossil-free chemical industry by 2050. Over a hundred stakeholders, internal and external, participated in the target-setting process and provided feedback. As a result, four sustainability pillars were identified: Technology, Operations, People and Leadership & Governance. Chain Reaction 2030 commits Avantium to a series of goals and targets where it has the greatest impact on social and environmental issues. This includes accelerating the development of its own technologies and operations to support the circular economy and driving responsible and sustainable business practices across the industry. The plan also includes Avantium's actions to empower its own employees to make a lasting impact and inspire the next generation of talent. Meanwhile, our approach to leadership and governance ensures that Avantium's voice is heard as we advocate for a global transition to a fossil-free industry.

Having published Chain Reaction 2030, we set up a cross-functional and cross-departmental governance model and implementation team:

- The Sustainability Steering Board steers the execution of Chain Reaction 2030. It approves plans and courses of action and represents sustainability within different Avantium bodies, including the leadership teams, the Management Team and the Supervisory Board.
- The Chain Reaction 2030 Task Force comprises a number of teams that execute the implementation of the Chain Reaction 2030 targets. These teams also drive the planning, implementation and monitoring of different policies, processes and activities in support of these aims.

Members of the Steering Board and Task Force have these activities included in their annual personal goals and are evaluated accordingly on their progress.

Boundaries

We have several business units at Avantium, all united by a common goal: to provide innovative solutions for using renewable sources, cutting out plastic waste and reducing CO₂. Each business unit works on one or more technologies or R&D solutions, as discussed in the Our Technology section of this report.

Avantium operates at four different locations:

- Headquarters and laboratories at Amsterdam Zekeringstraat
- Laboratories in collaboration with University of Amsterdam at the Amsterdam Science Park
- Pilot plants at Delfzijl Chemie Park
- Pilot plant in Geleen Brightlands Chemelot Industrial Park

While the Final Investment Decision on the world's first FDCA Flagship Plant has been taken and work commenced in 2022, it is expected that the plant will become operational in 2024 and therefore no data about its operations can be reported.

Our main activities take place in an office environment – 74% of our employees work either in research laboratories or in our offices (on, for example, business development, analytics, strategy, project management and engineering). 26% of our employees work in our Pilot Plants. Since Avantium is not yet a commercial production company, the impact of our operations is more comparable to an R&D company than to a chemical manufacturing company.

Most of Avantium's suppliers are landlords and providers of office supplies. There is also a limited number of significant suppliers of feedstock (used for developing and piloting our technologies) whose impacts we address on page 36 of this report.



Scope

Avantium worked with an external party to conduct a materiality assessment in 2021. A similar exercise took place in 2022, with both internal and external stakeholders participating and with no significant changes from the 2021 assessment.

Definitions of Very High Priority Material Topics

Environmental Impact of Our Technologies

Applying Avantium's expertise to improve the efficiency of existing chemical processes and invent new technologies with an improved environmental impact versus fossil-based incumbents.

Greenhouse Gas Emissions of Our Operations

Aligning Avantium's business with a 1.5°C future by reducing carbon emissions in line with the Paris Agreement and working to remove stubborn emissions through credible offsetting.

Circularity

Optimising the recovery, reuse and recycling of our technologies, mitigating Avantium's impact on natural resources.

Sustainable Feedstocks

Using plant-based feedstocks including agricultural crops, residuals from agriculture or forestry or waste material that would otherwise be incinerated.

Occupational Health & Safety

Implementing strong safety management practices, as defined by ISO 45001, in our workplaces to safeguard employees' health.

Health & Well-Being

Ensuring the health and well-being of employees both through our culture and with programmes focusing on work-related stress, work-life balance and mental health.

Talent Attraction & Retention

Attracting, engaging and retaining a productive and talented workforce through programmes, benefits and development opportunities.

Climate Advocacy

Accelerating the industry transition to fossil free by helping our customers and partners embrace the essential technologies and products of tomorrow.

Stakeholder Engagement

Engaging proactively and continuously with various stakeholders in a two-way dialogue, understanding their priorities and reflecting them in our collaboration, advocacy and ESG strategy.

