avantium

Annual report 2018

Contact

If you have any questions or remarks regarding this report, we kindly invite you to contact us.

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Message from the CEO

Dear stakeholder,

Genuine innovation is always characterized by highs and lows. In this context, 2018 was a particularly difficult year for Avantium. We have had to adjust our plans for Synvina after the dissolution of our FDCA/PEF partnership with BASF. We have retaken full ownership of our YXY® plants-to-plastics technology and we will focus on commercializing the technology and creating value for our shareholders.

Synvina has resolved the technical challenges to commercialization announced in January 2018 and it is gratifying that the work done to date with BASF has propelled the commercialization of the technology forward. Ultimately, I strongly believe that our unique know-how and the value chain we have built around YXY will allow us to unlock the market potential and create value for our shareholders. On that note, I am delighted to welcome industry veteran Marcel Lubben to spearhead our Synvina business unit.

Apart from the significant management attention dedicated to regaining full ownership of Synvina, we continued to work on major technological breakthroughs, wrote an unprecedented number of invention disclosures and brought two of our unique technologies closer to commercialization.

Our Renewable Chemistries business unit advanced both Dawn Technology™ and Mekong, both groundbreaking technologies in their own way. Dawn Technology™ converts non-food feedstock to industrial sugars and lignin. Sugars are used to produce a broad range of durable materials and intermediates, while lignin is mainly used for energy generation. The July opening of the Dawn Technology™ pilot biorefinery in the northern Dutch port town of Delfzijl was a landmark achievement. The province of Groningen provided financial support for this pilot plant. We are already looking beyond the pilot phase to build a commercial-scale biorefinery. In Delfzijl, we have a strong consortium of partners that make up the technology ecosystem. These partners include Nouryon (formerly known as AkzoNobel), RWE, Staatsbosbeheer and Chemport Europe, and they all play their part in building the value chain for turning wood chips into valuable raw materials for the renewable chemical industry.

In June, we also started construction of a demonstration plant for our Mekong technology. This will help advance the production of plant-based mono-ethylene glycol (MEG), a component for making everyday consumer goods, such as PET and PEF plastics and polyester textiles. Today, more than 99% of MEG is produced from fossil resources and we believe the development of an environmentally friendly plant-based alternative has enormous potential when produced cost competitively. Our novel single-step process starting with renewable sugars can fulfil the demand for MEG in the sustainable way desired by consumers and leading brands. Our new plant-based MEG demonstration plant is scheduled to open in the second half of 2019. The European Innovation Council awarded us financial support to scale-up our Mekong technology.

Our Catalysis business unit performed below plan with revenue variability from one period to the next. Despite this, the underlying demand for our Flowrence testing systems remained healthy, as did demand for our in-house customized contract catalyst research projects. Our expertise in catalysis is a foundational component to developing our renewable chemistry technology portfolio.

History has shown that innovation is not linear and there is no textbook for scaling up disruptive technologies. We continue to manage the factors that are within our control, while we apply our entrepreneurial spirit and energy to innovate and solve the issues we face. We are forging ahead to build our novel technologies that our planet and the bioeconomy calls for. The momentum for these technologies has never been greater and sits at the very heart of our company. Despite the setbacks in 2018, we remain confident in the underlying drivers for the industrial transition from fossil to renewable feedstock and the growing awareness of consumers regarding sustainability and circular products.

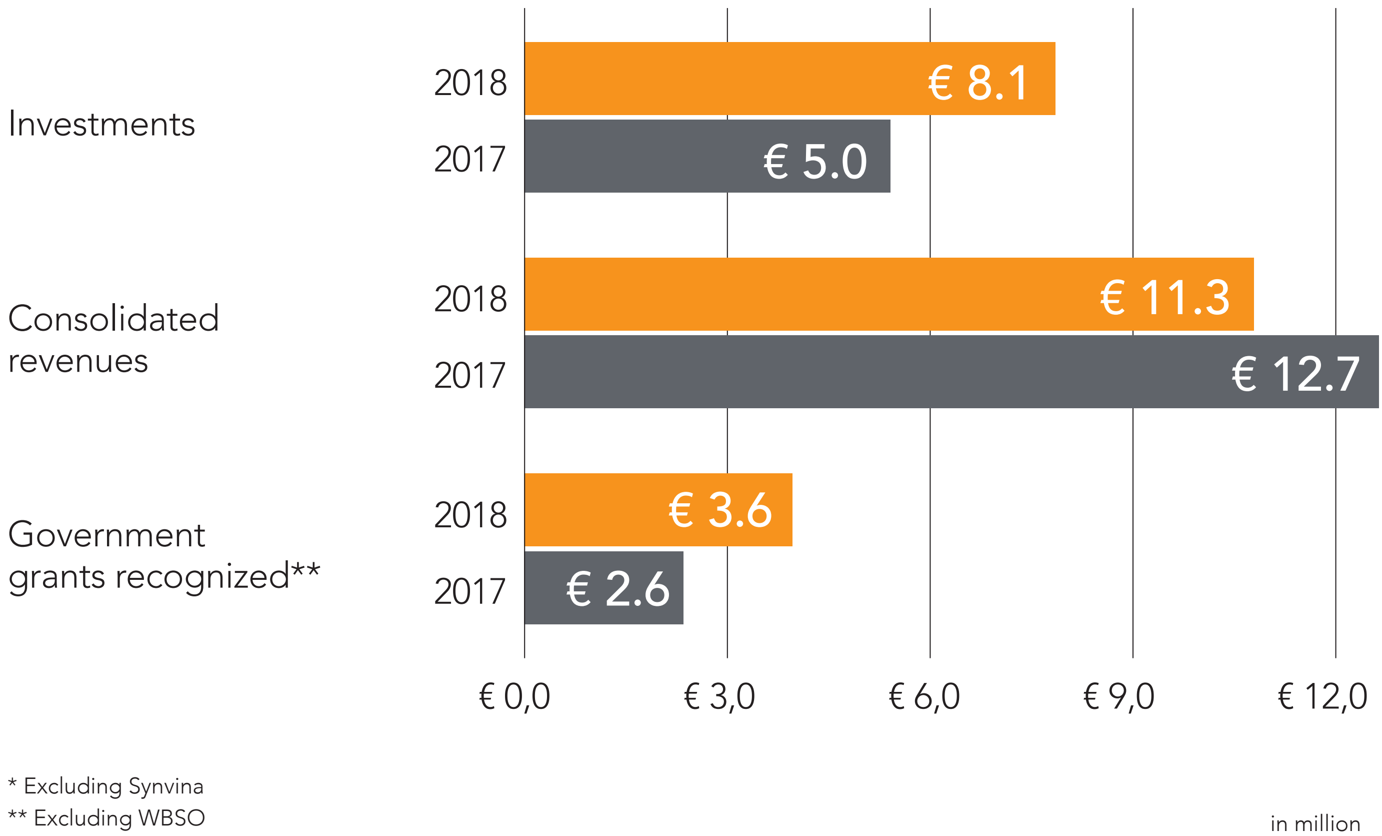
Ultimately, achieving success requires persistence, flexibility, focus and ingenuity; traits that are core to Avantium's people and culture and without which the company would not create such value. On behalf of the Management Team, I thank all of our employees for their perseverance, unique creativity and relentless commitment to make Avantium succeed. I would also like to take this opportunity to thank our shareholders and our stakeholders for their patience and continued support. We look forward to reaping the rewards, as we continue to pursue our goal of contributing significantly to a circular economy. We look forward to working with all of you in the year ahead.

Tom van Aken
Chief Executive Officer

Company highlights 2018*

Number of safety incidents	Newly granted patents	Newly reported inventions
0	**15**	**110**
2017: 0	2017: 6	2017: 51

Number of FTEs	Nationalities employed	Number of government grant projects
169	**17**	**23**
2017: 139	2017: 17	2017: 24



* Excluding Synvina
** Excluding WBSO

Report of the Management Board

Our company

It is our goal to develop leading technologies by creating and commercializing sustainable chemistry technology solutions. This will unlock value for all of our stakeholders. With a mission to take part in realizing a fossil-free world through a circular economy, Avantium is a pioneer in developing unique renewable-chemistry innovations.

Most of the materials and chemicals used in modern daily life - such as plastics, packaging, furniture, clothing and pharmaceuticals - are carbon based. Today, over 90% of plastic products derive from fossil carbon and are responsible for 11% of the primary global demand for oil as well as for 8% of world demand for natural gas (source: IEA July 2018). Avantium wants to change this paradigm.

We develop innovative chemistry technologies across industry value chains in order to produce chemicals and materials based on renewable feedstock instead of fossil resources. We bring these technologies to the market in collaboration with like-minded partners who complement our skills and knowledge and increase our chances of achieving success for our stakeholders. In addition to and underpinning our renewable chemistry business, we also provide advanced catalysis products and services to chemical, refinery and energy companies, universities and research institutes who desire to gain efficiency in their processes.

Avantium consists of two business units in 2018: Renewable Chemistries and Catalysis. As of 15 January 2019, Synvina also became an Avantium business unit, alongside Renewable Chemistries and Catalysis.

Renewable Chemistries has a portfolio of innovative technology projects focusing on the conversion of biomass to chemical building blocks and green materials like plastics. The technologies build on the company's extensive experience and expertise in catalysis R&D, process technology, chemical process design and pilot-scale operations.

Avantium currently owns three technologies that are at pilot phase or beyond. The YXY technology of the Synvina business unit is the most advanced technology with an extensive patent portfolio. In January 2019 Avantium acquired full ownership of Synvina and its YXY plants-to-plastics technology bringing the 49% stake of Avantium in Synvina to 100%. The economic transfer took place on 15 January 2019, whereas the legal transfer of control took place on 25 January 2019. The technology has witnessed significant progress over the previous two years and efforts are underway to capitalize on that through an updated commercialization strategy. Its subsequent technologies, Dawn Technology™ and Mekong entered the pilot plant stage in 2018, with commercialization activity already ongoing with partners. Furthermore, Avantium runs a rigorous portfolio management process and has an array of new projects that are at the ideation and lab stages. One such program is Volta; it focuses on electro-catalysis, including the conversion of CO2 to chemical building blocks.

To protect its proprietary technologies, Avantium has built an extensive patent position in its areas of interest. We continue to invent and file new patent applications for our technologies, products and processes. Protecting our inventions and leading position in technology is crucial to our strategy and ultimately to creating value for our stakeholders.

For over 15 years, Avantium Catalysis has provided advanced catalysis R&D services and systems. It has developed a strong, international customer base including several industry leaders. A catalyst is a substance that will increase the rate of a chemical reaction. As such, catalysts are essential to making a wide variety of chemical processes industrially and commercially viable. They are a crucial part of the chemical industry. Working from its Amsterdam-based R&D facilities, Avantium Catalysis helps customers innovate faster, offering a higher likelihood of success and reducing the time to market of new catalysts. Through its R&D Services business, Avantium has enabled its customers to make numerous catalyst inventions and develop innovative and improved chemical processes. Avantium's Systems business supplies tailored advanced catalyst R&D systems to customers' R&D laboratories.

Market trends

Last year was a pivotal year for the plastics industry as circular thinking transitioned from mere ambition to actual policy and legislation. Fueled by national and international public outcry against plastic waste, the industry and governments responded by setting targets and introducing regulations to address issues of plastic litter around the globe. An increasing number of companies are committing to sustainability targets and moving towards a more circular approach in managing and processing plastics and plastic waste. The adoption of the European plastics strategy, launched in mid-January 2018, re-evaluates the applications and end-of-life practices of plastics. It aims to ban all single-use plastics and make all packaging in the EU recyclable by 2030. It calls on players in the value chain to take steps towards this goal. Major stakeholders in the industry, including packaging producers, consumer giants and recyclers, have since come up with an array of voluntary pledges to improve the collection and recycling of materials. They have also pledged to adjust the design of products to improve their recyclability. This calls for investment in innovative and sustainable chemical and plastic products made from renewable raw materials such as biomass. Avantium is well positioned to take a leading role in this development.

Our technologies

YXY technology

Avantium's proprietary YXY technology catalytically converts plant-based sugar (fructose) into a wide range of plant-based chemicals and plastics, such as polyethylene furanoate (PEF). PEF is a 100% plant-based, 100% recyclable plastic with superior performance properties compared to today's widely used petroleum-based packaging materials. These properties make PEF an attractive alternative to PET, the omnipresent plastic used in bottles, and a host of other packaging materials such as aluminum and glass.

The main building block for PEF is furandicarboxylic acid (FDCA). Given the huge potential of FDCA, industrial production of this building block has been pursued and researched for over 100 years, without success. As such, FDCA has been called a 'sleeping giant'. Avantium believes that its YXY technology can finally unlock the full potential of FDCA. Since dissolving the Synvina joint venture with BASF, Avantium has acquired 100% ownership of its YXY technology. The economic transfer took place on 15 January 2019, whereas the legal transfer of control took place on 25 January 2019, being the date to which we will continue to refer throughout this report. We are currently exploring various options to bring the groundbreaking material to commercialization, building on the development work done with BASF and other partners.

The PEF market for such applications represents an annual turnover of more than US$200 billion.

YXY

Industrial sugars

FDCA

PEF

PEF is a 100% plant-based, 100% recyclable plastic with superior performance properties compared to today's widely used petroleum-based packaging materials.

Market potential

Film

€ 8 bn

Packaging

€ > 150 bn

Textiles

€ 41 bn

> € 200 billion market potential

Source: Canadean (2013)

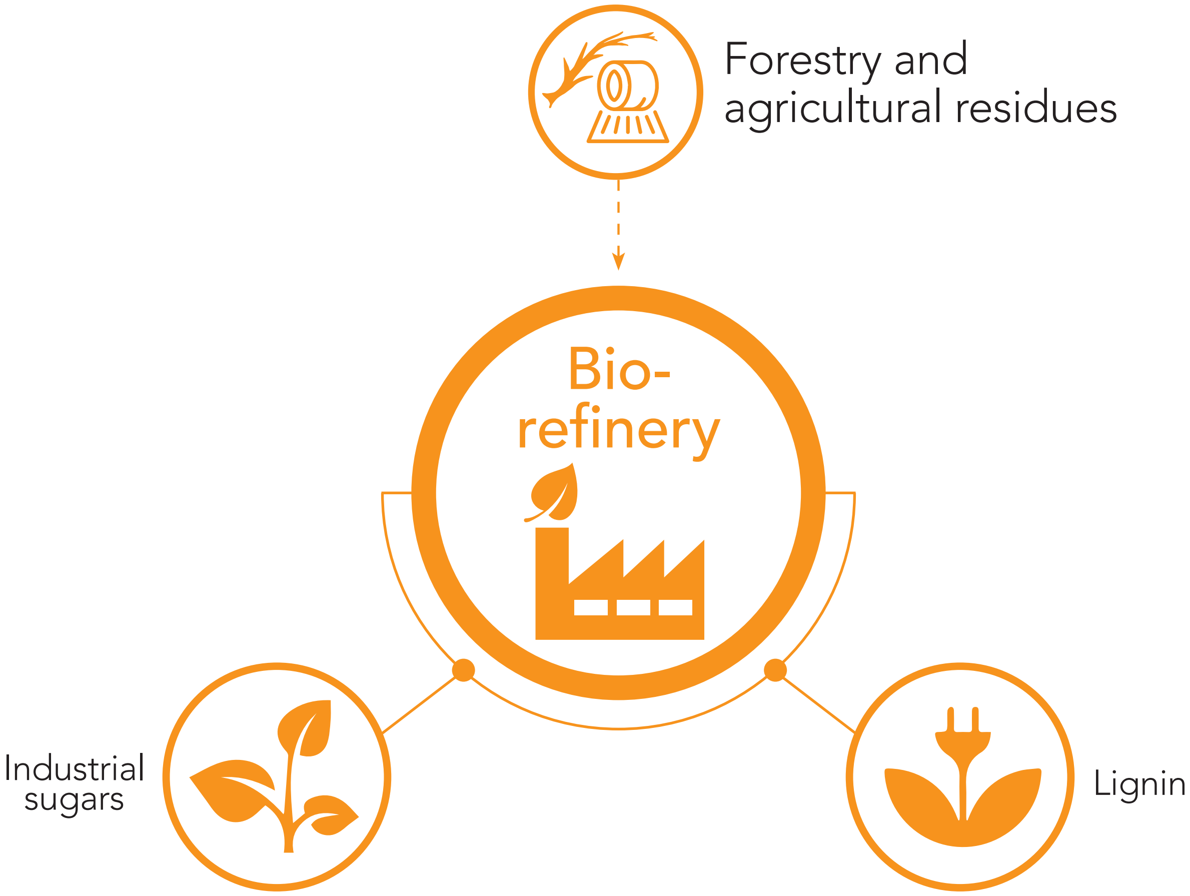
Dawn Technology™

Avantium's Dawn Technology™ is a proprietary and innovative process converting non-food plant-based feedstock into industrial sugars and lignin. This means that waste or residual material from forestry or agriculture, such as the branches and bark from forestry and corn stover and bagasse from the growing of corn and cane sugar, can now be converted to higher value industrial sugars. Industrial sugar, such as glucose, is a core building block for many, if not most bio-based products, and is increasingly important in the transition towards a circular economy. All materials made from petroleum today, such as bottles, polyester clothing and carpets, can be replaced with materials made from industrial sugars. This would reduce our reliance on petroleum, mitigate CO2 emissions and help tackle climate change. Glucose can be converted into various plant-based chemicals such as FDCA, lactic acid and antibiotics. Lignin is the compound that is left once the sugars have been taken out of the original feedstock. It is up to 40% more efficient for energy generation than the original starting material used in the process. Energy generation is currently the predominant application for lignin. Additional higher value applications are being developed.

Avantium launched Dawn Technology™ in July 2018, with the opening of its pilot biorefinery in Delfzijl, the Netherlands and is already eying commercial scale-up. The technology is supported by a consortium consisting of Nouryon (formerly AkzoNobel), energy company RWE, the Dutch forestry agency Staatsbosbeheer and Chemport Europe. Each consortium member brings specific expertise to the planned commercial scale biorefinery. Dawn Technology™ is complementary to both the YXY and Mekong technologies in Avantium's portfolio, as these both begin with the conversion of industrial sugars.