Corporate Partnerships

Selecting partners who share the same values as us and who want to decouple the industry from its reliance on fossil fuels.

IP & Data Protection

Ensuring the protection, confidentiality and ethical use of company, client, employee and supplier data.

Definitions of High Priority Material Topics

Diversity & Inclusion

Upholding the highest standards of equality, fairness and respect among employees by ensuring an inclusive and socially mobile culture with zero tolerance for harassment or discrimination.

Hazardous Materials Management

Reducing or eliminating hazardous materials from our processes wherever possible, and focusing on responsible management and disposal when their use is unavoidable.

Next Generation of Scientists

Promoting and improving STEM education as a way to raise levels of scientific literacy and equip our society to address climate change.

Climate-Related Regulation

Engaging with laws, regulations and restrictions on climate-related topics, from rapidly changing emissions regulations to taxonomy.

Non-Hazardous Waste Management

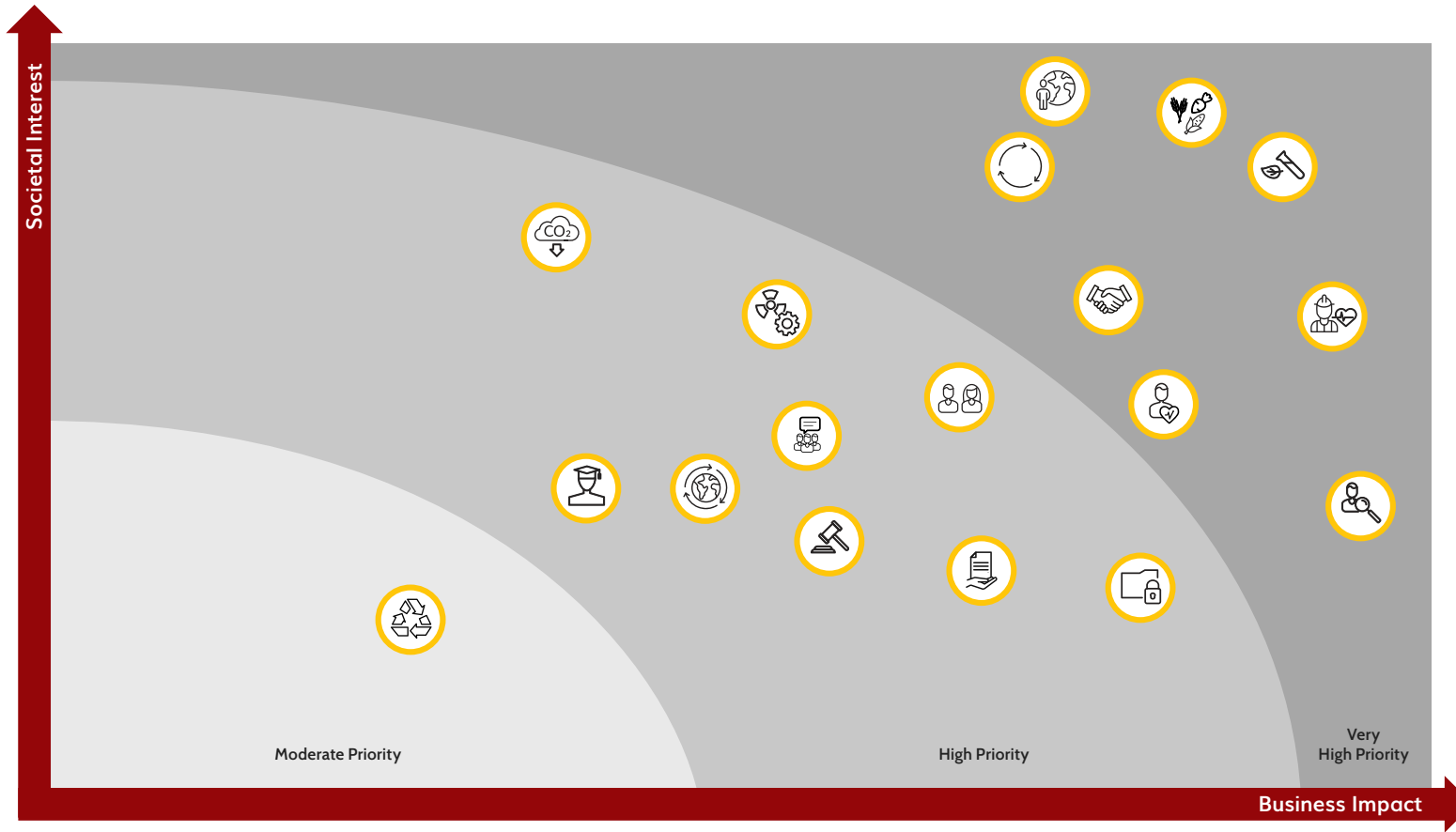
Reducing material use through the adoption of responsible consumption practices and ensuring the highest standards of reuse and recycling across our offices and operations.