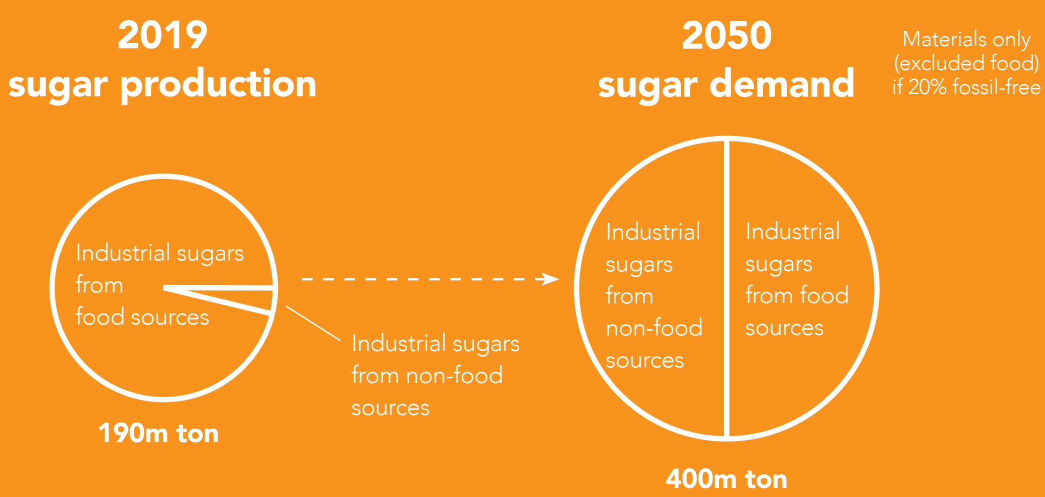
Glucose from starch and sucrose represented a US$16 billion market in 2009 for fermentation-derived fine chemicals. With the anticipated demand for more materials and chemicals globally, these products cannot increasingly be made from food sources. The need to develop new feedstock streams and conversion technologies remains high and Dawn Technology™ is one such technology.

Dawn Technology™



Market potential

Industrial sugars from plant-based feedstock



Mekong technology

Our Mekong technology is a one-step process to produce mono-ethylene glycol (MEG) from industrial sugars.

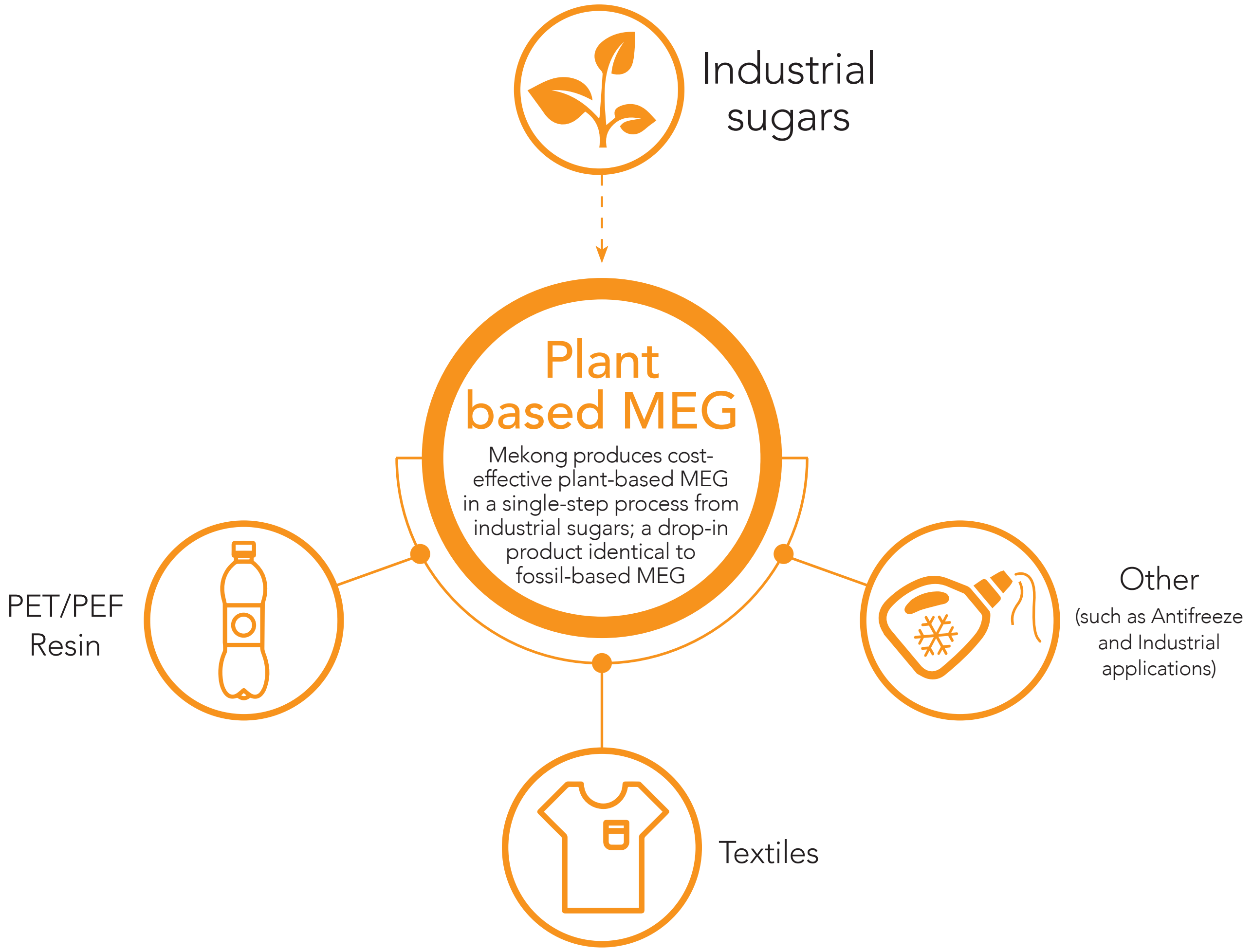
MEG is a component for making everyday consumer goods, such as PET and PEF plastics and polyester textiles. This means developing an environmentally friendly plant-based version of this component has strong commercial potential. Today, more than 99% of MEG is produced from fossil resources. Market demand for MEG is expected to grow from 28 million to 50 million tons in the next 20 years. Leading brand owners and packaging companies have already shown significant interest in sourcing MEG from renewable resources rather than from the oil industry. However, the plant-based MEG available today is produced inefficiently through an expensive four-step process, hampering its widespread use. We believe that our Mekong technology can deliver plant-based MEG competitive with incumbent fossil-based MEG, both in terms of quality and cost.

In June 2018, we announced the construction of a Mekong demonstration plant that will help advance the production of plant-based MEG with our novel single-step process. The objectives of the pilot plant are to scale up the innovative Mekong technology, validate the technical and commercial feasibility of the process and collect data to quantify the sustainability benefits of the technology.

Avantium has signed several agreements to explore partnership opportunities in bringing its Mekong technology to full-scale commercialization globally.

The market for MEG, which today represents about $24 billion, is expected to continue to grow, in line with global economic growth and the ensuing demand for a wide range of products and packaging materials.

Mekong



Market potential

Global MEG market consumption

28 million tons

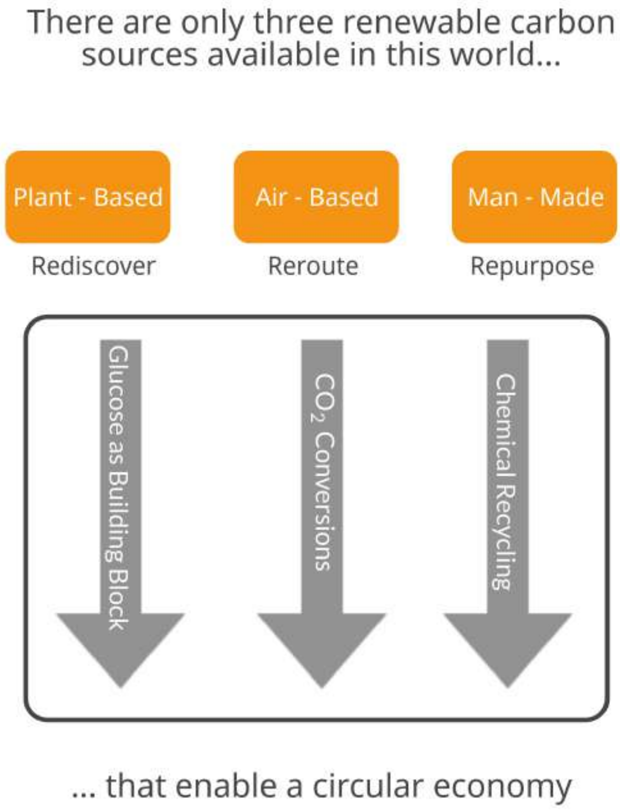
2019

3,5% CAGR

50 million tons

2038

Source: Nexant report 2017



Other technologies and developments

Avantium uses a disciplined innovation process when deciding to venture on new technology development. We focus on innovative ways to use three renewable carbon sources to produce the materials and products of the future: plant-based carbon sources, such as those used in Dawn Technology™; air-based carbon sources, such as CO_2; and man-made carbon sources, which is a form of recycling in that it consists of converting a waste material to an alternative chemical building block or material.

In addition to our current technologies using plant-based carbon sources, we aspire to develop materials using CO_2 as a feedstock and electro-catalysis as the conversion technology. Furthermore, Avantium is looking at new plant-based building block opportunities by evaluating polymer products for the plastic materials of the future.

Catalysis – Tomorrow's Catalysis Today

Avantium's Catalysis business specializes in innovations and technologies to accelerate catalytic R&D. The business supports companies in reaching their sustainability, profitability and growth targets by providing unique technology and catalysis research expertise. Avantium Catalysis helps clients accelerate their catalyst research and development. It consists of a services and a systems business. Our services business offers the execution of in-house customized contract research projects. Our systems business comprises our unique and advanced Flowrence high-throughput catalyst testing systems. The Flowrence platform offers customers scalable catalyst testing technology, which provides fast, reliable, low-cost and safe high-throughput catalyst testing capability with high accuracy and ease of use. It allows customers to reduce time to market and save substantial costs when developing new catalysts or while optimizing their existing chemical processes. Helping them to progress swiftly through the R&D stages of early discovery, research, process optimization and commercial evaluation, we offer our customers four tailored high-throughput catalyst testing systems, each configured to specific R&D needs. These are our Flowrence XD, Flowrence XR, Flowrence XP and Flowrence XC systems. Introduced in 2017, the Flowrence XD provides catalyst testing geared to the early discovery stage, when our customers need to find out what catalyst works for their chemical process. Our Flowrence XR system enables research into optimizing the catalysts. The Flowrence XP and Flowrence XC provide testing of catalysts in the process development and commercialization stages respectively.

The Catalysis business is supported by an extensive network of industry experts and academic catalyst R&D centers. Our catalysis technology is protected by a portfolio of nine patent families. Avantium has extensive experience and expertise in this high-tech field of catalysis R&D, which generates a healthy flow of satisfied repeat customers.

Our customers benefit from the strong synergy between our Catalysis and Renewable Chemistries businesses, which gives them access to R&D technologies developed in-house. Similarly, Avantium's Renewable Chemistries business profit from the enabling technologies developed to meet market demand.

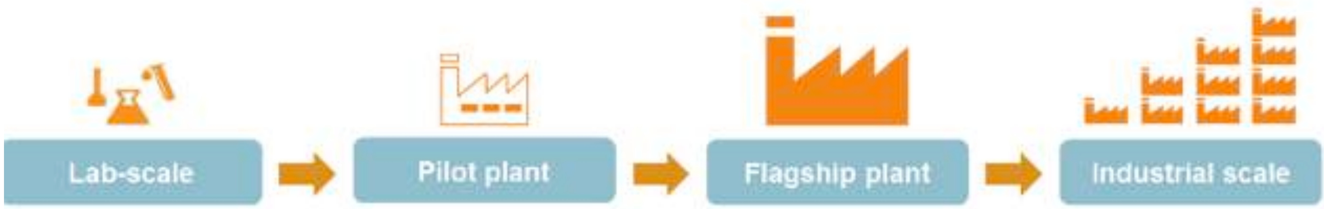
How we innovate

Avantium uses a well-defined development process to take ideas from concept through to commercialization. Our ultimate goal is to create value for our stakeholders and for society at large. We manage, plan and allocate our limited capital resources to best serve our stakeholders and the creation of value. See the Risk management section for more information on how we identify and mitigate our key dilemmas and risks.

We have developed a disciplined innovation process consisting of well-defined stages. Through the process, we log inventions, validate novelty, write invention disclosures and patents that protect the innovations we create. We start with developing ideas. In the ideation stage, we foster our engineers' and chemists' creativity and promote a safe and stimulating environment where they can share and discuss new developments. Ideas are evaluated based on a model of 19 criteria that assesses the likelihood of technical and commercial success as well as the strategic fit to the company. The ideas with the highest scores progress to the feasibility stage. Here, we deliberate the merits of the project, its fit to the portfolio and conduct 'proof of point' laboratory experiments. We perform a pre-market analysis and seek external validation. We describe the best ideas identified during the ideation and feasibility stages in internal 'invention disclosures' to ensure they are recorded and therefore available to colleagues and further development at a later stage. Only a fraction of technologies described in invention disclosures lead to actual patent registrations. We set a target for the number of invention disclosures in 2018 at 50 invention disclosures. We exceeded this target with quality invention disclosures for the year.

A small selection of projects will progress from the feasibility stage to the development stage. In this stage, we write a preliminary business case as well as a budget and operational plan for the new technology. During the development stage, we also identify partners with whom we could take the technology further into the pilot stage. Based on an elaborate project plan, a steering committee consisting of the Management Team decides, based on a wide range of market, technical, strategic and financial criteria, if a new technology advances to the pilot stage or if other options for the new technology are possible.

In the pilot stage, a pilot plant design is developed. Given the financial investment required, our Supervisory Board approves the recommendation by management to build the pilot plant. The new proprietary technology is then tested and demonstrated at the pilot plant. The objective of a pilot plant is to scale up the novel technology and validate the technical and commercial feasibility of the process.



Following successful piloting and optimizing the technology and operational processes, we proceed to the flagship plant stage, where we begin production at commercial scale. From the flagship plant, Avantium will license the technology to other companies interested in industrial scale production.

In summary, our innovation portfolio management process is robust and consists of a working group that collects, discusses and prioritizes new ideas and identifies winning ideas for advancement in the stages. A strategic discussion group processes input from the working group and prepares the recommendations for a steering committee, responsible for ensuring that new technologies and projects meet company objectives and have the resources required to ultimately create value for all our stakeholders and society at large.

Our strategy

A growing population, rising prosperity and climate change concerns are pressuring the use of fossil resources. Consumers are demanding that manufacturers and brands take ownership of sustainability issues, while governments are responding with climate-change regulations and initiatives.

Against this background, Avantium is a pioneer in the emerging industry of renewable and sustainable chemistry. We seek to take part in the opportunities of this transition towards a circular economy, with the goal of creating value for our stakeholders and society as a whole. Avantium's mission is to aid the transition to a fossil-free world by developing groundbreaking products on the basis of renewable feedstock instead of fossil resources. Sustainable alternatives for fossil-based chemicals and materials include plastic bottles for drinks, films for food packaging and electronics, fibers for textiles and even material used in toys.

In 2018, we updated our strategy, vision and mission.

Vision

We believe in a fossil-free world. Let us take you there.

Mission

We create disruptive technologies across entire value chains, bringing them to the world with partners to accelerate the transition towards more sustainable products. We foster a safe and vibrant place to make an impact.

Strategy

It is our goal to become a world leader in developing renewable and sustainable chemistry technology solutions. We commercialize our innovative technologies, either through licensing them to third parties, applying them in our production plants or via partnership structures or joint ventures. We aim to do this by minimizing risks and transforming capital into value and positive impact. The way we manage, plan and allocate our limited capital resources must best serve all stakeholders and enable us to fulfill our obligations to them. Our Catalysis business enables its customers to invent new catalysts, which contributes to sustainability, but also synergistically provides the R&D technologies and methodologies that support our proprietary programs

Our five strategic pillars are centered around our mission:

We create disruptive technologies

We aim to build a continuous pipeline of disruptive technologies and bring them to pilot-scale.

We develop renewable chemistry solutions across entire value chains

We aim to build a balanced portfolio in biorefineries and CO_2, materials and recycling.

We work with partners throughout the value chain

We develop innovative renewable-chemistry technologies to produce chemicals and materials based on renewable feedstock. We bring technologies to market in collaboration with like-minded partners across the value chain. Partner selection and engagement is a top priority, as we know that our success will come by working together with others. See the Risk management section on how we identify and mitigate our key risks.

We aspire to accelerate the transition to a fossil-free world

We select opportunities that have the potential to be game-changers in the circular economy. We also seek to improve our own corporate footprint.

We provide a safe and vibrant place to work

We embed our safety culture in everything we do, striving for zero accidents and incidents annually. We attract talent from all over the world and create a workplace where people are inspired and inspire others to develop and implement the new technologies for tomorrow's circular economy.

We create value for our stakeholders and for society at large by working towards our mission. First and foremost, for our shareholders, we aim to be cash flow positive and profitable. We create value for our shareholders by commercializing our innovative technologies. This dovetails with our mission: our renewable chemistry products and services facilitate the shift to a fossil-free world. Building on input from our wide range of stakeholders, including the unique expertise of our dedicated people and the know-how of our partners, we help society address major global challenges. We create value for our employees by being an employer of choice and creating a safe workplace with high engagement and enjoyment.

Corporate Strategy

We believe in a fossil free world.
Let us take you there.