Product Stewardship

Managing, in a responsible way, the health, safety and environmental aspects of a product throughout its lifecycle.



Avantium Materiality Assessment 2022



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|--|------------------------------|--------------------------------|----------------------------------|---------------------------------|--------------------------|
| Greenhouse Gas Emissions of Our Operations → | Circularity → | Stakeholder Engagement → | Talent Attraction & Retention → | Sustainable Feedstocks → | Health & Well-Being → |
| Hazardous Materials Management → | Climate Advocacy → | Product Stewardship → | IP & Data Protection → | Diversity & Inclusion → | Corporate Partnerships → |
| Environmental Impact of Our Technologies → | Climate-Related Regulation → | Occupational Health & Safety → | Non-Hazardous Waste Management → | Next Generation of Scientists → | Responsible Licensing → |



The double materiality principle was used: stakeholders were asked to fill in an online survey by rating the importance of topics. Rating was asked from two perspectives: significance with regards to Impact on Avantium's business and with regards to Impact on Society/ the Environment. Respondents were divided in 2 groups: External Stakeholders and Internal Stakeholders.

For External Stakeholders the top-3 highest rated topics with regards to Impact on Society/ the Environment were 1. Greenhouse gas emissions of our Operations, 2. Sustainable feedstocks, and 3. Climate advocacy. The top-3 highest rated topics with regards to Impact on Avantium's business were 1. Talent attraction & retention, 2. Occupational Health & Safety, and 3. Corporate partnerships.

For Internal Stakeholders the top-3 highest rated topics with regards to Impact on Society/ the Environment were 1. Climate advocacy, 2. Sustainable feedstocks, and 3. Circularity. The top-3 highest rated topics with regards to Impact on Avantium's business were 1. Environmental impact of our chemicals & technologies, 2. Health & well-being, and 3. Talent attraction & retention.

The results are similar to the materiality assessment results from last year. There are some differences however between the materiality assessment results from this year compared to the priorities that came out of the stakeholder engagement when the Sustainability Manifesto and Chain Reaction 2030 were developed. The topic Non-Hazardous Waste Management is rated with very low significance compared to other topics. The topic Diversity, Equality & Inclusion (DEI) is still important, but not on the top of the priority list.

The sustainability team discussed the results of the materiality assessment. It decided that going forward, the main focus in sustainability management will be on the most important topics, including the Diversity, Equality & Inclusion (DEI) topic, but excluding Non-Hazardous Waste Management.

To sum up, these topics are deemed most significant:

Technology

- Sustainable Feedstocks,
- Environmental Impact of our Chemicals & Technologies,
- Circularity,
- Product Stewardship.

Operations

- Occupational Health & Safety,
- Greenhouse Gas Emissions of Our Operations,
- Waste.

People

- Talent Attraction & Retention,
- Health & Well-Being,
- Diversity, Equality & Inclusion (DEI),
- Next Generation of Scientists.

Leadership & Governance

- Climate advocacy,
- Corporate Partnerships.

Avantium's sustainability goals and sustainability management are designed to contribute to the Sustainable Development Goals (SDGs). Monitoring and reporting on the progress of achieving the goals is done in line with the GRI Standards. In the future, Avantium will adopt the ESRS reporting standards as developed by EFRAG and regulated by CSRD.