Mission

We create disruptive technologies across entire value chains, bringing them to the world with partners to accelerate the transition towards more sustainable products.
We foster a safe and vibrant place to make an impact

- Create disruptive technologies
- Develop renewable chemistry solutions across entire value chains
- Work with partners throughout the value chain
- Accelerate the transition to a fossil-free world
- Provide a safe and vibrant place to work

Commitment to the UN Sustainable Development Goals

We underline and shape our commitment by working towards the United Nations Sustainable Development Goals, such as fighting climate change (SDG 13 – 'Climate Action') and promoting responsible consumption and production (SDG 12). By introducing innovative and sustainable manufacturing processes we can also contribute to SDG 9 – 'Industry, Innovation and Infrastructure' and SDG 8 – 'Decent Work and Economic Growth'.

Our performance

We remain on track to deliver on our five strategic pillars.

Synvina

2018 was a difficult year for Synvina, our joint venture with BASF for our YXY technology. In January 2018, Avantium announced that Synvina had completed a broad feasibility assessment for commercial-scale production of furandicarboxylic acid (FDCA) in the reference plant, which confirmed that product performance and customer demand are strong. In the technical process evaluation, Synvina identified some steps that required improvement and recommended undertaking additional development work on these steps, to ensure the most efficient process and best product for current and future customers. As a result, Synvina extended the pilot phase by two to three years.

In October 2018, BASF served a notice to Avantium that if the criteria to invest in the commercial-scale plant for FDCA were not fulfilled in the fourth quarter of 2018 – as originally envisaged in the joint venture agreement – it was entitled under the joint venture agreement to exit from Synvina. Avantium disagreed with this interpretation of the joint venture agreement. Avantium stated that the 2-3-year extension of the PEF pilot phase announced in January 2018 necessitated postponing a final assessment.

In December 2018, BASF announced its exit from the Synvina joint venture. In January 2019, Avantium acquired full ownership of Synvina and its YXY plants-to-plastics technology bringing the 49% stake of Avantium in Synvina to 100%. Avantium paid BASF €17.4 million for the full ownership of Synvina, with the transfer of shares taking place on 25 January 2019.

The integration of Synvina into the Avantium structure has led to it becoming a new business unit, alongside the Catalysis and Renewable Chemistries business units. Avantium has appointed Marcel Lubben as Managing Director of the Synvina business unit to lead the commercialization of the YXY technology, effective 1 February 2019. Refer to note 29 for this after balance sheet event.

In 2018, Synvina also made significant progress. The key technical issues announced in January 2018 have been solved. We are convinced that the work done will spur the commercialization of FDCA and PEF and create value for all our stakeholders and society at large. The main drivers in the plastics material market remain sustainability and circularity, and consumers and brand owners increasingly demand environmentally friendly and recyclable materials. This provides a strong market pool for PEF, which is 100% plant-based and 100% recyclable and provides benefits based on its unique properties.

Now that we have 100% ownership of Synvina, this gives Avantium the opportunity to open new avenues of commercializing our YXY plants-to-plastics technology. Avantium believes it is sensible to fine-tune the commercialization strategy when required. We have seen in recent years that there is a strong market for PEF in higher value applications which we should take into account. Avantium is now redefining the path to commercialization for FDCA and PEF. We are exploring different scenarios with potential partners to make sure that we are defining our strategy in a way that allows us to meet both market and capital requirements. In the first half of 2019, Avantium plans to make further announcements on its new strategy to commercialize FDCA and PEF.

Renewable Chemistries

The Renewable Chemistries business unit continued to focus on developing technologies that help accelerate the transition to a circular economy by using carbon from renewable sources to enable the production of chemical building blocks and plastic materials.

Dawn Technology™

On 10 July 2018, Avantium opened a pilot biorefinery for our proprietary Dawn Technology™ in Delfzijl, the Netherlands, with a subsidy of €1.8 million from the province of Groningen. The pilot biorefinery has a maximum capacity of processing 20 tons of dry wood chips a year. The pilot biorefinery's objective is to scale up the technology, validate the economics and applications, and continue to optimize the technology. We have already started planning for a flagship plant for larger scale commercial production. Avantium estimates that the design of the commercial scale flagship biorefinery will commence in late 2019. Avantium aims to license its Dawn Technology™.

Avantium founded a consortium of partners committed to developing a commercial biorefinery in Delfzijl that will tap into locally available expertise, utilities and infrastructure. The consortium consists of chemistry company Nouryon, energy company RWE, which uses the lignin for energy generation, the Dutch forestry agency Staatsbosbeheer, which provides sustainably sourced woodchips for the plant, and Chemport Europe, a partnership of chemical companies committed to a circular economy. Functioning as an industrial ecosystem, each partner in the consortium brings specific expertise and functionality to the biorefinery.

Our Dawn Technology™ has significant potential, particularly in areas where an abundance of residual biomass from agricultural activities or forestry exists. Discussions continue globally with potential partners who have expressed interest in licensing our Dawn Technology™ for local deployment. Some future licensees see the potential of reinventing their business model and adding value to a feedstock within their value chain for the production of bio-based products. In 2018, we performed techno-economic evaluations in 10 locations around the globe where converting biomass to industrial sugars could be commercially viable. We expect to make further strides in building licensing partnerships in 2019.

Mekong

We advanced our Mekong technology by starting the construction of a pilot plant that will convert renewable sugars into mono-ethylene glycol (MEG), a component for making everyday consumer goods such as plastics and polyester textiles. The Mekong demonstration plant will be operational in the second half of 2019 and is located close to our Dawn Technology™ pilot plant in Delfzijl. Its objective is to scale up the novel plant-based MEG technology and validate the technical and commercial feasibility of the process. We also plan to collect data to execute an environmental life-cycle analysis (LCA) quantifying the sustainability benefits of our Mekong technology. The European Innovation Council awarded our Mekong technology a €2.5 million grant as part of its Horizon 2020 SME instrument. This grant is designed to support groundbreaking innovative ideas for products, services or processes that are ready to conquer global markets.

We progressed in developing partnership opportunities to bring this technology to full-scale commercialization globally by signing several collaboration agreements.

Volta

The Volta technology program continues to progress at our laboratories in the Amsterdam Science Park. We believe in the development of the platform to convert CO_2 to higher value chemicals and eventually syngas. We are founding members and have a board seat on the industrial association CO_2 Value Europe, where we engage with companies and research institutions that share in the belief that carbon capture and utilization (CCU) technologies are needed for our circular future.

Catalysis

Our Catalysis business unit helps clients accelerate its catalyst research and development and consists of a services and a systems business. Our services business offers the execution of in-house customized contract catalyst research projects. Our systems business comprises our unique and advanced Flowrence high-throughput catalyst testing systems. The aim of this business unit is to deliver profitable growth.

Catalysis' revenues can vary strongly from one period to the next. Catalysis recorded lower revenues in 2018, due to a slow-down in the signing of several sales transactions for our Flowrence systems sales. We held a planned shutdown of our labs in Amsterdam in the summer of 2018, relating to an investment in the air treatment and ventilation systems. Our services business performed well, particularly Refining Catalyst Testing. We saw accelerating demand from Asia and conducted several projects for Chinese customers in the petrochemical industry.

In 2018, we made further efforts to smooth the way for further growth in Catalysis' operations. We launched several projects to further increase the quality of our products and services, and hired additional staff at our Amsterdam laboratories.

In addition to expected gradual growth in the segments of the catalysts market we already operate in, we continue to expand in new markets. Our objective is to realize growth in these new catalysis areas.

Patents (excluding Synvina)

Business unit	Current number of patent families* (incl. newly filed patent applications)	Newly filed** patent applications in 2018	Newly granted** patents in 2018 in Europe (EPO) or US	Newly reported inventions in 2018 ***
Catalysis	9	0	4	21
Dawn Technology™	7	1	0	24
Mekong	9	3	2	8
Volta (including former Liquid Light patent families)	31	1	8	22
Early Stage	11	5	0	35
Other	12	0	1	0
Total in 2018	79	10	15	110

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

** 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.

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

Financials

Consolidated statement of comprehensive income and segment reporting

Consolidated revenues from operations decreased 11% from €12.7 million in 2017 to €11.3 million in 2018, mainly driven by the lumpiness of landing larger deals in our Catalysis business unit. Lower revenues from the business unit are partly offset by revenues in Renewable Chemistries (related to Dawn Technology™ and Mekong) in a number of collaborations.

Avantium's underlying loss for the year 2018 amounted to €18.4 million, with a reported net loss of €68.4 million (FY 2017: €16.8 million). The one-off expenses and impairment losses relating to Avantium acquiring 100% ownership of Synvina, amounted to €50.0 million. This €50.0 million is made up of €36.9 million Synvina impairments, while €13.1 million relates to onerous contract expenses in 2018.

Both described in more detail below. Due to the exit of BASF, management performed an impairment assessment. Although the market, product and technology assumptions of the business case have not changed significantly, the probability of the original business case due to BASF's exit has decreased substantially. This triggers an impairment of Synvina's intangible assets, certain capitalized development expenses in relation to the reference plant and the unwinding of contractual obligations to BASF following the exit notice.

Based on the joint venture agreement, Avantium is required to purchase all shares in case of an exit. To reflect this obligation, management recorded an onerous contract provision amounting to €13.1 million in the 2018 financial statements. The below table shows the provision and the related expense with regard to the onerous contract.

(In Euro x 1,000,000)	
Net asset value Synvina as at December 31, 2018	**8.7**
Minus value of 49% stake Avantium	(4.3)
Net asset value to be acquired by Avantium	**4.4**
Intercompany settlement	(0.1)
Gross payment for equity stake in Synvina	(17.4)
Onerous contract provision	**(13.1)**

Underlying operating expenses in 2018 decreased slightly totaling €22.5 million (FY1 2017: €22.7 million), mainly due €1.0 million lower expenses in raw materials and contract costs, which is directly related to the lower recognized revenues. This is partly off-set by higher depreciation and amortization expenses of €1.8 million (FY 2017: €0.9 million), which are directly attributable to our increased investments in constructing the Dawn Technology™ pilot biorefinery and Mekong demonstration plant. Additionally, Avantium incurred onerous contract expenses of €13.1 resulting from Avantium acquiring 100% ownership of Synvina, as described above.

Total adjusted EBITDA decreased in line with plan from €-4.2 million in full-year 2017 to €-7.7 million in full-year 2018. The lower adjusted EBITDA of Renewable Chemistries was mainly due to increased investments in building the new Dawn Technology™ pilot biorefinery in Delfzijl, construction of the Mekong demonstration plant and investments in early stage programs. The adjusted EBITDA of Catalysis decreased as a result of lower revenues.

Balance sheet and financial position

The balance sheet total decreased to €113.9 million (31 December 2017: € 168.8 million), with net equity of € 91.2 million.

Our financial position remains solid. Cash and cash equivalents totaled € 83.3 million as at 31 December 2018 (31 December 2017: €100.2 million). We have no debt. The cash outflow of 2018 was planned for and resulted from investments in our Renewable Chemistry programs in line with our strategic plan. We continued to operate under strict working capital management and reduced capital expenditures to protect the cash position of our company. We will continue our risk management strategy of minimizing our foreign exchange and interest volatility. Although this impact is not material, thus not requiring the need for financial hedging instruments, we continue to monitor this exposure periodically and adjust when necessary. We will continue to properly manage our capital risk, as expressed in our solvency ratio. Furthermore, note 3 highlights other financial risk factors and how these are managed.

The facility agreement the company holds with Rabobank includes a €4.0 million committed credit facility and a €2.0 million committed bank guarantee facility. At year end, the company received a waiver statement with regard to the financial covenants as agreed with Rabobank, mainly related to tangible net worth (TNW) requirements, as the company did not comply with this definition at the time. The waiver statement relates to an amendment to the original agreement and a new financial covenant being at least €60.0 million tangible net worth, following the intent of BASF to exit the joint venture Synvina. The company did not make use of the credit facility and will keep the facility as an additional buffer. Refer to note 3.2 for the group's objective in terms of capital management.

New IFRS standards

The new IFRS standards (IFRS 9 and IFRS 15) applied by the company as of 1 January 2018 did not have an impact on the company's financial statements.

Our people

We foster a safe and vibrant workplace, where our people can thrive and contribute to our mission to help build a fossil-free world.

Safety

As a technology development company working with industrial processes and chemicals, safety is paramount. Our people have committed to our Golden Safety Rules to make sure each employee returns home safely every day of the year. We have procedures and good safety systems in place and are very aware that continuous attention and awareness is required to ensure that we operate in a safe manner. We send out regular safety newsletters to all our people to ensure safety awareness and knowledge throughout Avantium is up to date. There were no safety accidents or incidents in 2018.

Encouraging creativity

Our people drive innovation in our company. We encourage creativity and ingenuity and invite everyone to come up with unconventional solutions to make a lasting impact. We often work in teams learning from each other's unique skills and experience. We invent and build new technologies to create value for all our stakeholders and society at large. We cherish our highly educated workforce. Almost one-third of our people holds a PhD degree, while about two-thirds has a BSc or an MSc.

In 2018, we set out the five core values that define what we stand for and how we work with clients and partners.

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 throughout 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 out of the box – but never lose sight of reality. We keep our feet on the ground. We always sail towards our destination, 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.

In 2018, we focused on our people's vitality and launched initiatives to promote personal leadership, meaning that every individual takes ownership of their own well-being, their contribution and their achievements. All our senior managers were trained to raise awareness of vitality and to prioritize vitality in how they manage their teams. This included helping their people maintain a healthy balance between their work and their private life.

We promote diversity. We aspire to be an inclusive company with a stimulating culture where people are motivated to develop and share ideas. We strongly believe this is a culture that is crucial to innovation. We maintained our high level of diversity in terms of culture and nationality, employing 17 different nationalities in 2018.

Our people are highly motivated to contribute to a sustainable, fossil-free world. They expect Avantium to meet ambitious sustainability standards. In 2018, we set up a Green Team of employees responsible for identifying initiatives to make our own way of working more sustainable. The team is expected to propose one such initiative each quarter. These initiatives vary from printing fewer documents at Avantium's offices to limiting the energy use of our pilot plants in Delfzijl.

Corporate governance

Avantium aligned its corporate governance policies with the principles and best practice guidelines of the Dutch Corporate Governance Committee as published on 7 September 2017. The full text of the Code is available on www.mccg.nl.

As the new Corporate Governance Code was enshrined in Dutch law in 2007, we are required to report on our compliance with the new Code. See pages 34-40 in this report and the Avantium website for further details. During the year, there were no transactions or issues giving rise to a (possible) conflict of interest between Management, members of the Supervisory Board and the company.

Risk management

In our daily business operations, Avantium and its subsidiaries incur general business risks as well as specific financing risks. Risk management is a company-wide activity. The Management Board bears ultimate responsibility for managing and controlling the risks associated with the activities and the strategy of the company to achieve our ambitions, ensure compliance with corporate governance policies and the law in general and ensure accurate financial reporting. The Supervisory Board oversees the Management Board on these subjects. The risk approach and appetite are determined by the nature of the risk. The main risks relate to strategic, operational and financing risks. See pages 28-30 in this report and note 3 to the annual accounts for further details. This assessment is not exhaustive nor does it provide any guarantee against future losses or failure. With respect to the risks relating to our business and industry, we focus on monitoring the developments within our markets and reflecting the implications in day-to-day operations. Given the innovative nature of our activities, these risks are real yet extremely difficult to predict. We actively seek to minimize the financial and financing risks of Avantium through active interactions with our investors and with various groups and types of potential new equity and/or debt providers. In 2018, we undertook a number of risk-mitigating activities to further strengthen our operations. We improved our internal reporting in terms of quality and completion time. We also developed and implemented a tool for dynamic management information to increase real-time KPI reporting and budget ownership.

Subsequent events and outlook

In December 2018, BASF announced its exit from the Synvina joint venture. In January 2019, Avantium acquired full ownership of Synvina and its YXY plants-to-plastics technology bringing the 49% stake of Avantium in Synvina to 100%. Avantium paid BASF €17.4 million for the full ownership of Synvina, with the transfer of shares taking place on 25 January 2019.

Below pro forma balance sheet is intended to clarify the proposed balance sheet movements between 31 December 2018 and 31 January 2019 relating to the acquisition of the 51% BASF stake on 25 January 2019. Note that all other balance sheet movements not relating to the acquisition are left out. The main elements to highlight are:

1. Cash & cash equivalents reduced by €17.4 million which relates to the gross cash payment made to BASF
2. Property, plant & equipment increased by €8.0 million relating to Synvina's assets being placed onto the Avantium balance sheet
3. Investments in joint ventures and associates decreasing by €4.2 million, i.e. the unwinding of the JV
4. Provisions for other liabilities and charges falling by €13.1 million, i.e. the provision for an onerous contract booked as per 2018 year-end relating to the BASF announcement intending to exit the JV

Consolidated balance sheet Avantium N.V. in Euro x 1,000	Proforma	Audited
	31 January 2019	31 December 2018
Assets		
Non-current assets		
Property, plant and equipment	23,186	15,186
Intangible assets	722	722
Finance lease liabilities	-	-
Investments in joint ventures and associates	-	4,249
Total non-current assets	**23,908**	**20,157**
Current assets		
Inventories	1,160	1,160
Trade and other receivables	9,307	9,307
Cash and cash equivalents	65,793	83,302
Total current assets	76,260	93,769
		0
Total assets	**100,168**	**113,926**
Liabilities		
Non-current liabilities		
Borrowings	-	-
Total non-current liabilities	**-**	**-**
Current liabilities		
Trade and other payables	9,525	9,525
Provisions for other liabilities and charges	(103)	13,244
Total current liabilities	**9,422**	**22,769**
		0
Total liabilities	**9,422**	**22,769**
Equity		
Equity attributable to owners of the parent		
Ordinary shares	2,583	2,583
Share premium	204,296	204,296
Other reserves	9,331	9,331
Retained earnings	(125,465)	(125,053)
Total equity attributable to the owners of the parent	**90,745**	**91,157**
Total equity and liabilities	**100,168**	**113,926**

The integration of Synvina into the Avantium structure has led to it becoming a new business unit, alongside the Catalysis and Renewable Chemistries business units. Synvina is ahead of the timeline for resolving the challenges that led to the postponement announced in January 2018. Avantium remains fully confident in the YXY technology and the unique properties of PEF. It looks forward to building on the work undertaken at Synvina and has the freedom to pursue further options to reach the full potential of polyethylene furanoate (PEF).