References

Area	CR2030 goal	Material topic	GRI reference	SDG reference	SASB reference	CSRD
Our Technologies	Our technologies will deliver 1.5 million tonnes of CO ₂ savings across the chemical industry.	- Environmental Impact of Our Technologies	GRI 305 Emissions	3.9, 12.4	RT-CH-110a.1. RT-CH-110a.2	ESRS E1 Climate Change
	We will become a circular business	- Product Stewardship - Circularity		12.5		ESRS E5 Resource Use and Circularity
	All our plant-based feedstock for Renewable Polymers and Renewable Chemistries will come from sustainable sources.	- Sustainable Feedstocks	- GRI 308 Suppliers Environmental Assessment - GRI 414 Suppliers Social Assessment	9.4		ESRS S2 Workers in the value chain, ESRS Resource use and Circularity (E5-4)
Our Operations	All our plants will achieve an ISO45001 certification (healthy and safe working environment).	- Occupational Health & Safety	GRI 403 Occupational Health and Safety	3.9	RT-CH-320a.2	ESRS S1 Own Workforce (S1-14)
	We will send zero non-hazardous waste to incineration and landfill.	- Health & Well-Being - Non-Hazardous Waste Management - Hazardous Materials Management	GRI 306 Waste	3.9, 12.5	RT-CH-150a.1.	ESRS E5 Resource use and circular economy (E5-5)
	Our own operations will achieve net-zero carbon emissions	- Greenhouse Gas Emissions of Our Operations	GRI 305 Emissions	12.4	RT-CH-110a.1. RT-CH-110a.2. RT-CH-130a.1.	ESRS E1 Climate Change



Area	CR2030 goal	Material topic	GRI reference	SDG reference	SASB reference	CSRD
Our People	Avantium will be one the 10 best companies to work for in the Netherlands	<ul style="list-style-type: none"> - Talent Attraction & Retention - Health & Well-Being 	<ul style="list-style-type: none"> - GRI 2-7 Employees - GRI 2-8 Workers who are not Employees - GRI 404 Training and Education 	4.7, 7a, 8.5		ESRS S1 Own Workforce
	We will improve upon our baseline of being an inclusive and diverse company, ensuring that we are representative of the societies and communities we operate within	Diversity & Inclusion	GRI 405 Diversity and Equal Opportunity	5.5, 8.2, 8.5		ESRS S1 Own Workforce (S1-9)
	We will have engaged 100,000 students about using chemistry to create a fossil-free world.	Next Generation of Scientists	GRI 404 Training and Education	4.4, 9.5, 17.7		
Our Leadership and Governance	All our advocacy will focus on transforming the chemical industry to becoming circular and fossil-free.	<ul style="list-style-type: none"> - Climate Advocacy - Climate-Related Regulation - IP & Data Protection - Responsible Licensing - Stakeholder Engagement - Corporate Partnerships 	GRI 22-28 Strategy, Policies and Practices	13.3, 17.6, 17.16	RT-CH-530a.1 RT-CH-210a.1	ESRS G1 Business COnduct (G1-5), ESRS S4 Consumers and end users



Supplementary Information

GRI Content Index 177

Glossary 181



GRI Content Index

Statement of Use Avantium N.V. has reported the information cited in this GRI content index for the period 1 January 2021 to 31 December 2021 with reference to the GRI Standards Foundation 2021

	Disclosure	Location in annual report, corporate website or direct answer
GRI 2: General Disclosures 2021	2-1 Organizational details	Financial Statements, Note 1 General Information (page 118)
	2-2 Entities included in the organization's sustainability reporting	Financial Statements, Note 2.2.1 Subsidiaries (page 119) The Value We Created in 2022 (page 27) About This Report (page 3)
	2-3 Reporting period, frequency and contact point	About This Report (page 3)
	2-4 Restatements of information	None
	2-5 External assurance	About This Report (page 3)
	2-6 Activities, value chain and other business relationships	Who We Are (page 10) How We Create Value (page 17) The World Around Us (page 20) Our Strategy (page 24) Business Highlights (page 28)
	2-7 Employees	Our People (page 42)
	2-8 Workers who are not employees	Our People (page 42)
	2-9 Governance structure and composition	Corporate Governance (page 106)
	2-10 Nomination and selection of the highest governance body	Corporate Governance (page 106) Corporate Website: https://www.avantium.com/corporate-governance/
	2-11 Chair of the highest governance body	Message from the CEO (page 8) Corporate Governance (page 106)
	2-12 Role of the highest governance body in overseeing the management of impacts	Corporate Governance (page 106)
	2-13 Delegation of responsibility for managing impacts	Corporate Governance (page 106)
	2-14 Role of the highest governance body in sustainability reporting	In-Control Statement (page 73)