Avantium is redefining the path to commercialization for the YXY technology, which it developed to catalytically convert plant-based sugars into furandicarboxylic acid (FDCA) and materials such as the new plant-based packaging material PEF. PEF can fulfill the demand of leading brands and consumers for next-generation materials that are environmentally friendly and recyclable, and has the potential to be a game-changer in the circular economy. Avantium plans to make further announcements on its new strategy to commercialize YXY during the first half of 2019.

In March 2019, Avantium decided to locate the new demonstration plant for its Mekong technology in Chemie Park Delfzijl. The construction of the new plant is on track, with the opening scheduled for the second half of 2019. Avantium received a €2 million grant towards constructing the Mekong plant from the European Regional Development Fund, facilitated by the Partnership Northern Netherlands (Samenwerkingsverband Noord-Nederland). This grant is intended to accelerate innovation in the quest for a low-carbon economy.

Management Board's responsibility statement

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

1. 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.
2. The improvements made to the financial reporting systems provide reasonable assurance that Avantium's financial reporting does not contain any material errors.
3. Based on Avantium's current status of affairs, it is justified that the financial reporting is prepared on a going concern basis.
4. The sections in the Report of the Management Board list those material risks and uncertainties relevant to the expectation regarding Avantium's continuity for the period of twelve months after the preparation of the Report of the Management Board.
5. The financial statements as included in this report provide a true and fair view of the assets, liabilities, financial position and result for the financial year of Avantium and the group companies included in the consolidation.
6. The sections in the Report of the Management Board provide a true and fair view of the situation on the balance sheet date, the business development during the financial year of Avantium and of its affiliated group companies included in the financial statements. The Risk management section describes the material risks to which Avantium is exposed.

Amsterdam, 27 March 2019

Tom van Aken
Chief Executive Officer

Frank Roerink
Chief Financial Officer

Risk management

Risk management is one of the key responsibilities of the Management Board and Supervisory Board. The group's principal risks and uncertainties – whether under our control or not – are highly dynamic and Avantium's assessment of and responses to them are critical to the company's future business and prospects. Avantium's approach towards 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. We manage those risks by taking mitigating actions as much as possible. The Management Board assesses and approves Avantium's overall risk appetite, monitors the group's risk exposure and sets the group-wide limits, which are reviewed on an ongoing basis. This process is supported by the Supervisory Board.

A number of key risk factors relating to Avantium's industry, business and operations affect the group. The risk factors are based on assumptions that are not exhaustive, nor do they provide any guarantee against future losses or failure. Although the group believes that the risks and uncertainties described below are the material risks and uncertainties concerning the group's business, they are not the only risks and uncertainties relating to the group. The main risks relating to the group's business, industry and operations include the possibility of:

(i) The continuation of losses
(ii) Attracting additional funding to scale up technologies
(iii) The inability to further develop R&D projects in the Renewable Chemistries business
(iv) Challenges in finding like-minded partners for commercialization of R&D projects
(v) Possible scale-up challenges in the Renewable Chemistries business
(vi) Catalysis revenues being based on a small number of large customers
(vii) Difficulties in protecting intellectual property

With BASF's notice to exit the Synvina joint venture as of 25 January 2019, a number of risks specific to Synvina in commercializing the YXY technology remain and contain potential risks that the group anticipates managing and mitigating, including:
(i) The conditions and possibilities to continue building the reference plant
(ii) The commercial success of FDCA, PEF and PEF products, and licensing
(iii) The possible scale-up challenges of the YXY technology
(iv) Possible litigation or third-party claims on intellectual property
(v) Obtaining funding
(vii) Continuing value creation

Avantium's risk appetite per main risk category can be found below. Furthermore, we explain how we intend to mitigate these risks through the use of the key risk factors.

Risk category	Risk appetite
Business and industry	Medium to high
Financial and financing	Low
Compliance	Low

Below is an overview of the key risk factors and mitigating measures. These risk factors are an indication of what Avantium's management believes to be the main mitigators the group has put in place to counter the risks mentioned.

Risks related to the business and industry	Mitigating factors
The group has incurred losses and negative operating cash flow and has an accumulated deficit. The group anticipates that it will continue to incur losses for the foreseeable future and may never achieve or sustain profitability.	• Attract new sources of funding via public offering and/or existing investors and/or non-dilutive funding. • Diversify technology portfolio and maintain profitability of Catalysis. • Make portfolio decisions to divest part of a business or technology.
The group may not be able to successfully develop its R&D projects, which may adversely affect the group's business, financial condition, operating result and prospects.	• Continue to apply a strict portfolio management and stage-gate approach, to bring projects from ideation to proof-of-principle, to a fully developed business case that forms the basis for finding like-minded partners and attracting funding.

In order to further develop or commercialize R&D projects, collaboration with partners is necessary. If the group fails to enter into, maintain or successfully execute joint development agreements with partners for its R&D projects, it may not be able to develop and commercialize these projects.	• Continue to include lessons learned from partnerships in other programs, such as from Synvina. • Diversify project portfolio to allow for multiple non-competing partnerships in parallel. • People, IP, and assets should be fit-for-purpose to attract the right partners.
The group could face technology scale-up challenges which could delay or prevent the further development and commercialization of its projects.	• Continue to apply strict portfolio management and stage-gate approach, to bring projects from ideation to proof-of-principle, to a fully developed business case that forms the basis for finding like-minded partners and attracting funding.
If the group is unable to adequately protect its proprietary technology, products and processes, information, trade secrets and know-how, this could have a material adverse effect on its business.	• Maintain, protect and expand current IP portfolio in line with IP strategy. • Active monitoring of IP infringement. • Maintain adequate IT/Legal/Compliance controls.
The decision to start constructing a flagship plant is subject to certain conditions. Avantium may pull back these plans, resulting in the closure or sale of the related activities prior to a positive decision to construct the flagship plant. No assurance can be given that the flagship plant will be completed on schedule, within budget, or at all, including the required capital intensity for such a plant.	• Continue to apply a strict stage-gate approach based on project milestones. • Ensure broadening market interest, defend and strengthen the IP portfolio and provide resources to meet agreed timelines. • Attract new sources of funding via public offering and/or existing investors and/or non-dilutive funding. • Actively search for new partners in all parts of the Synvina value chain, with proven engineering and manufacturing capabilities to validate each production and process step.
The commercial success of the YXY technology will depend on the market acceptance of PEF and PEF products and Synvina's ability to sell FDCA, PEF and licenses, which may only become clear once the flagship plant becomes operational.	• Continue to monitor competitor activities and competitive technologies. • Give full management attention to ensure Synvina meets the agreed timelines and develop strong partnerships in the field of renewable chemistry.
The YXY technology may not perform as expected at the planned scale at the flagship plant and FDCA produced at the flagship plant or PEF produced by third parties may not meet the required product quality standards or specifications.	• Continue to work with potential customers to demonstrate the performance of FDCA and/or PEF, provide application development resources, jointly develop new applications to broaden the application fields and develop alternative outlets for FDCA. • Actively search for new partners with proven engineering and manufacturing capabilities to validate each production and process step.
Litigation or third-party claims of intellectual property infringement could require substantial time and money to resolve and may result in liability for damage. Unfavorable outcomes in these proceedings could limit the joint venture's intellectual property rights and could prevent it from commercializing the YXY technology.	• Give full management attention to maintain, protect and expand Synvina's current IP portfolio in line with IP strategy. • Give full management attention to monitor Synvina's IP infringement. • Maintain adequate IT/Legal/ Compliance controls.

Financial and financing risks	Mitigating factors
The group has incurred losses and negative operating cash flow and has an accumulated deficit. The group anticipates that it will continue to incur losses for the foreseeable future and the group may never achieve or sustain profitability.	• Attract new sources of funding via public offering and/or existing investors and/or non-dilutive funding. • Diversify technology portfolio and maintain profitability of Catalysis. • Make portfolio decisions to divest part of the business or technology.
Availability of financing and interest rate developments. Our failure to access funds (liquidity) would severely limit our ability to execute our strategy. Liquidity risk is the risk that we are unable to meet our payment obligations when due, or are unable, on an ongoing basis, to access funds in the market on an unsecured or secured basis at an acceptable price to fund actual or proposed commitments.	• Maintaining headroom under committed revolving credit facilities • As at 31 December 2018, the group had undrawn credit facilities amounting to €6 million from the facility agreement with Rabobank (€4m credit facility and €2m guarantee facility) and cash amounting to €83.3 million. The group received a waiver for not meeting the financial covenant of the facility at year end 2018 due to the BASF exit from the Synvina joint venture and relating impairment, however a new covenant is in place at time of this report.

Compliance risks	Mitigating factors
New government measures, including increased regulations on the production and use of sustainable products versus oil-based products, may have a major impact on our business and financial position, and can present an opportunity or threat to activities.	• Monitoring and adapting to relevant (changes in) rules and regulations. • Maintaining a dialogue with authorities, where possible.

Report of the Supervisory Board

Role of the Supervisory Board

The Supervisory Board oversees and advises the Management Board in setting and fulfilling the company's strategy. Avantium has a two-tier governance structure, which requires a structured relationship between the Management Board and the Supervisory Board. Each board bears its own specific responsibilities, but they share overall responsibility for the company's strategy and risk profile. Key to all the Supervisory Board's decisions are the long-term interests of the company's stakeholders, including value creation for its shareholders.

This report explains how the Supervisory Board fulfilled its responsibilities in 2018. The Report of the Supervisory Board should be read in conjunction with the Corporate governance section page 34 - 40, which provide information on the company's corporate governance structure. A profile of the Supervisory Board members is available on the Avantium website.

Supervisory Board composition

There were no changes to the composition of the Supervisory Board in 2018. During the General Meeting of May 2018, Denis Lucquin was re-appointed as a member of the Supervisory Board until the end of the Annual General Meeting 2019. In the fourth quarter of 2018, the Supervisory Board started the selection procedure for a new member of the Supervisory Board. An executive search bureau was engaged to propose and pre-screen suitable candidates who fit Avantium's Supervisory Board profile.

All members of the Supervisory Board, except Denis Lucquin, 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 other and from the Management Board, as stipulated in the Code. This means that the tasks of the Supervisory Board as laid down in the Articles of Association are fulfilled, including providing the Management Board with solicited and unsolicited advice and support.

With respect to the composition and diversity of the Supervisory Board, board members will continue to be selected based on their wide-ranging experience within the industry, backgrounds, skills, knowledge and insight. Within this profile, it is noted that the board is currently in compliance with article 2:166 of the Dutch Civil Code.

Supervisory Board and committee meetings in 2018

In its oversight capacity, Avantium's Supervisory Board has frequent communications with the Management Board in and between Supervisory Board meetings. Supervisory Board meetings are held regularly to discuss the company's achievements and plans, the functioning of the Supervisory Board and the performance of the Management Board. In 2018, the Supervisory Board held six ordinary meetings and four extraordinary meeting (conference calls) with both members of the Management Board present. The attendance rate of all Supervisory Board members in 2018 was 95%.

Regular items on the Supervisory Board agenda were detailed progress reports on Synvina, Renewable Chemistries and Catalysis, the development of results, the balance sheet and reports on any matters related to material risks and compliance issues.

The Management Board reported to the Supervisory Board on the company's strategy and the risks associated with it, as well as on the functioning of the company's risk management and control systems.

In 2018, the Supervisory Board devoted particular attention to the following topics.

YXY technology and Synvina

In many ways, 2018 was a challenging year for Avantium. While good progress was made with Avantium's Renewable Chemistry technology programs Dawn Technology™ and Mekong, the commercial implementation of the YXY technology faced significant challenges within the Synvina joint venture. This was on the agenda of several Supervisory Board meetings. In January 2018, Avantium announced that Synvina had extended the pilot phase in order to optimize future commercial-scale production. Later in the year, Avantium and BASF signaled disagreements over the timing to fulfill the investment criteria. In December, Avantium announced that it would adjust the plans for Synvina after BASF's withdrawal from the joint venture. The Supervisory Board monitored developments regarding the Synvina joint venture closely. It fully supported the Management Board's approach and decisions regarding these developments. The Supervisory Board endorsed the repurchase of the BASF shares in the joint venture for net €17.4 million, which includes a net payment of €3.7 million for full ownership of Synvina's assets. The Supervisory Board also supports Synvina in pursuing all value-creating options to reach the full potential of PEF.

Mekong and Dawn Technology™

The Supervisory Board monitored developments regarding Mekong and Dawn Technology™, including the announced construction of a new demonstration plant that will help advance the production of bio-based mono-ethylene glycol (MEG) and the successful opening of a pilot biorefinery for Dawn Technology™ in Delfzijl.

Strategy

In 2018, Avantium updated its strategy, vision and mission. During a dedicated strategy meeting, the Supervisory Board reviewed Avantium's business model, in particular its model to create value for shareholders and the criteria for taking decisions on when and where to invest in new technologies and initiatives related to them. These discussions led to further fine-tuning of Avantium's strategy.

Risk management

Managing and mitigating risk was another important topic on the agenda. The Supervisory Board advised to the Management Board to establish an internal audit function. Avantium is following up on this.

Management Board succession

Management Board succession remains a key topic on the agenda of the Supervisory Board. The Supervisory Board regularly discusses the succession planning for Management Board positions, to ensure continuity of the company's leadership.

Self-evaluation of the Supervisory Board

Every year, the Supervisory Board evaluates its own functioning and that of its separate committees and individual members, in accordance with best practice provision II.2.6 of the Dutch Corporate Governance Code. Once every three years, the board is assisted by an external consultant. In 2018, the Supervisory Board conducted an assessment with the help of organizational consulting firm Korn Ferry. The composition of the Supervisory Board was evaluated and input was provided for the capabilities and experience of a future Supervisory Board member. The assessment also provided input on how to increase the board's effectiveness.

The Supervisory Board committees

The Supervisory Board organizes its tasks across three committees: the Audit Committee, the Remuneration Committee and the Nomination Committee. These committees prepare for their specific topics ahead of decision-making in the plenary meetings of the Supervisory Board.

Audit Committee

Members of the Audit Committee in 2018 were Margret Kleinsman (chair), Kees Verhaar and Gabrielle Reijnen. In 2018, the Audit Committee held four meetings in total. The meetings were also attended by the CEO, CFO, the Group Controller and the external independent auditor. Minutes of all meetings were submitted to the Supervisory Board. The Audit Committee discussed the periodic financial statements, risk management and need for internal audit. In an after balance sheet meeting in February 2019, the Audit Committee discussed the 2018 annual accounts, including the joint venture accounting and impairment of Synvina. Furthermore, the auditor was present at the Supervisory Board meeting of 28 March 28 2018 to discuss the 2017 financial statements as well as the external independent auditor's report and findings.

Nomination Committee

In 2018, the Nomination Committee consisted of Gabrielle Reijnen (chair), Denis Lucquin and Jonathan Wolfson. The meetings of the Nomination Committee are attended by the CEO, except when issues relating to the Management Board are discussed. The Nomination Committee met three times in 2018. The Committee's standard duties include assessing the composition of the Supervisory Board and the Management Board and the functioning of its individual members, succession planning and monitoring corporate governance. In 2018, the Nomination Committee paid specific attention to the composition of the Supervisory Board in view of the rotation schedule and related succession.

Remuneration Committee

In 2018, the members of the Remuneration Committee were Gabrielle Reijnen, (chair), Denis Lucquin and Jonathan Wolfson. The Committee is responsible for advising the Supervisory Board on remuneration. Its standard duties include assessing whether the Management Board's performance targets have been achieved. The Remuneration Committee met three times in 2018 to discuss and formulate proposals for the remuneration of the individual members of the Management Board and the related performance targets in 2018 and 2019. The Remuneration Committee presented its findings and proposals to the Supervisory Board. In the absence of the Management Board, the Supervisory Board decided on the performance appraisal and related remuneration of the individual Management Board members.

Financial statements 2018 and profit appropriation

The financial statements for the financial year 2018 were prepared by the Management Board in compliance with article 20 and 21 of the Articles of Association. Attached to these statements is the unqualified independent auditor's report from PricewaterhouseCoopers Accountants N.V. (PwC). The financial statements and the outcome of the audit performed by the external independent auditor was discussed by the Supervisory Board in the presence of the external independent auditor. The 2018 financial statements were endorsed by all Management Board and Supervisory Board members and are, with PwC's auditor's report, included in this annual report. The Management Board will present the 2018 financial statements at the annual General Meeting. The Supervisory Board recommends that the annual General Meeting adopts the 2018 financial statements. In addition, it recommends that the members of the Management Board and the Supervisory Board be discharged from liability regarding their respective management and supervisory activities over 2018.

Gratitude

The Supervisory Board wishes to thank Avantium's shareholders for their support in what turned out to be a challenging year. We are grateful to the Management Board for their leadership during this period and would like to extend a particular thank you to all Avantium employees, who once again displayed their creativity, perseverance and dedication in 2018.

Amsterdam, 27 March 2019

On behalf of the Avantium Supervisory Board,
Kees Verhaar, Chairman
Denis Lucquin
Gabrielle Reijnen
Jonathan Wolfson
Margret Kleinsman

Corporate governance

Structure

Avantium is a Dutch public company based and with its registered office in Amsterdam, the Netherlands. It acts as the holding company for the Dutch operating companies of the company. The company's shares are listed on Euronext Amsterdam and Euronext Brussels.

As such, the company is subject to the Dutch Corporate Governance Code (the Dutch Code), as amended and published on 8 December 2016. The Dutch Code contains principles and best practice provisions for management boards, supervisory boards, shareholders and general meetings of shareholders and audit and financial reporting. The Dutch Code is applicable to the company as of the financial year 2017.

The company's corporate governance framework is based on the requirements of the Dutch Civil Code, the Dutch Code, the company's Articles of Association, applicable securities laws, and regulations concerning the management board and the supervisory board.

The company has a two-tier governance structure consisting of the management board (the Management Board) and the supervisory board (the Supervisory Board). The third governing body is the general meeting (the General Meeting).

This section provides information on these governing bodies and their powers and duties. In addition, it describes the way the company applies the Dutch Code.

Management Board

General

The Management Board is responsible for the day-to-day management of the company's operations, as well as the operations of the group, subject to the supervision of the Supervisory Board. The Management Board formulates the company strategy and policies and takes responsibility for the internal control systems. The members of the Management Board may divide the board's duties among its members in the Management Board Regulations. The Management Board shall timely provide the Supervisory Board with all information required for the exercise of its duties. The company's Articles of Association include most of the Dutch Code's principles and best practice provisions insofar they apply to a two-tier governance structure. The company's Articles of Association are published on the company's website (www.avantium.com/corporate-governance/).

Composition, appointment, dismissal and suspension

The Management Board is composed of the following two members:

Name	Date of birth	Position	Member as of	Scheduled for re-election
T.B. van Aken	19 October 1970	CEO	17 February 2006	At the General Meeting in 2021
F.C.F. Roerink	14 June 1969	CFO	11 May 2007	At the General Meeting in 2021

With respect to the composition of the Management Board, it is noted that the board's members will continue to be selected based on their wide-ranging experience within the industry, backgrounds, skills, knowledge and insight. Within this profile, gender diversity has the Management Board's attention in accordance with article 2:166 of the Dutch Civil Code, although so far this has not resulted in increased gender diversity in the Management Board. There were no changes in the composition of the Management Board in 2018.

The members of the Management Board are appointed by the General Meeting. In accordance with the company's Articles of Association, the Supervisory Board shall make binding nominations for the appointment of a Management Board member. In case the Supervisory Board has made a binding nomination for the appointment of a Management Board member, the nominee shall be appointed, provided that the General Meeting may override the binding nature of such nomination by a resolution of two-thirds of the votes cast, which votes also need to represent more than half of the issued share capital. If the Supervisory Board has not made a binding nomination, the General Meeting shall be free to appoint a member of the Management Board at its discretion by a simple majority representing at least one-third of the issued share capital.

Pursuant to the company's Articles of Association, the General Meeting may at any time dismiss or suspend a member of the Management Board. The General Meeting may only adopt a resolution to dismiss or suspend such a member by a simple majority at the proposal of the Supervisory Board. Without such proposal, the resolution shall require a two-thirds majority of the votes cast, representing more than half of the issued share capital.

Management Board resolutions

The Management Board may in principle pass resolutions only if at least the majority of the Management Board members are present. The CEO may depart from this principle with respect to decision-making in urgent situations. Management Board resolutions may at all times be adopted outside of a meeting, in writing or otherwise, provided that the proposal concerned is submitted to all Management Board members then in office and none of them objects to this manner of adopting resolutions. Where possible, resolutions shall be passed by unanimous vote. If this is not possible, the resolution shall be taken by a majority of votes. If the vote is tied, the proposal shall be rejected. Pursuant to Dutch law and the company's Articles of Association, the Management Board must obtain the approval of the General Meeting for resolutions regarding an important change of identity or character of the company or its business. This includes in any event: (i) the transfer of all or substantially all business activities of the company to a third party, (ii) the conclusion or cancellation of any long-lasting cooperation by the company or a subsidiary with another legal entity or company or as a fully liable general partner of a limited partnership or a general partnership, provided that such cooperation or the cancellation thereof is of essential importance to the company, and (iii) the acquisition or disposal by the company or a subsidiary of a participating interest in the capital of a company with a value of at least one-third of the sum of the assets according to the consolidated balance sheet of the company's most recently adopted financial statements with explanatory notes thereto.

The Management Board must obtain the approval of the Supervisory Board for various resolutions listed in the Management Board Regulations including, but not limited to:

(i) Entering into agreements, whereby the company is granted credit by a bank
(ii) Lending and borrowing money, with the exception of acquiring money under a credit already granted to the company by a bank
(iii) Long-term direct or indirect cooperation with another company and the termination of such cooperation
(iv) Investments and divestitures
(v) Entering into agreements by which the company binds itself as guarantor or as severally liable co-debtor or otherwise guarantees or agrees to bind itself as security for a debt of a third party
(vi) Making settlements
(vii) Being a party to legal proceedings, including conducting arbitration, with the exception of taking legal measures that cannot be delayed
(viii) Entering into and changing employment agreements, whereby remuneration is granted, which exceeds the annual maximum amount determined by the Supervisory Board and notified to the Management Board in writing
(ix) Establishing pension plans and granting pension rights in excess of those arising from existing arrangements
(x) Adopting and amending the strategy of the enterprise and the business plan
(xi) Adopting the annual budget
(xi) Adopting employee stock-option plans

The Supervisory Board may determine that such a resolution does not require its approval if the amount involved does not exceed a value fixed by the Supervisory Board and notified to the Management Board in writing.

Conflict of interest

Pursuant to the Management Board Regulations and the Dutch Code, each member of the Management Board is required to immediately report any conflict or potential conflict of interest to the chairperson of the Supervisory Board and the other members of the Management Board. The chairperson of the Supervisory Board must determine whether a reported conflict or potential conflict of interest qualifies as a conflict of interest within the meaning of article 2:129, paragraph 6 of the Dutch Civil Code, to which the following applies. A member of the Management Board may not participate in the adoption of resolutions (including any deliberations) if they have a direct or indirect personal interest conflicting with the interests of the company and the business connected therewith. If all members of the Management Board have a conflict of interest, the resolution concerned will be adopted by the Supervisory Board. If a member of the Management Board does not comply with the provisions on conflicts of interest, the resolution concerned is subject to voidness (nietigheid) or voidability (vernietigbaarheid) and this member can be held liable towards the company. All transactions in which there are conflicts of interest with members of the Management Board must be agreed on terms that are customary in the sector in which the company operates and must be approved by the Supervisory Board.

Supervisory Board

General

The Supervisory Board supervises the management of the Management Board and the general course of affairs at the company and the business connected with it. The Supervisory Board shall assist the Management Board by giving advice. In performing their duties, the Supervisory Board members act in accordance with the interests of the company and the group, taking into consideration the interests of the company's stakeholders (including the company's shareholders, creditors, employees and clients), as well as the corporate social responsibility issues that are relevant to the business.

The Supervisory Board is responsible for submitting the nomination for the appointment of an external accountant to audit and report on and issue a statement concerning the company's annual financial statements to the General Meeting, supervising the functioning of such accountant and resolving on the engagement of such accountant. The Supervisory Board Regulations can be found on the company's website (www.avantium.com/corporate-governance/) and will apply in addition to the relevant provisions of the Articles of Association.

The Supervisory Board has appointed an Audit Committee, a Remuneration Committee and a Nomination Committee. These committees are tasked with preparing the decision-making of and advising the Supervisory Board, although the Supervisory Board remains collectively responsible for the fulfillment of the duties delegated to its committees. In accordance with the company's Articles of Association and the Supervisory Board Regulations, the Supervisory Board has drawn up rules on each committee's role, responsibilities and functioning. The committee regulations are incorporated in the Supervisory Board Regulations published on the company's website (www.avantium.com/corporate-governance/).

Composition, appointment, dismissal and suspension

As of 31 December 2018, the Supervisory Board composition is as follows:

Name	Date of birth	Gender	Member as of	Scheduled for re-election
C. Verhaar	28 August 1953	Male	30 November 2017	At the General Meeting in 2021
D.J. Lucquin	13 January 1957	Male	19 May 2011	At the General Meeting in 2019
G.E.A. Reijnen	20 December 1967	Female	14 April 2015	At the General Meeting in 2019
M.G. Kleinsman	24 October 1963	Female	14 June 2017	At the General Meeting in 2021
J.S. Wolfson	31 January 1971	Male	15 January 2013	At the General Meeting in 2019

During the annual General Meeting of 16 May 2018, D.J. Lucquin was reappointed as member of the Supervisory Board.

Further information about the Supervisory Board members is published on the company's website (www.avantium.com/corporate-governance/).

The Supervisory Board shall consist of at least three members. The company's Articles of Association provide that the Supervisory Board shall make binding nominations for the appointment of a Supervisory Board member. In case the Supervisory Board has made a binding nomination for the appointment of a Supervisory Board member, the nominee shall be appointed provided that the General Meeting may at all times override the binding nature of such nomination by a resolution of two-thirds of the votes cast, which votes also need to represent more than half of the issued share capital. If the General Meeting overrules the binding nomination, the Supervisory Board shall make a new binding nomination. If the Supervisory Board has not made a binding nomination, the General Meeting shall be free to appoint a member of the Supervisory Board at its discretion by a simple majority representing at least one-third of the issued share capital.

Pursuant to the company's Articles of Association, the General Meeting may at any time dismiss or suspend a member of the Supervisory Board. The General Meeting may only adopt a resolution to dismiss or suspend such a member by a simple majority at the proposal of the Supervisory Board. Without such proposal, the resolution shall require a two-thirds majority of the votes cast, representing more than half of the issued share capital.

Each Supervisory Board member shall be appointed or reappointed for a period of not more than four years, provided that, unless a Supervisory Board member resigns earlier, their appointment period shall end immediately after the annual General Meeting that will be held in the fourth calendar year after the date of their appointment. The Supervisory Board member may then subsequently be reappointed again for a period of two years, which appointment may be extended by two years at most. In the event of a re-appointment after an eight-year period, reasons should be given in the consultative Report of the Supervisory Board. The Supervisory Board shall appoint one of its members to be the chairperson of the Supervisory Board.

Supervisory Board resolutions

The Supervisory Board can in principle only validly adopt resolutions in a meeting at which at least one half of its members is present or represented, provided that members who have a conflict of interest shall not be taken into account when calculating this quorum. Resolutions of the Supervisory Board are adopted by an absolute majority of votes. If the vote is tied, the proposal shall be rejected. The Supervisory Board may also adopt resolutions outside a meeting, in writing or otherwise, provided that the proposal concerned is submitted to all members of the Supervisory Board then in office and none of them objects to this manner of decision-making.

Conflict of interest

Pursuant to the Supervisory Board Regulations, each Supervisory Board member (other than the chairperson) shall immediately report any conflict or potential conflict of interests concerning a Supervisory Board member to the chairperson. In case the chairperson has a conflict or potential conflict of interests, they shall immediately inform the vice-chairperson of the Supervisory Board thereof. The chairperson or the vice-chairperson (as applicable) shall determine whether a reported conflict or potential conflict of interest qualifies as a conflict of interest within the meaning of article 2:140, paragraph 5 of the Dutch Civil Code, to which the following applies. A Supervisory Board member may not participate in the adoption of resolutions (including any deliberations) if they have a direct or indirect personal interest conflicting with the interests of the company and the business connected therewith. If all members of the Supervisory Board have a conflicting personal interest, the resolution concerned will be adopted by the General Meeting, unless the Articles of Association decide otherwise. The company's Articles of Association provide that, if all members of the Supervisory Board have a conflict of interest, the resolution concerned will nevertheless be adopted by the Supervisory Board. If a member of the Supervisory Board does not comply with the provisions on conflicts of interest in the Supervisory Board Regulations, the resolution concerned is subject to voidness (nietigheid) or voidability (vernietigbaarheid) and this member can be held liable towards the company.

Evaluation of the Supervisory Board and Management Board

Pursuant to the Dutch Code, the Supervisory Board should at least once per year, outside the presence of the Management Board, evaluate its own functioning, the functioning of the committees and that of the individual Supervisory Board members, and discuss the conclusions that are attached to the evaluation. The evaluation of the Supervisory Board, the committees and the individual Supervisory Board members was performed on an irregular basis prior to the company's IPO, with a minimum of once a year a self-assessment. After the company's IPO, the Supervisory Board appointed an external consultant to perform a detailed evaluation of the

Supervisory Board, the committees and the individual Supervisory Board members. This assessment was performed in 2018.

The Dutch Code also provides that the Supervisory Board should at least once per year, outside the presence of the Management Board, evaluate the functioning of the Management Board and that of the individual Management Board members, and discuss the conclusions that must be attached to the evaluation, such also in light of the succession of Management Board members. At least once annually, the Management Board, too, should evaluate its own functioning and that of the individual Management Board members. The performance of the Management Board and individual members of the Management Board is evaluated at every closed session of all Supervisory Board meetings and subsequently communicated to the Management Board by the chairperson of the Supervisory Board.

General Meeting

General

The annual General Meeting is held each year within six months of the end of the financial year. Its general purpose is to discuss the board report, discuss and adopt the financial statements and discharge the Management Board members and the Supervisory Board members of their respective management and supervision duties. Extraordinary General Meetings are held as often as the Management Board and Supervisory Board deem necessary and at the request of one or more shareholders, who, alone or jointly, represent at least one tenth of the issued share capital of the company (as set out in article 2:110, paragraph 1 of the Dutch Civil Code).

Notice and admission to the General Meeting

A General Meeting is called by means of a convening notice that is sent by the Management Board or the Supervisory Board, stating inter alia the place and time of the meeting and the agenda of the meeting. Shareholders who, alone or jointly, represent at least 3% of the company's issued capital, may request that items can be added to the agenda of the meeting. These requests will be granted, providing that the request (including the reasons for such request) is received in writing by the Management Board or Supervisory Board at least 60 days before the day of the meeting.

Every shareholder may attend and address the General Meeting. Each shareholder is entitled to vote. Those entitled to attend a General Meeting may be represented at the meeting by a proxy authorized in writing.

General Meeting resolutions

Unless Dutch law or the Articles of Association require a larger majority, resolutions of the General Meeting are adopted by a simple majority of 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 present or represented at the General Meeting at which such a resolution is put to vote.

Corporate governance statement

This section – together with the Report of the Supervisory Board, the description of risk management and the content of the company's website – constitutes the corporate governance statement. The corporate governance section on the website contains the company's Articles of Association, the Supervisory Board profile and regulations, a description of the application of the Dutch Code by the company and various other policies. The composition of the Management Board and the Supervisory Board is also set out on the website, including the CVs of the members and the rotation plan of both boards. This section is therefore to be read in conjunction with all of the aforementioned information on the company's website.

Each public company (naamloze vennootschap) under Dutch law, with its official seat in the Netherlands, whose shares or depositary receipts for shares have been admitted to listing on a stock exchange, or more specifically to trading on a regulated market or a comparable system, and all large companies whose registered offices are in the Netherlands (balance sheet value > €500 million) whose shares or depositary receipts for shares have been admitted to trading on a multilateral trading facility or a comparable system, are required under Dutch law to disclose in their annual reports whether or not they apply the provisions of the Dutch Code that relate to the Management Board or Supervisory Board and, if they do not apply, to explain the why not. The Dutch Code provides that if a company's General Meeting explicitly approves the corporate governance structure and policy and endorses the explanation for any deviation from the best practice provisions, such company will be deemed to have applied the Dutch Code.

The company acknowledges the importance of good corporate governance and agrees with the principles of the Dutch Code. It has taken and will take further steps it considers appropriate to implement the Dutch Code.

The 2009 Belgian Code on Corporate Governance (the Belgian Code) applies to companies incorporated in Belgium whose shares are admitted to trading on a regulated market. The Belgian Code and the Dutch Code are mainly based upon the same or at least comparable principles of good corporate governance. As the company is incorporated under Dutch law and also has a listing on Euronext Amsterdam, it applies the Dutch Code.

Compliance with the Dutch Code

Avantium is committed to applying all the principles and best practice provisions of the Dutch Code. The principles and best practice provisions where it is not in compliance with the Dutch Code are as follows:

- Principle 1.3: The duty of the internal audit function is to assess the design and the operation of the internal risk management and control systems. The Management Board is responsible for the internal audit function. The Supervisory Board oversees the internal audit function and maintains regular contact with the person fulfilling this function. The company has agreed to establish an internal audit function, which is currently not yet in place.

- Best practice provision 3.3.2: Supervisory board members may not be awarded remuneration in the form of shares and/or rights to shares. To continue to be able to attract and retain top talent in a competitive and global environment and to focus the Supervisory Board on creation of sustainable added value, the company has, as of the date of IPO, introduced a renewed Employee Share Option Plan (ESOP) and granted some members of the Supervisory Board a certain number of options, subject to the approval of the General Meeting. The General Meeting has given its approval hereto at the company's Extraordinary General Meeting of 10 February 2017.

- Best practice provision 4.2.3: Analyst meetings, analyst presentations, presentations to institutional or other investors and press conferences should be announced in advance on the company's website and by means of press releases. Analysts' meetings and presentations to investors should not take place shortly before the publication of the regular financial information. All shareholders should be able to follow these meetings and presentations in real time, by means of webcasting, telephone or otherwise. After the meetings, the presentations should be posted on the company's website.

The company shall initially not enable shareholders to follow analyst meetings, presentations to (institutional) investors and press conferences in real time by means of webcasting, telephone or otherwise. In this respect, the company does not comply with best practice provision 4.2.3 of the Dutch Code, since, considering the company's size, it would create an excessive burden to provide such facilities. The company shall regularly examine whether it is desirable to provide those facilities and possibly amend its policy in this respect. In accordance with best practice provision 4.2.3 of the Dutch Code, the company shall announce meetings with analysts, presentations to analysts, presentations to (institutional) investors and press conferences in advance on the company's website and by means of press releases. After the meetings, the presentations shall be posted on the company's website.

- Best practice provision 4.3.3: The general meeting of a company not having statutory two-tier status (structuurregime) may pass a resolution to cancel the binding nature of a nomination for the appointment of a member of the Management Board or of the Supervisory Board and/or a resolution to dismiss a member of the Management Board or of the Supervisory Board by an absolute majority of the votes cast. It may be provided that this majority should represent a given proportion of the issued capital, which proportion may not exceed one-third. If this proportion of the capital is not represented at the meeting, but an absolute majority of the votes cast is in favor of a resolution to cancel the binding nature of a nomination, or to dismiss a board member, a new meeting may be convened at which the resolution may be passed by an absolute majority of the votes cast, regardless of the proportion of the capital represented at the meeting.