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Foundation 2021

	Disclosure	Location in annual report, corporate website or direct answer
GRI 2: General Disclosures 2021	2-15 Conflicts of interest	Responsible Business Principles (page 52) https://www.avantium.com/corporate-governance/#principles-policies-and-rules
	2-16 Communication of critical concerns	Risk and Opportunity Management (page 61)
	2-17 Collective knowledge of the highest governance body	Corporate Governance (page 106)
	2-18 Evaluation of the performance of the highest governance body	Corporate Governance (page 106)
	2-19 Remuneration policies	Remuneration Report 2022 (page 84)
	2-20 Process to determine remuneration	Remuneration Report 2022 (page 84) Corporate Governance (page 106)
	2-21 Annual total compensation ratio	Remuneration Report 2022 (page 84)
	2-22 Statement on sustainable development strategy	Message from the CEO (page 8) Our Strategy (page 24)
	2-23 Policy commitments	Our People (page 42) Responsible Business Principles (page 52)
	2-24 Embedding policy commitments	Our People (page 3) Responsible Business Principles (page 52)
	2-25 Process to remediate negative impacts	Risk and Opportunity Management (page 61)
	2-26 Mechanisms for seeking advice and raising concerns about ethics	Corporate Website: https://www.avantium.com/corporate-governance/
	2-27 Compliance with laws and regulations	Corporate Website: https://www.avantium.com/corporate-governance/
	2-28 Membership associations	Advocating for a Fossil-Free Industry (page 48) Stakeholder Engagement (page 49) Climate-Related Regulation (page 52) Corporate Partnerships (page 52)
	2-29 Approach to stakeholder engagement	Stakeholders and Materiality (page 22) Stakeholder Engagement (page 49)
2-30 Collective bargaining agreements	At Avantium, there are no collective bargaining agreements	



Statement of Use		
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	Disclosure	Location in annual report, corporate website or direct answer
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Stakeholders and Materiality (page 22) Stakeholder Engagement (page 49) Avantium Materiality Assessment 2022 (page 172)
	3-2 List of material topics	Avantium Materiality Assessment 2022 (page 172) References (page 174)
	3-3 Management of material topics	The Value We Created in 2022 (page 27)
GRI 303: Energy 2021	3-3 Management of material topics	Reducing Emissions from Our Operations (page 41)
	302-1 Energy consumption within the organization	Reducing Emissions from Our Operations (page 41)
	302-4 Reduction of energy consumption	Reducing Emissions from Our Operations (page 41)
GRI 305: Emissions 2016	3-3 Management of material topics	Reducing Emissions from Our Operations (page 41)
	305-1 Direct (Scope 1) GHG emissions	Reducing Emissions from Our Operations (page 41)
	305-2 Energy indirect (Scope 2) GHG emissions	Reducing Emissions from Our Operations (page 41)
	305-3 Other indirect (Scope 3) GHG emissions	Data not available yet, expecting to report from 2024
	305-5 Reduction of GHG emissions	Reducing Emissions from Our Operations (page 41)
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Reducing Emissions from Our Operations (page 41)
GRI 306: Waste 2020	3-3 Management of material topics	Managing Waste from our Operations (page 40)
	306-1 Waste generation and significant waste-related impacts	Managing Waste from our Operations (page 40)
	306-2 Management of significant waste-related impacts	Managing Waste from our Operations (page 40)
	306-3 Waste generated	Managing Waste from our Operations (page 40)
	306-4 Waste diverted from disposal	Managing Waste from our Operations (page 40)
	306-5 Waste directed to disposal	Managing Waste from our Operations (page 40)
GRI 308: Supplier Environmental Assessment 2016	3-3 Management of material topics	Using Sustainable Feedstocks (page 36)
	308-1 New suppliers that were screened using environmental criteria	Using Sustainable Feedstocks (page 36)