The company's Articles of Association provide that the Supervisory Board shall make binding nominations. In case the Supervisory Board has made a binding nomination for the appointment of a Management Board or a Supervisory Board member, the nominee shall be appointed irrespective of the majority of the votes cast in favor. The General Meeting may override the binding nature of such nomination by a resolution of two-thirds of the votes cast, which votes also need to represent more than half of the issued share capital. If the Supervisory Board has not made a binding nomination, the General Meeting shall be free to appoint a member of the Management Board or the Supervisory Board at its discretion by a simple majority representing at least one-third of the issued share capital.

Pursuant to the company's Articles of Association, the General Meeting may at any time dismiss a member of the Management Board or the Supervisory Board. The General Meeting may only adopt a resolution to dismiss such a member by a simple majority at the proposal of the Supervisory Board. Without such proposal, the resolution shall require a two-thirds majority of the votes cast, representing more than half of the issued share capital.

These provisions deviate from best practice provision 4.3.3 of the Dutch Code. The purpose of these provisions is to safeguard the continuity of the company and its group companies.

Tax

The company calculates tax charges based on 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 based on amounts expected to be paid to the tax authorities.

The company does not use contrived or abnormal tax structures that are intended for tax avoidance. The company pays an appropriate amount of tax according to where value is created within the normal course of business activities. For further disclosure, see note 2.18 of the company's financial statements.

Remuneration Report

This report sets out Avantium's remuneration policy for members of the Management Board and Supervisory Board and the remuneration paid in 2018. In line with market practice, this Remuneration Report also contains information about the Employee Share Option Plan (ESOP) for 2018.

Remuneration policy

The primary objectives of the remuneration policy are to attract, motivate and retain highly qualified executives, as well as to reward members of the Management Board with a balanced and competitive remuneration package that is focused on sustainable results and is aligned with Avantium's long-term strategy.

Governance of the remuneration policy

The Management Team is responsible for determining the company-wide remuneration policy, except for its own remuneration, which is proposed by the Supervisory Board and approved by shareholders at the General Meeting.

The Remuneration Committee prepares the Supervisory Board for decisions on matters within its remit. The committee reports its findings and recommendations to the Supervisory Board which is collectively responsible for fulfilling the duties delegated to the Remuneration Committee. In 2018, the Remuneration Committee comprised of Gabrielle Reijnen (chair), Denis Lucquin and Jonathan Wolfson. The Supervisory Board decides on the proposed remuneration and checks that it complies with the principles of restrained remuneration. Refer to note 27 for further information on the payout ratio at Avantium.

Remuneration policy for the Management Board

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

i) Fixed annual base salary
ii) Annual variable remuneration (bonus) in cash
iii) Long-term variable remuneration in the form of shares and options
iv) Allowance for pension and fringe benefits
v) Severance payments

Avantium strives to offer sufficiently competitive remuneration packages and to reward at least at the median of the relevant market.

i) Fixed annual base salary

In 2018, the base salary of CEO Tom van Aken remained at €261,000 and the annual base salary of CFO Frank Roerink remained at €235,000.

ii) Annual variable remuneration (bonus)

The annual variable remuneration awarded is subject to achieving set performance conditions. The objective of the annual variable remuneration is to ensure that the members of the Management Board are focused on realizing their short-term operational objectives, leading to longer-term value creation.

The bonus, if any, has (i) a cash component of no more than 40% of a Management Board member's annual base salary and (ii) a non-cash component amounting to a percentage equivalent to the cash component which must be invested in Investment Shares (see under iii.1 Long-term Investment Plan).

ii.1 Performance conditions

On an annual basis, the Supervisory Board sets performance conditions by, at or prior to the beginning of the relevant financial year. The performance conditions are specific, measurable and include Avantium's financial performance and qualitative criteria related to Avantium's performance, taking into account Avantium's various stakeholders. The performance conditions are based on Avantium's strategy and long-term objectives. The Supervisory Board ensures that the relationship between the chosen performance criteria and the strategic objectives applied are properly reviewed and accounted for, both ex-ante and ex-post. The bonus is rewarded when predefined targets are realized, while the maximum bonus may be rewarded in case of outperformance of the predefined targets. If realized performance is below a certain threshold level, no bonus is rewarded.

iii) Long-term variable remuneration

The objective of the long-term variable remuneration in the form of shares is to encourage the long-term commitment and retention of (inter alia) members of the Management Board. It also drives and rewards sound business decisions for Avantium's long-term health and aligns the Management Board and shareholder interests.

iii.1 Long-term Investment Plan (LTIP)

The members of the Management Board are obligated to invest the total non-cash component of their (net) bonus in (depositary receipts for) shares to be delivered by the company (investment shares). 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. After the end of the retention period, Avantium will match the investment shares at a 1:1 ratio, i.e. one matching share is granted for each investment share.

iii.2 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 members of the Management Board. The options granted by the Supervisory Board will vest yearly over a 3 year vesting period, resulting in a 100% vesting on the third anniversary following the grant. The options have an exercise period of five years after vesting.

iii.3 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 certain circumstances apply (see below):

(a) Test of reasonableness: any variable remuneration awarded to a member of the Management Board may be adjusted by the Supervisory Board to an appropriate level if payment of the variable remuneration were to be unacceptable according to the criteria of reasonable and fairness.

(b) Claw back: the Supervisory Board has the authority to recover from a member of the Management Board any variable remuneration awarded based on incorrect financial data in respect of underlying targets or other circumstances of which the variable remuneration is dependent.

(c) Deduction of value increase of shares: in case the value of the shares (including rights to subscribe for shares) granted by the company to the respective members of the Management Board as part of their remuneration increases during a period in which a public offer is made on the shares, the remuneration of that respective Management Board member will be reduced by the amount by which the value of the shares granted by the company to such member has increased. Similar provisions apply in the situation of an intended legal merger or demerger of the company, or if the company intends to enter into certain transactions that are of significance to the company that the Management Board requires the approval of the General Meeting pursuant to Dutch law.

iv) Allowance for pensions and fringe benefits

The members of the Management Board participate in Avantium's pension plan. The pension plan is a defined contribution plan. New 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 €105,075 (2018) in a separate defined contribution plan. There are no arrangements for early retirement.

The members of the Management Board are entitled to customary fringe benefits, such as car allowance and reimbursement of business expenses.

v) Severance payments

The members of the Management Board are employed based on a permanent employment contract. These contracts do not contain severance payment provisions.The Supervisory Board may determine that a member of the Management Board is entitled to compensation for the loss of income resulting from a non-voluntary termination as a Management Board member, in line with the best practice provision in the Corporate Governance Code.

Remuneration received by members of the Management Board

The following table provides a breakdown of the remuneration in 2018 of the members of the Management Board.

(In Euro x 1,000)	Salary	Cash bonus	Investment share bonus	Share-based payments	Post-employee benefits	Total
Management Board						
Tom van Aken						
2018	**261**	**-**	**-**	**145**	**18**	**423**
2017	254	75	-	370	17	716
Frank Roerink						
2018	**235**	**-**	**-**	**87**	**17**	**339**
2017	230	51	-	298	16	595
Total - 2018	**496**	**0**	**0**	**232**	**35**	**763**
Total - 2017	484	126	0	668	33	1312

Investment shares

As noted above, the performance of the individual members of the Management Board in 2017 is based on whether they achieve the targets set at the start of the financial year. The Supervisory Board decided on 16 March 2018 to award 28% of its 2017 fixed annual base salary as investment shares to Tom van Aken and 24% of its 2017 fixed annual base salary to Frank Roerink, based on achieving set performance targets.

Share Options		2018		2017
	Number	Exercise price (in Euro)	Number	Exercise price (in Euro)
Number of options outstanding 1 January	632,405	2,47	4,944,046	0.08
Number of options granted - prior to IPO	-	-	580,005	0.55
Number of outstanding options after reverse share split at IPO	-	0,00	552,405	1.29
Number of options granted	80,000	5,34	80,000	10.58
Number of options exercised	-	-	-	-
Number of options forfeited	-	-	-	-
Number expired	-	-	-	-
Number of options outstanding 31 December	712,405	2,79	632,405	2.47

Remuneration of the Supervisory Board

Pursuant to the Articles of Association, the General Meeting may determine the remuneration for Supervisory Board members upon proposal by the Supervisory Board. The Remuneration Policy for the Supervisory Board was adopted by the General Meeting on 10 February 2017. The remuneration of the Supervisory Board is as follows:

- Membership of the Supervisory Board: €40,000
- Chairmanship of the Supervisory Board: an additional €35,000
- Membership of a committee of the Supervisory Board: €5,000 (per committee)
- Chairmanship of the audit committee of the Supervisory Board: an additional €5,000

In addition, the members of the Supervisory Board may participate in the Employee Share Option Plan.

Supervisory Board members shall be reimbursed for all reasonable costs incurred in connection with their attendance of meetings. Any other expenses shall only be reimbursed, either in whole or in part, if incurred with the prior consent of the chairman of the Supervisory Board.

(In Euro x 1,000)	**Salary**	**Bonus**	**Share-based payments**	**Post-employee benefits**	**Total**
Supervisory Board					
Kees Verhaar					
2018	**80**	**-**	**-**	**-**	**80**
2017	6	-	-	-	6
Denis Lucquin					
2018	**50**	**-**	**-**	**-**	**50**
2017	53	-	-	-	53
Gabrielle Reijnen					
2018	**55**	**-**	**-**	**-**	**55**
2017	50	-	31	-	81
Jonathan Wolfson					
2018	**50**	**-**	**-**	**-**	**50**
2017	45	-	26	-	71
Margret Kleinsman					
2018	**50**	**-**	**-**	**-**	**50**
2017	27	-	-	-	27
Total - 2018	***285***	***0***	***0***	***0***	***285***
Total - 2017	*181*	*0*	*58*	*0*	*239*

Share Options		2018		2017
	Number	Exercise price (in Euro)	Number	Exercise price (in Euro)
Number of options outstanding 1 January	44,000	4.92	300,000	0.33
Number of options granted - prior to IPO	-	0.00	140,000	0.84
Number of outstanding options after reverse share split at IPO	-	0.00	44,000	4.92
Number of options granted	-	-	-	-
Number of options exercised	-	-	-	-
Number of options forfeited	-	-	-	-
Number expired	-	-	-	-
Number of options outstanding 31 December	44,000	4.92	44,000	4.92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Consolidated financial statements 2018

Consolidated statement of comprehensive income

in Euro x 1,000		Year ended 31 December	
	Notes	2018	2017
Continuing operations			
Revenues	18	11,283	12,652
Expenses			
Raw materials and contract costs	19	(3,065)	(4,030)
Employee benefit expenses	20	(10,094)	(10,611)
Depreciation, amortization and impairment charge	19	(1,799)	(885)
Office and housing expenses	19	(2,208)	(1,649)
Patent, license, legal and advisory expenses	19	(1,897)	(2,122)
Laboratory expenses	19	(1,737)	(1,348)
Advertising and representation expenses	19	(1,311)	(1,130)
Expense due for onerous contract	7	(13,088)	-
Other operating expenses	19	(447)	(988)
Operating loss		**(24,362)**	(10,111)
Finance income	21	19	50
Finance costs	21	(87)	(667)
Finance costs - net		**(68)**	(617)
Share in loss of joint ventures	7	(43,948)	(6,032)
Loss before income tax		**(68,378)**	(16,760)
Income tax expense	22	-	-
Profit / (loss) for the period		**(68,378)**	(16,760)
Other comprehensive income			
Share of other comprehensive income of joint ventures accounted for using the equity method	7	-	-
Total comprehensive income / (expense) for the year		**(68,378)**	(16,760)
Profit / (Loss) attributable to:			
Owners of the parent		(68,378)	(16,760)
		(68,378)	(16,760)
Total comprehensive income / (expense) attributable to:			
Owners of the parent		(68,378)	(16,760)
		(68,378)	**(16,760)**

		Year ended 31 December	
Earnings per share for profit from continuing operations attributable to the ordinary equity holders of the company	**Note**	**2018**	**2017**
Basic earnings per share	13	(2.65)	(0.72)
Diluted earnings per share	13	(2.65)	(0.72)
Earnings per share for profit attributable to the ordinary equity holders of the company			
Basic earnings per share	13	(2.65)	(0.72)
Diluted earnings per share	13	(2.65)	(0.72)

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

Consolidated statement of financial position

in Euro x 1,000		As at 31 December	
		2018	2017
Assets	**Notes**		
Non-current assets			
Property, plant and equipment	5	15,186	8,811
Intangible assets	6	722	833
Investments in joint ventures and associates	7	4,249	48,197
Total non-current assets		20,157	57,841
Current assets			
Inventories	8	1,160	1,255
Trade and other receivables	9	9,307	9,478
Cash and cash equivalents	10	83,302	100,237
Total current assets		93,769	110,970
Total assets		**113,926**	**168,811**
Liabilities			
Current liabilities			
Trade and other payables	14	9,525	10,314
Provisions for other liabilities and charges	16	13,244	137
Total current liabilities		**22,769**	**10,451**
Total liabilities		**22,769**	**10,451**
Equity			
Equity attributable to owners of the parent			
Ordinary shares	11	2,583	2,577
Share premium	11, 12	204,296	204,296
Other reserves	11, 12	9,331	8,252
Accumulated losses		(125,053)	(56,765)
Total equity attributable to the owners of the parent		91,157	158,360
Total equity		**91,157**	**158,360**
Total equity and liabilities		**113,926**	**168,811**

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

Consolidated statement of changes in equity

in Euro x 1,000	Attributable to equity holders of the company				
	Ordinary shares	Share premium	Other reserves	Accumulated losses	Total Equity
Balance at 1 January 2017	**1,319**	**79,734**	**6,212**	**(40,122)**	**47,143**
Comprehensive income					
Result for the year	-	-	-	(16,760)	(16,760)
Other Comprehensive income for the year	-	-	-	-	-
Total Comprehensive income for the year	**-**	**-**	**-**	**(16,760)**	**(16,760)**
Transactions with owners					
- Employee share schemes – value of Employee services	-	-	2,783	-	2,783
- Transfer value share scheme to retained earnings	-	-	(118)	118	-
- Treasury shares	-	-	(624)	-	(624)
- Transaction costs - IPO	-	(5,098)	-	-	(5,098)
- Issue of ordinary shares	1,258	129,660	-	-	130,918
Total transactions with owners	**1,258**	**124,562**	**2,041**	**118**	**127,979**
Balance at 31 December 2017	**2,577**	**204,296**	**8,252**	**(56,765)**	**158,360**
Balance at 1 January 2018	2,577	204,296	8,252	(56,765)	158,360
Comprehensive income					
Result for the year	-	-	-	(68,378)	(68,378)
Other Comprehensive income for the year	-	-	-	-	-
Total Comprehensive income for the year	**-**	**-**	**-**	**(68,378)**	**(68,378)**
Transactions with owners					
- Employee share schemes – value of Employee services	-	-	970		970
- Employee share schemes – LTIP investment shares granted	-	-	199		199
- Transfer value share scheme to retained earnings	-	-	(90)	90	-
- Issue of ordinary shares	7	-	-	-	7
Total transactions with owners	**7**	**-**	**1,079**	**90**	**1,175**
Balance at 31 December 2018	**2,583**	**204,296**	**9,331**	**(125,053)**	**91,157**

The accompanying notes are an integral part of these consolidated financial statements.
There was no impact with the initial application of IFRS 9 and IFRS 15 as discussed in note 2.

Consolidated statement of cash flows

in Euro x 1,000		Year ended 31 December	
	Notes	2018	2017
Cash flows from continuing operations			
Cash flows from operating activities			
Loss for the year from continuing operations		(68,378)	(16,760)
Adjustments for:			
- Depreciation	5	1,550	723
- Amortization	6	249	162
- Share in loss of joint ventures	7	43,948	6,032
- Share-based payment	13	1,169	2,783
- Finance costs - net	22	68	617
Changes in working capital			
(excluding exchange differences on consolidation):			
- Decrease/(increase) in inventories	8	95	(65)
- Increase in trade and other receivables	9	171	1,513
- Decrease in trade and other payables	15	(789)	(847)
- Increase/(decrease) in provisions	17	13,107	(29)
		(9,009)	**(5,871)**
Interest (paid) on current accounts	22	(24)	(48)
Net cash used in operating activities		**(9,033)**	**(5,919)**
Cash flows from investing activities			
Purchases of property, plant and equipment (PPE)	5	(7,958)	(4,828)
Purchases of intangible assets	6	(120)	(188)
Net cash used in investing activities		**(8,078)**	**(5,017)**
Cash flow from financing activities			
Interest received from current accounts	22	19	50
Proceeds from issuance of ordinary shares	16	-	108,602
Incremental costs paid directly attributable to IPO	12	-	(6,314)
Repurchase of shares	16	-	(624)
Repayments of borrowings	16	-	(4,722)
Other interest received		43	-
Other interest paid and financing costs		(80)	(40)
Net cash generated from financing activities		**181**	**96,953**
Net (decrease)/increase in cash, cash equivalents		(16,930)	86,017
Cash and cash equivalents at beginning of the year	9	100,237	14,223
Effect of exchange rate changes	21	(5)	(3)
Cash and cash equivalents from continuing operations at end of financial year		**83,302**	**100,238**
Cash and cash equivalents at end of financial year		**83,302**	**100,237**

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

Notes to the consolidated financial statements

1. General information

Avantium N.V. ('the company') and its subsidiaries (together 'the group') develop and commercialize next generation bio-based plastics and chemicals based on our unique technological capabilities in advanced catalysis research & development. The company is also the ultimate parent of the group. Over the years, our company has established a leading market position in providing advanced catalysis services and systems. The company has its statutory seat at Zekeringstraat 29-31, 1014 BV in Amsterdam, the Netherlands.

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 27 March 2019.

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.

The preparation of financial statements in accordance with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgment in the process of applying the group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed in note 4.

2.1.1 Going concern

The net loss for the year 2018 amounts to €68,378,000, and in anticipation of the annual General Meeting's adoption of the annual accounts, this has been added to the accumulated deficit resulting in a net equity of €91.2 million.

On 15 March 2017, the company listed on Euronext Amsterdam and Brussels, raising gross proceeds of €109 million (including the over-allotment exercise). On 31 December 2018, the company held €83.3 million in cash and cash equivalents.

The facility agreement the company holds with Rabobank includes a €4.0 million committed credit facility and a €2.0 million committed bank guarantee facility. At year end, the company received a waiver statement with regard to the financial covenants as agreed with Rabobank, mainly related to tangible net worth (TNW) requirements, as the company did not comply with this definition at the time. The waiver statement relates to an amendment to the original agreement and a new financial covenant being at least €60.0 million tangible net worth, following the intent of BASF to exit the joint venture Synvina. The company did not make use of the credit facility and will keep the facility as an additional buffer. Refer to note 3.2 for the group's objective in terms of capital management.

Also for 2019 the company anticipates a net loss including negative operating cash flows. However, the company anticipates positive cash flows from the services and systems business and with the funding obtained in March 2017 from the IPO, sufficient cash flows are available to meet the requirements for working capital, capital expenditures and R&D for at least twelve months after the signing date of these financial statements. The group therefore continues to adopt the going concern basis in preparing its consolidated financial statements. Depending on the progress made in the development of the various technologies of Avantium and strategic choices by management, management expects to require additional funding by 2021.

2.1.2 Changes in accounting policy and disclosures

(a) New standards, amendments and interpretations adopted by the group

The following standards have been adopted by the group for the first time for the financial year beginning on or after January 1, 2018. The impact on the group is as follows:

- IFRS 9, 'Financial instruments', addresses the classification, measurement and recognition of financial assets and financial liabilities. The standard is effective for accounting periods beginning on or after January 1, 2018. The complete version of IFRS 9 was issued in July 2014. It replaces the guidance in IAS 39 that relates to the classification and measurement of financial instruments. IFRS 9 retains but simplifies the mixed measurement model and establishes three primary measurement categories for financial assets: amortized cost, fair value through OCI, and fair value through P&L. The basis of classification depends on the entity's business model and the contractual cash flow characteristics of the financial asset. Investments in equity instruments are required to be measured at fair value through profit or loss with the irrevocable option at inception to present changes in fair value in OCI not recycling. There is now a new expected credit losses model that replaces the incurred loss impairment model used in IAS 39, however it is determined to be of immaterial impact to the consolidated financial statements of the group. For financial liabilities, there were no changes to classification and measurement except for the recognition of changes in own credit risk in other comprehensive income for liabilities designated at fair value through profit or loss. IFRS 9 relaxes the requirements for hedge effectiveness by replacing the bright line hedge effectiveness tests. It requires an economic relationship between the hedged item and hedging instrument and for the 'hedged ratio' to be the same as the one management actually use for risk management purposes. Contemporaneous documentation is still required. Based on the group's current financial position and the IFRS 9 impact assessment performed, the application of IFRS 9 in 2018 has no impact on the company's financial assets and financial liabilities and is implemented using the full retrospective approach.
- - IFRS 15, 'Revenue from contracts with customers', deals with revenue recognition and establishes principles for reporting useful information to users of financial statements about the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity's contracts with customers. The standard is effective for annual periods beginning on or after 1 January 2018 and has been adopted by the group as of 1 January 2018. The standard replaces IAS 18 'Revenue', IAS 11 'Construction contracts' and related interpretations.

The new standard is based on the principle that revenue is recognized when control of a good or service transfers to a customer, hence the notion of control replaces the prior notion of risks and rewards. Revenue is recognized when a customer obtains control of a good or service and thus has the ability to direct the use and obtain the benefits from the good or service. A new five-step process must be applied to each contract before revenue can be recognized. The five-step process consists of the following key criteria:

i) identify contracts with customers
ii) identify the separate performance obligation
iii) determine the transaction price of the contract
iv) allocate the transaction price to each of the separate performance obligations
v) recognize the revenue as each performance obligation is satisfied.

- Based on the new five-step process, the company has assessed that its current revenue recognition practice is in line with the new accounting policy with regards to the following areas:
  (i) For each customer there is a signed contract or agreement in place which has been approved by both parties. Each approved contract clearly states each party's rights regarding the goods and services to be provided, the payment terms that has been agreed upon, commercial substance can be identified and each contract has an enforceable right to payment for the performance completed to date.
  (ii) Each contract clearly states the performance obligations to be fulfilled by the company. For systems contracts, the company's performance obligation is to create a tailor-made Flowrence™ machine whereas for services there are contractual identified technical milestones. The company also provides multiple performance obligations under one arrangement, for example system contracts that includes installation services.

(iii) Each contract clearly states the transaction price for which the company expects to be entitled to in exchange for transferring the systems and services to be performed.
(iv) When allocating the transaction price to each performance obligation agreed in the contract, the company determines the stand-alone selling price of the distinct goods and services to be rendered.

- Based on the new five-step process, the company has assessed that its current revenue recognition practice will change with regards to the following areas:
  (i) Contracts for integrated solutions, where one or multiple performance obligations could exist,
  (ii) Renewals and contract modifications could have an impact on (separate) performance obligations.
  (iii) Revenue generated from systems was recognized under the previous IAS 11 based on the percentage of completion method (POC) which recognizes revenue as the contract progresses. Under IFRS 15, the company recognizes revenue over time, since it satisfies the criteria prescribed, whereas the company creates a tailor-made Flowrence™ system that cannot be used for alternative purposes by the company and the company has an enforceable right to payment for the performance completed to date. Revenue generated from service contracts was previously recognized based on the percentage of completion method, which recognized revenue based on the services performed to date as a percentage of the total services to be performed. Under IFRS 15, the company recognizes revenue over time based on the actual services provided to the end of the reporting period as a proportion of the total services to be performed.
  (iv) The company is required to present contract assets and contract liabilities in the statement of financial position. Contract assets arises if the company delivers system performance or services before the consideration is paid or payment is due. Contract assets was previously classified as unbilled revenue. Contract liabilities arises if the company receives payment from customers before the company delivers system performance or services on a specific contract. Contract liabilities was previously classified as deferred revenue.
- Based on the qualitative and quantitative IFRS 15 impact assessment performed, we conclude that these changes in accounting policies have no material effect on the consolidated financial statements. The group has therefore applied IFRS 15 using the full retrospective method of transition, and only used the practical expedient in IFRS 15:C5(d) and does not disclose the amount of the transaction price allocated to the remaining performance obligations and an explanation of when the group expect to recognize that amount as revenue.

Other standards, amendments and interpretations which are effective for the financial year beginning on 1 January 2018 are not material to the group.

(b) New standards, amendments and interpretations not yet adopted

A number of new standards and amendments to standards and interpretations are effective for annual periods beginning after 1 January 2019, and have not been applied in preparing the consolidated financial statements. None of these is expected to have a significant effect on the consolidated financial statements of the group, except the following set out below:

- IFRS 16, 'Lease accounting', will become effective for accounting periods beginning on or after 1 January 2019, and which the group will implement on 1 January 2019. To increase comparability, the new standard will eliminate nearly all off balance sheet accounting for lessees and redefine many commonly used financial metrics. This will have an impact on the group, as the current off balance sheet lease commitments as reported in note 26 will be presented on the balance sheet starting 2019, impacting our balance sheet totals. As both sides of the balance sheet will show a similar increase with a right-of-use asset and a lease liability, no significant impact is expected on current ratios or metrics as used in the group, except for the adjusted EBITDA figure as reported in the segment reporting in note 17, which will be favorably impacted as rent expenses will be replaced by depreciation expenses and interest expenses. The transition provisions of IFRS 16 allow the company to apply the standard using a full retrospective approach or a modified retrospective approach. The company has opted for a modified retrospective approach as the transition approach, which will be used consistently for all lease obligations. The new standard will mainly affect the accounting of the company's operating leases. As of 31 December 2018, the company's future contractual minimum lease payments under non-cancellable operating leases to third parties amounted to €10.2 million on an undiscounted basis (see note 26). As the company has a limited number of operational lease agreements in place in which straight-forward terms and conditions are applied, no significant judgment was necessary to determine the lease obligations under IFRS 16.

- After conducting an assessment of all the leasing arrangements over the past year taking into account the new lease accounting rules under IFRS 16, the company expects to recognize right-of-use assets relating to the operating lease commitments of approximately €9.2 million on 1 January 2019 and a corresponding lease liability of €9.2 million in respect of all these leases. The impact on in the statement of comprehensive income is to decrease Office and housing expenses by €1.9 million, to increase Depreciation, amortization and impairment charge by €1.7 million and to increase interest expense by €0.2 million.
- Under IAS 17, all lease payments on operating leases are presented as part of cash flows from operating activities. The impact of the changes under IFRS 16 would be to increase the cash generated by operating activities by €1.7 million and to increase net cash used in financing activities by the same amount.
- Adjusted EBITDA used to measure segment results is expected to increase by approximately €1.9 million, as the operating lease payments were included in EBITDA, but the amortisation of the right-of-use assets and interest on the lease liability are excluded from this measure.

There are no other IFRS or IFRIC interpretations that are not yet effective that would be expected to have a material impact on the group.

2.2 Consolidation

(a) 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:

- Avantium Technologies B.V., Amsterdam (100%)
- Avantium Support B.V., Amsterdam (100%)
- Renewable Technologies B.V. (formerly known as Avantium Cleantech 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%)

As of 30 November 2016, Synvina C.V. and Synvina B.V., in which Avantium holds a 49% share, and where BASF SE holds the remaining 51%, were incorporated in the Netherlands. On 18 December 2018, Avantium announced it had received notice from BASF SE intending to exit from the Synvina joint venture as of 15 January 2019. Reference is made to note 7 for further disclosure on the equity method of accounting for the joint venture's financial assets and liabilities.

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

(b) Changes in ownership interests in subsidiaries without change of control

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. 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 interests are also recorded in equity.


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(c) Disposal of subsidiaries

When the group ceases to have control, any retained interest in the entity is re-measured to its fair value at the date when control is lost with the change in carrying amount recognized 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 recognized 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 recognized in other comprehensive income are reclassified to profit or loss.

(d) 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 recognized 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 recognized 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 recognized 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 recognized in other comprehensive income are reclassified to profit or loss where appropriate.

(e) Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision maker. 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, which has been identified as being the chief operating decision maker, consists of the chief executive officer, the chief financial officer, the chief technology officer, the group legal counsel, the managing director of Renewable Chemistries and the managing director of Catalysis.

2.3 Foreign currency translation

(a) 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.

(b) 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 re-measured. 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 recognized 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'.

(c) 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 recognized 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 laboratory equipment, hardware and leasehold improvements. 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 recognized 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 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

(a) Research and development

Research expenditures are recognized 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 recognized 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 recognized as an expense as incurred. Development costs previously recognized as an expense are not recognized as an asset in a subsequent period. Capitalized development costs are recorded as intangible assets and amortized 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.

Amortization of development costs is included in depreciation, amortization and impairment charge in the statement of comprehensive income. All development costs arose from internal development.

(b) Computer software

Acquired computer software licenses are capitalized on the basis of the costs incurred to acquire and use the specific software. These costs are amortized straight-line over their estimated useful lives of three years.

Costs associated with developing or maintaining computer software programs are recognized 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 recognized as intangible assets.

(c) 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 amortization 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 recognized 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.

Amortization 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

2.7 Impairment of non-financial assets

Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized 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 the following measurement categories:

(i) those to be measured at amortized 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 recognized on the trade-date, the date on which the group commits to purchase or sell the asset. Financial assets are derecognized 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 derecognized 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 amortized 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 recognized 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 recognized amounts and there is an intention to settle on a net basis or realize 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

(a) Assets carried at amortized cost

Impairment provisions for trade receivables are recognized 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 recognized (such as an improvement in the debtor's credit rating), the reversal of the previously recognized impairment loss is recognized in the consolidated statement of comprehensive income.

2.12 Inventories

Inventories are stated at the lower of cost and net realizable 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 realizable 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 recognized initially at fair value and subsequently measured at amortized 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.

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 recognized in the statement of comprehensive income on the purchase, sale, issuance or cancellation of the company's own equity instruments.

2.16 Trade 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 recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

Fair value measurement of financial assets and financial liabilities

The fair value of financial assets and financial liabilities is included at the amount at which the instrument could be exchanged in a current transaction between knowledgeable willing parties, other than in forced or liquidation sale. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The fair value hierarchy defines a three-level valuation hierarchy for disclosure of fair value measurements as follows:

- Level 1: Observable inputs that reflect quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2: Observable inputs that reflect quoted prices for identical assets or liabilities in markets that are not active; quoted prices for similar assets or liabilities in active markets; inputs other than quoted prices that are observable for the assets or liabilities; or inputs that are derived principally from or corroborated by observable market data by correlation or other means.

- Level 3: Unobservable inputs reflecting the company's own assumptions incorporated in valuation techniques used to determine fair value. These assumptions are required to be consistent with market participant assumptions that are reasonably available.

2.18 Current and deferred income tax

The tax expense for the year comprises current and deferred tax. Tax is recognized in the statement of comprehensive income, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized 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 recognized, 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 realized or the deferred income tax liability is settled.

Deferred income tax assets are recognized only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilized.

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.

2.19 Employee benefits

(a) 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 recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

(b) 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 12. These plans are classified as an equity-settled share option plan which was initially adopted in 2006 and replaced by the new share-based compensation plans at the IPO in 2017.

Share options granted to employees are measured at the fair value of the equity instruments granted under theindirect 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 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 recognized as an expense. For share-based payments that do not vest until the employees have completed a specified period of service, the group recognizes 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 recognizes the impact of the revision of original estimates, if any, in the statement of comprehensive income and for the equity settled plan 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.

(c) Profit-sharing and bonus plans
The group recognizes 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.

2.20 Provisions
Provisions are recognized 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 recognized 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.

The group provided for a one-off event which was triggered by the exit notice of BASF. For this reason an onerous contract expense was provided for in 2018. The provision for an onerous contract is based on the unavoidable costs expected to be incurred by the company due to the exit notice received from BASF.

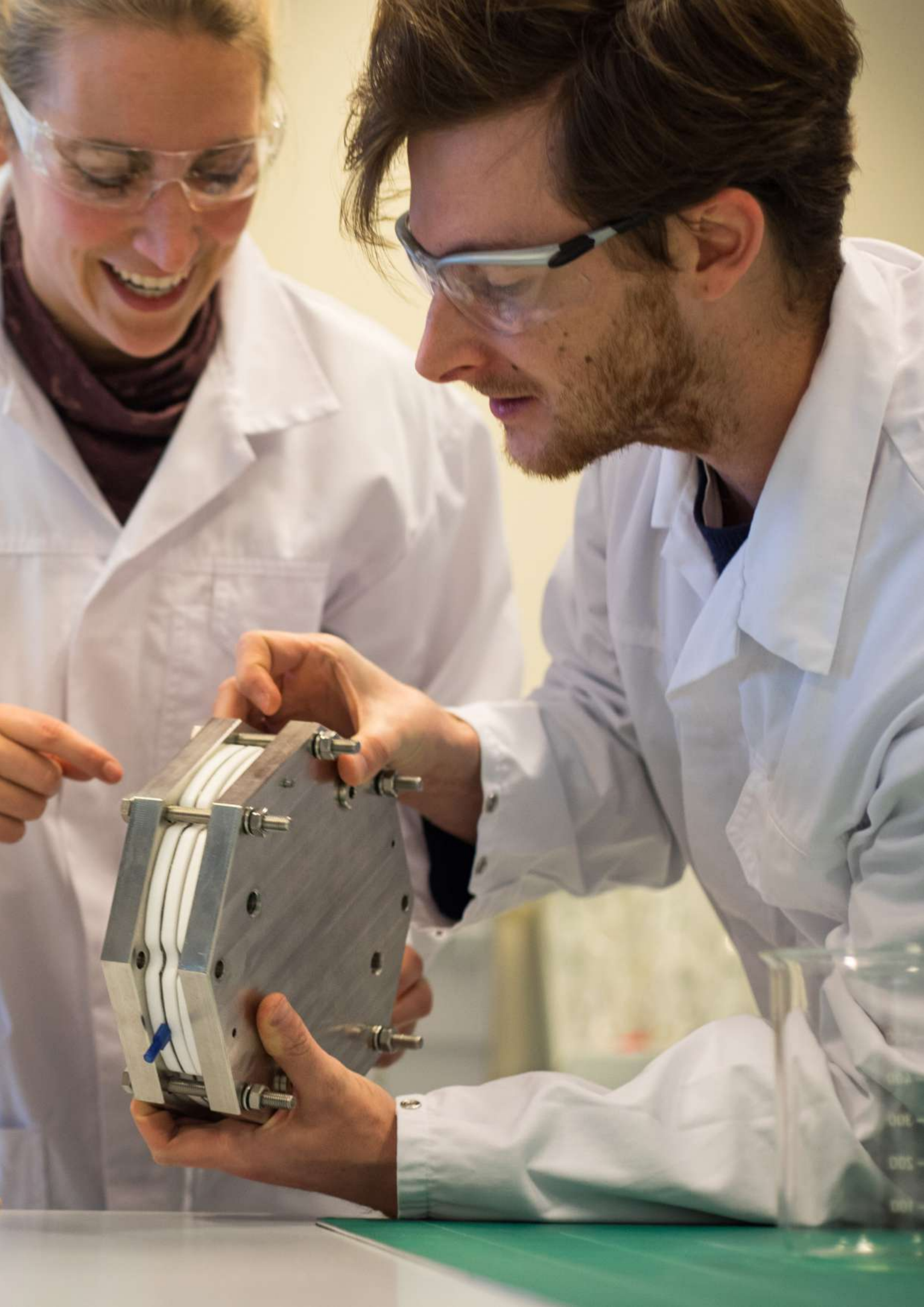
Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation.