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Statement of Use	Disclosure	Location in annual report, corporate website or direct answer
GRI 401: Employment 2016	3-3 Management of material topics	Our People (page 42) Becoming a Top-10 Place to Work (page 43)
	401-1 New employee hires and employee turnover	Becoming a Top-10 Place to Work (page 43)
	401-3 Parental leave	Promoting Diversity, Equity and Inclusion (page 45)
GRI 403: Occupational Health and Safety 2018	3-3 Management of material topics	Providing Safe and Healthy Workplaces (page 39) https://www.avantium.com/safety-first/ Labour and Human Rights (page 53)
	403-1 Occupational health and safety management system	Providing Safe and Healthy Workplaces (page 39) https://www.avantium.com/safety-first/ Labour and Human Rights (page 53)
	403-2 Hazard identification, risk assessment, and incident investigation	Providing Safe and Healthy Workplaces (page 39)
	403-4 Worker participation, consultation, and communication on occupational health and safety	Works Council (page 43) Health and Well-Being (page 43) Providing Safe and Healthy Workplaces (page 39)
	403-5 Worker training on occupational health and safety	Providing Safe and Healthy Workplaces, Practices and Protocols (page 39)
	403-6 Promotion of worker health	Health and Well-Being (page 43)
	403-9 Work-related injuries	Providing Safe and Healthy Workplaces, Accidents and Incidents (page 39)
GRI 404: Training and Education 2016	3-3 Management of material topics	Becoming a Top-10 Place to Work (page 43)
	404-2 Programs for upgrading employee skills and transition assistance programs	Performance Management and Training (page 43)
	404-3 Percentage of employees receiving regular performance and career development reviews	Performance Management and Training (page 43)
GRI 405: Diversity and Equal Opportunity 2016	3-3 Management of material topics	Promoting Diversity, Equity and Inclusion (page 45)
	405-1 Diversity of governance bodies and employees	Promoting Diversity, Equity and Inclusion (page 45)
	405-2 Ratio of basic salary and remuneration of women to men	Promoting Diversity, Equity and Inclusion (page 45)
GRI 414: Supplier Social Assessment 2016	3-3 Management of material topics	Using Sustainable Feedstocks (page 36)
	414-1 New suppliers that were screened using social criteria	Using Sustainable Feedstocks (page 36)



Glossary

This glossary has been carefully compiled and we believe it to be accurate. Definitions may however be based on Avantium's interpretation and such use of terms may differ from the meaning assigned to them elsewhere in the industry or otherwise.

Adsorption

Adsorption is the adhesion of atoms, ions or molecules from a gas, liquid or dissolved solid to a surface.

Batchington

Avantium's proprietary Batchington platform accelerates customers' research and development through screening and optimisation experiments. It consists of two reactor blocks, each containing 12 small-scale pressure vessels, meaning that 12 experiments can be run in parallel. It offers a new way of carrying out high-pressure chemo-catalytic testing, and will bring benefits to our customers in fields like petrochemicals, fine chemicals and renewables.

Bio-Based Economy

A bio-based economy exists when predominantly plant-based materials (i.e. biomass rather than fossil-based raw materials like petroleum) are used as a feedstock for making the chemicals, materials and products we consume.

Bio-Based Plastic

These are plastics derived from man-made polymers that can be made from building blocks that originate from biological (once living) systems. Most of these building blocks (monomers) are derived from sugars. Examples are FDCA and PEF. At Avantium, we prefer to call PEF and FDCA plant-based plastics, in order to prevent confusion with the term bioplastic. Bioplastic is a plastic derived from a biopolymer, such as DNA, insulin, cellulose or starch.

Biodegradability/Biodegradation

Biodegradation is the breakdown of organic matter by microorganisms, such as bacteria and fungi, to produce CO₂ and water. PET is considered to break down in 300-500 years. Accelerated tests by Organic Waste Systems Belgium show that PEF degrades much faster than PET under industrial composting conditions (full biodegradation in 250-400 days at 58° Celsius in soil).

Biomass

Biomass is organic feedstock especially of plant origin. These feedstocks are renewable and originally found in nature in the form of agricultural and forestry products like corn, wheat, sugar beet, sugar cane, rapeseed and woody plants. The residues of these products also contain starch, carbohydrates, fats and proteins.

Biorefinery/Biorefining

A biorefinery is a factory that processes biomass into a range of products and where the goal is to make the most efficient use of the biomass or raw material. Biorefining aims to use every component of the raw material so that nothing goes to waste thereby improving efficiencies and environmental impact.

Dawn Technology™ is the brand name of Avantium's biorefinery technology, which converts non-food plant-based feedstock into industrial sugars and lignin.

Catalysis/Catalyst

A catalyst is a substance that enables and accelerates a chemical reaction. Catalysis is the process of using a catalyst in such a reaction.

Catalyst Testing

Catalyst testing is an important practice in the process of developing a new or improved catalyst. Over the years, Avantium R&D Solutions has executed numerous catalyst testing projects in the various phases of a catalyst development trajectory, from discovery and screening to process optimisation and commercial selection.

Circular Economy

A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. Avantium works to advance new technologies for a more sustainable future. PEF plays a significant role in the circular economy.

Carbon Dioxide (CO₂)

A greenhouse gas (GHG) that originates as waste from the burning of fossil fuels and the production of electricity, fertilisers, chemicals, steel and cement. It is the biggest contributor to climate change. The development of electrochemistry has the potential to use CO₂ as a feedstock for the sustainable production of chemicals and materials, and is seen as a 'game-changer' for the chemical industry. The result is that this GHG is sequestered into products that can replace plastics and chemicals that are traditionally produced from fossil feedstock. Avantium's Volta Technology is the leading electro-catalytic platform developing CO₂ utilisation solutions for a circular future.

Chloromethylfurfural (CMF)

CMF is an intermediate compound for chemicals such as polyethylene terephthalate (PET), as well as numerous commodity and specialty chemicals through its derivatives, including furandicarboxylic acid (FDCA).



Dawn Technology™

Dawn Technology™ is the brand name of Avantium's biorefinery technology, which converts non-food plant-based feedstock into industrial sugars and lignin. These sugars, such as glucose, are an excellent raw material for chemistry and fermentation processes and are used to produce a broad range of products.

Furandicarboxylic Acid (FDCA)

2,5-furandicarboxylic acid is an intermediate chemical for making PEF.

Flowrence®

Avantium's Flowrence is an advanced high-throughput platform for high-quality testing of catalysts and adsorbents. The Flowrence system can be used for a broad range of industrial applications that operate in gas, vapor or trickle phases.

The parallel reactor system combines the reproducibility of larger-scale reactors with the advantages of small-scale reactors such as intrinsic safety, high accuracy, low costs per experiment and, ultimately, faster time-to-market.

Glucose

A sugar consisting of six carbon atoms (C6). It is a core building block for a bio-based economy. Glucose serves as a feedstock for the production of a broad range of chemicals and materials produced via chemistry or fermentation processes. The resulting products can be existing and new plant-based chemicals, such as plantMEG™ and plantMPG™.

Glycols

A glycol is any of a class of organic compounds belonging to the alcohol family. The term is often applied to the simplest member of the class: mono-ethylene glycol or MEG, a colourless, oily liquid. Avantium has developed plant-based MEG, a vital ingredient for the production of polyester textiles and film, PET and PEF resins and engine coolants.

GRI

The Global Reporting Initiative, international independent standards for reporting.

Life Cycle Assessment (LCA)

The compilation and evaluation of the input, output and potential environmental impact of a product system throughout its life cycle. LCAs are fundamental to understanding how Avantium's technologies compete with fossil-based alternatives. LCAs form the bedrock of how we measure our footprint and describe the sustainability benefits of our innovations.

Lignin

In the Dawn Technology™ biorefining process, lignin is the mass remaining after the sugars have been removed from the initial raw material. It is very efficient for energy generation as its energy content is up to 40% higher than the original wood chips used in the process. Energy generation is currently the predominant application for lignin. Additional higher value applications are being developed, including bio-asphalt.

Management Board and Management Team

The Management Board (consisting of the CEO and the CFO) is Avantium's statutory executive body and is, together with the management team, (the CEO, CFO, CTO, General Counsel and the Managing Directors of the business units), responsible for the day-to-day management of Avantium.

Mono-Ethylene Glycol (MEG)

MEG is a vital ingredient for the production of polyester textiles and film, PET and PEF resins and engine coolants. End uses for plant-based MEG (plantMEG™) range from clothing and other textiles, to packaging, kitchenware, non-toxic coolants (eg. antifreeze) and solvents (eg. paint and coatings). Ray Technology™ is the brand name of Avantium's technology to produce plantMEG™.

Mono-Propylene Glycol (MPG)

MPG is a valuable intermediary and is used in airport operations for the de-icing of airplanes, it is also used in unsaturated polyester resins, for example in modern windmill blades, as well as heat transfer fluids. Ray plantMPG™ is a wholly plant-based version of MPG.

Polyethylene Furanoate (PEF)

PEF is, a polyester made from MEG and FDCA. PEF produced by Avantium's XXY® Technology is a 100% plant-based and recyclable polymer that can be used in an enormous range of applications, including bottles, packaging, textiles and film. PEF's barrier and thermal properties are superior to conventional PET. In combination with a significantly reduced carbon footprint, the added functionality gives PEF all the attributes needed to become the next-generation polyester.

Polyethylene Terephthalate (PET)

PET is a, transparent polyester used for bottles and film. Currently PET is made from fossil-based MEG and fossil-based terephthalic acid.

Polyesters

Polyesters are polymers formed from a dicarboxylic acid and a diol. Polyesters are very stable and strong and are particularly useful in making fibres for clothing or plastics. Polyesters are most commonly found as either PET or PEF.

Polymers

A polymer is a chemical compound with molecules bonded together in long repeating chains. The term "polymer" is commonly used today in the plastics and composites industry, and it is often used as a synonym for "plastic" or "resin."

Ray Technology™

Ray Technology is the brand name of Avantium's technology to produce plantMEG™ and plantMPG™.



Renewable Resources

These are agricultural or forestry raw materials used as feedstock for industrial products. The use of renewable resources by industry saves fossil resources and reduces the amount of GHG emissions.

Scope 1 Emissions

Scope 1 covers emissions from sources that an organisation owns or controls directly.

Scope 2 Emissions

Scope 2 are emissions that a company causes indirectly when the energy it purchases and uses is produced.

Scope 3 Emissions

Scope 3 encompasses emissions that are not produced by the company itself, and not the result of activities from assets owned or controlled by them, but by those that it is indirectly responsible for, up and down its value chain.

Sustainable Development Goals

The United Nations launched its 17 Sustainable Development Goals in 2013.

Throughput

The volume of chemicals a system can process per hour.

Volta Technology

Avantium's Volta Technology, a carbon capture and utilisation (CCU) technology, is the leading electrocatalytic platform developing CO₂ as a feedstock for a circular future.

YXY® Technology

Avantium's XYX® technology helps to produce a wide range of novel 100% plants-based materials and products by converting plant-based sugars (fructose) into plant-based chemicals (e.g. for the production of biobased plastics, such as PEF).

1st Generation Feedstock

Carbohydrate-rich plants such as sugar beet, sugar cane, corn and wheat that can also be used as food or feed and for making plant-based chemicals and materials.

2nd Generation Feedstock

Non-food feedstock resulting from agricultural and forestry waste or residual streams. Dawn Technology™ is the brand name of Avantium's biorefinery technology, which converts non-food plant-based feedstock into industrial sugars and lignin



If you have any questions or remarks regarding this report, we invite you to contact us.

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