2.21 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 recognizes revenue when the amount of revenue can be reliably measured, it is probable that future economic benefits will flow to the entity and 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.

a) Sale of goods
Revenue and expenses related to Flowrence™ systems are accounted over time, which recognizes revenue as performance of the contract progresses. The company satisfies the criteria prescribed under IFRS 15 for recognizing revenue over time, since in each sales contract agreed with a customer, relates to the creation of a Flowrence™ system which is 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 an asset or a liability. A contract represents an asset where costs incurred plus recognized profits (less recognized losses) exceed progress billings; a contract represents a 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 are capable of being reliably measured.

Where the income of a revenue contract cannot be estimated reliably, contract revenue that is likely to be recovered is recognized to the extent of contract costs incurred. Contract costs are recognized as expenses in the period in which they are incurred.

b) 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 recognized 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 recognized 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 recognized 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 installments. 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.

c) Sales of services
Revenue from the sales of services is recognized over time recognizing 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.

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.

2.22 Government grants
Grants from the government are recognized 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.

Government grants relating to costs are deferred and recognized 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.

2.23 Interest income

Interest income is recognized using the effective interest method. When a loan and 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 recognized using the original effective interest rate.

2.24 Leases

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to the statement of comprehensive income on a straight-line basis over the period of the lease. The group has no financial lease obligations. Refer to note 26 for current lease obligations and an impact assessment with regard to the introduction of IFRS 16 as of 2019.

2.25 Earnings per share

a) 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, adjusted for bonus elements in ordinary shares issued during the year and excluding treasury shares (note 13).

b) 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.

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 program 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

Loans and receivables:

		As at 31 December	
	Notes	**2018**	**2017**
Trade receivables	9	4,752	2,310
Other receivables	9	4,555	7,168
Cash and cash equivalents	10	83,302	100,237

Financial liabilities:

in Euro x 1,000		As at 31 December	
	Notes	**2018**	**2017**
Trade payables	14	2,605	3,757
Other liabilities	14	6,920	4,943

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 14 for an overview of trade and other payables.

(a) 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, recognized 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 numbers 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 recognized assets and liabilities are denominated in a currency that is not the entity's functional currency.

The group had outstanding trade receivables in US dollars of $702 (2017: $3,900) and outstanding trade payables in US dollars of $131,000 (2017: $74,000). The group had no trade receivables in another foreign currency. The group had no outstanding trade payables in other foreign currencies.

If at 31 December 2018, 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 €13,000 lower (2017: €7,000 lower). The US dollar cash position as at 31 December 2018 is $38,115. The group had no cash position in other foreign currencies.

(b) 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 2018, the largest single client exposure consisted of 31% 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 2018, nil Euro (2017: nil) of trade or other receivables was written off; €3,671,000 was past due, of which 48% had been paid before the date of this report.

in Euro x 1,000	**As at 31 December**	
	2018	**2017**
Up to 3 months past due	2,802	665
3 – 6 months past due	799	588
	3,601	**1,252**

Impairment provisions for trade receivables are recognized 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.

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 2018 at Moody's and S&P subsequently, are as follows. Group funds are held at Rabobank with a long-term credit rating of Aa3 and A+, Deutsche bank with a long-term credit rating between A3 and BBB+, 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 Baa1 and A-.

(c) 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.

As at the end of 2018, the group has a committed banking facility with Rabobank of €4.0 million, which has not been utilized. The company did not comply with the financial covenant at year end, relating to the proposed BASF exit from the joint venture triggering an impairment, however a waiver statement was received for the year-end position, and an amendment to the original agreement and new covenant was agreed in 2019. All assets, excluding the intangible assets and excluding its shares in Synvina C.V. are pledged to Rabobank. Furthermore, the group has a €2.0 million bank guarantee facility with Rabobank. Management monitors monthly rolling forecasts of the group's cash and cash equivalents (note 10) on the basis of actual results and expected cash flow.

The table below analyzes 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 undiscounted cash flows for continuing operations. The specific time buckets are not mandated by the standard but are based on a choice of management.

On 31 December 2018

in Euro x 1,000	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Total
Borrowings	-	-	-	-
Trade payables	2,605	-	-	2,605
Other current liabilities	6,920	-	-	6,920
	9,525	**0**	**0**	**9,525**

On 31 December 2017

in Euro x 1,000	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Total
Borrowings	-	-	-	-
Trade payables	3,757	-	-	3,757
Other current liabilities	6,558	-	-	6,558
	10,314	**0**	**0**	**10,314**

The carrying amounts of these financial liabilities are assumed to approximate their fair values due to their short term nature.

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 at 31 December 2018 and 2017 were as follows:

	As at 31 December	
in Euro x 1,000	**2018**	**2017**
Equity attributable to owners of the parent	91,157	158,360
Intangible assets	(722)	(833)
Adjusted equity total	90,435	157,527
Adjusted balance sheet total	113,204	167,978
Adjusted solvency ratio	**80%**	**94%**

4. Critical accounting estimates and judgments

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 group makes estimates and assumptions concerning the future. 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.

(a) Income taxes

The group, which has a history of recent tax losses, recognizes 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 utilized by the fiscal unity. Management's judgment is that there is not a high degree of certainty that sufficient profits will be earned to utilize the losses. Consequently, based on management's judgment, sufficient convincing other evidence is not available and a deferred tax asset is therefore not recognized.

(b) 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 12 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 for the options granted under the company's share option plan.

(c) Research and development expenditures

The project stage forms the basis in the decision of whether costs made for the group's product development programs should be capitalized or not. Management judgment is required in determining when the group should start capitalizing 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 commercialization opportunities.

(d) Revenue recognition

The group recognizes revenue over time, recognizing revenue 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 controls 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 year as a percentage of total estimated costs for each contract. Value is delivered to customers up to each of these points. For services, recognizing revenue over time, it requires the group 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 recognized revenues, the group estimates the required total costs (Flowrence™) or man-hours (services and Renewable Chemistries) to complete each project.

(e) Going concern

For the critical accounting judgment with regard to the going concern assumption, see note 2.1.1.

(f) Government grants

The group uses the percentage-of-completion (POC) method in accounting for its granted governmental subsidies. For subsidy programs, 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 regards to the critical accounting estimate in relation to government grants, see note 2.22.

(g) JV accounting

Following the joint venture agreement with BASF, a situation of joint control is present, where all decisions within the shareholder meeting require unanimous consent. This situation lasts for the full book year of this annual report, where on 18 December, 2018 Avantium had received notice from BASF intending to exit from the Synvina joint venture as of 15 January 2019, with a subsequent transfer of Synvina shares as per 25 January 2019. The joint arrangement with BASF can be classified as a joint venture in accordance with IFRS 11, and will therefore be accounted for as an investment using the equity method. Please also refer to note 7 for the JV accounting, and note 29 for the description of events after balance sheet.

At the level of Synvina C.V. an impairment test is performed, focused on the intangible asset relating to Intellectual Property. Management has incorporated the exit of BASF from the joint venture into the assessment. The exit notice trigger is seen as an onerous contract following IAS 37, and had created an expense related to the onerous contract in 2018. Management's key assumptions are disclosed in note 7. The assumptions underlying the impairment assessment are judgmental, based on external market studies and on the best estimate of management as of 31 December 2018. Any changes to those assumptions may impact the outcome of the assessment and potentially result in an impairment.

Avantium management performs their assessment for the joint venture equity value as a whole, taking into account the underlying developments in Synvina.

(h) Onerous contract provision

The exit notice triggered an onerous contract following IAS 37, for this reason the group provided for an onerous contract expense in 2018. The provision for an onerous contract is based on the unavoidable costs expected to be incurred by the company due to the exit notice received from BASF. Management's key assumptions are disclosed in note 7.

5. Property, plant and equipment

in Euro x 1,000	Leasehold improvements	Laboratory equipment	Hardware	Office furniture and equipment	Construction in progress	Total
At 1 January 2017						
Cost	8,952	24,622	2,396	1,700	17	37,687
Accumulated depreciation	(6,608)	(22,561)	(2,149)	(1,653)	-	(32,971)
Net book amount	**2,344**	**2,061**	**247**	**47**	**17**	**4,716**
Year ended 31 December 2017						
Opening net book amount	2,344	2,061	247	47	17	4,716
Additions	131	534	(7)	64	4,105	4,828
Disposals	-	(1)	-	(0)	-	(1)
Transfers	-	-	-	-	-	-
Depreciation charge	(295)	(359)	(58)	(20)	-	(732)
Closing net book amount	**2,180**	**2,234**	**183**	**91**	**4,123**	**8,811**
At 31 December 2017						
Cost	8,907	24,237	2,385	1,763	4,123	41,414
Accumulated depreciation	(6,727)	(22,004)	(2,202)	(1,672)	-	(32,604)
Net book amount	**2,180**	**2,234**	**183**	**91**	**4,123**	**8,811**
Year ended 31 December 2018						
Opening net book amount	2,180	2,234	183	91	4,123	8,811
Additions	3,961	368	127	42	3,461	7,958
Disposals	-	(16)	(1)	-	-	(17)
Transfers	(15)	210	(1)	-	(210)	(16)
Depreciation charge	(577)	(806)	(138)	(29)	-	(1,550)
Closing net book amount	**5,549**	**1,990**	**170**	**103**	**7,374**	**15,186**
At 31 December 2018						
Cost	12,853	24,798	2,511	1,805	7,374	49,341
Accumulated depreciation	(7,304)	(22,810)	(2,340)	(1,701)	-	(34,155)
Net book amount	**5,549**	**1,988**	**170**	**104**	**7,374**	**15,186**

The additions are predominantly related to the engineering and construction of laboratory and pilot plant equipment for the Renewable Chemistries segment, and investment in the air treatment and ventilation systems of the Penta 1 building in Amsterdam.

6. Intangible assets

(In Euro x 1,000)	Development costs	Software	Intangible assets under development	Intellectual Property	Other	Total
At 1 January 2017						
Cost	2,159	6,789	-	433	968	10,349
Accumulated amortization and impairment	(2,159)	(6,417)	-	-	(967)	(9,543)
Net book amount	**-**	**374**	**0**	**433**	**1**	**807**
Year ended 31 December 2017						
Opening net book amount	-	374	0	433	1	807
Additions	-	165	-	-	23	188
Transfers	-	-	-	-	-	-
Amortization charge	-	(162)	-	-	-	(162)
Closing net book amount	**-**	**376**	**0**	**433**	**24**	**833**
At 31 December 2017						
Cost	2,159	6,954	-	433	992	10,537
Accumulated amortization and impairment	(2,159)	(6,579)	-	-	(967)	(9,705)
Net book amount	**-**	**376**	**0**	**433**	**24**	**833**
Year ended 31 December 2018						
Opening net book amount	-	376	0	433	24	833
Additions	-	69	-	-	51	120
Transfers	-	18	-	-	-	18
Amortization charge	-	(249)	-	-	-	(249)
Closing net book amount	**-**	**214**	**0**	**433**	**75**	**722**
At 31 December 2018						
Cost	2,159	7,024	-	433	1,042	10,676
Accumulated amortization and impairment	(2,159)	(6,828)	-	-	(967)	(9,954)
Net book amount	**-**	**214**	**0**	**433**	**75**	**722**

Development costs
The development costs consist of the development and prototype expenses of the Flowrence™ system and are all fully amortized.

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 amortization the following years, when the technology on which the intellectual property is filed, is ready to deploy commercially. As at 31 December 2018, the recoverable amount of the intellectual property exceeds the carrying amount.

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.

Impairment tests
Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized 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 that have suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

Total of research expenditures recognized as an expense in the consolidated statement of comprehensive income amount to €2.1 million in 2018, and mainly constitute of early stage research trials.

7. Investments in joint ventures and associates

On 30 November 2016, Avantium established a joint venture with BASF, Synvina C.V., in which it had a non-controlling interest of 49%, to commercialize the YXY technology, to which Avantium contributed the YXY technology, the pilot plant in Geleen, the related patents and know-how and employees. On 18 December 2018, BASF notified Avantium of its exit from the Synvina joint venture. The economic transfer took place on 15 January 2019, whereas the legal transfer of control took place on 25 January 2019. Upon the exit of BASF, being an after balance-sheet event, Avantium acquired BASF's equity interest in the joint venture and Synvina will continue its operations as a fully Avantium-owned company. In addition, the YXY technology, know-how and people reverted to Avantium. This will allow Avantium to pursue alternative routes for commercializing the technology. See also note 29, events after balance sheet date.

At 31 December 2018 the joint venture had the legal form of a limited partnership under Dutch law (commanditaire vennootschap), with (a subsidiary of) the company and BASF as the two limited partners, holding a 49% equity share and a 51% equity share respectively. The managing partner of the joint venture is a Dutch limited-liability company (besloten vennootschap), Synvina B.V. As at 31 December 2018, Avantium and BASF hold 49% and 51% respectively of the shares in the capital of the managing partner. All assets, liabilities and employees are held by Synvina C.V., for which the financial information is disclosed in this section. At 31 December 2018, for disclosure purposes we only disclose Synvina C.V., while Synvina B.V. is immaterial to the group.

On the establishment of Synvina C.V. in 2016 the transaction result was recorded, which led to the €54.2 million investment on the Avantium N.V. balance sheet at 31 December 2016. As at 31 December 2018, the arrangement with BASF is still deemed to be a joint arrangement, where both parties have joint control (in accordance with IFRS 11.4 and IFRS 11.7), as decisions about relevant activities require the unanimous consent of both parties, following the joint venture agreement. The joint arrangement is classified as a joint venture and is accounted for using the equity method. There is no quoted market price available.

Impairment tests

Management performed its impairment assessment, which included the planned exit of BASF. The impairment test has been performed at the level of Synvina C.V. Management has determined the recoverable amount by preparing a value in use and fair value less cost of disposal model and compared this to the carrying amount of the assets. The impairment was based on the value in use model, being the higher of the two. It concluded, in line with Synvina's own impairment assessment that Synvina's intangible assets were impaired to zero.

The main input for this impairment model is Synvina's business plan. Although the market, product, and technology assumptions of the business case have not changed significantly, the probability of the original business case has decreased substantially. This is predominantly driven by the exit of BASF. As such, management has determined that with this reduced probability to realize the plan, the intangible asset should be impaired to zero. As part of the impairment assessment, it was concluded that the company sees no impairment triggers for the pilot plant and laboratory buildings and equipment and computer and office infrastructure.

Changes in the carrying amount of the group's interest in Synvina are as follows:

(In Euro x 1,000)	
At November 30, 2016	**55,000**
Share in loss of joint venture	(771)
Dividend	-
At January 1, 2017	**54,229**
Share in loss of joint venture	(6,032)
Dividend	-
At December 31, 2017	**48,197**
Share in loss of joint venture	(7,011)
Impairment and write-off charges	(36,937)
Dividend	-
At December 31, 2018	**4,249**

The share in loss of the joint venture of €7,011,000 is the result of the 49% stake in the Synvina joint venture. Apart from the share in the loss of the joint venture, a number of impairments and write-offs amounting to €36,937,000 have an impact on the statement of comprehensive income. This includes the impairment charges of the intangible asset of Synvina in 2018.

In accordance with the original joint venture agreement, upon exit of BASF before Financial Investment Decision 2 (FID2), it was mandatory for Avantium to take back all employees, IP and assets of Synvina. Based on the joint venture agreement the company was obliged to repurchase BASF shares in Synvina. All cash remaining in the joint venture after settlement of all outstanding accounts payable shall be returned to BASF. Considering this, the exit notice of BASF, resulted in contractual unavoidable cost of €13,088,000 which has been recognized as an onerous contract provision in the Avantium N.V. in the statement of comprehensive income for 2018, being the contractual unavoidable cost incurred by Avantium in January 2019 minus the estimated fair value of the assets and liabilities obtained by Avantium in 2019. Set out below is the summarized financial information for Synvina on a 100% basis.

	Year ended 31 December	
Summarized balance sheet	**2018**	**2017**
(In Euro x 1,000)		
Current		
Cash and cash equivalents	12,566	13,201
Other current assets	1,245	25,170
Total current assets	**13,811**	**38,371**
Financial liabilities (excl. Trade payables)	-	-
Other current liabilities	13,498	6,137
Total current liabilities	**13,498**	**6,137**
Non-current		
Non-current assets	**8,377**	**66,145**
Financial liabilities	-	-
Other liabilities	-	-
Total non-current liabilities	**-**	**-**
Net assets	**8,690**	**98,379**

Summarized statement of comprehensive income	**2018**	**2017**
Net sales	94	-
Depreciation and amortization	(1,582)	(527)
Interest expense	(11)	30
Other expenses	(12,811)	(11,814)
Income tax expense	-	-
Impairment charges	(75,381)	-
Net loss	**(89,690)**	**(12,311)**

8. Inventories

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
Raw materials	945	751
Work in progress	215	505
	1,160	**1,255**

The costs of inventories recognized as an expense and included in raw materials and contract costs, amounted to €244,000 (2017: €132,000).

9. Trade and other receivables

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
Trade receivables	4,752	2,310
Social security and other taxes	187	233
Prepayments	166	68
Unbilled revenue	2,740	5,163
Other receivables	1,463	1,704
Current portion	**9,307**	**9,478**

In 2018, €0 (2017: €0) of trade receivables was written off and €3,671,000 (30 days or more after invoice date) was past due, of which 48% was paid before the date of this report and of the remaining 52%, 25% is for one credit worthy customer. The company does not foresee a risk of impairment considering the fact that a large portion of this balance has been collected after year-end and based on individual client payment history no provisions are deemed necessary (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 recognized 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.

10. Cash and cash equivalents

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
Cash at bank and on hand	83,302	99,861
Cash equivalents	-	376
Cash and cash equivalents	**83,302**	**100,237**

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.

Cash and cash equivalents include the following for the purpose of the statement of cash flows:

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
Cash and cash equivalents	83,302	100,237
Cash and cash equivalents	**83,302**	**100,237**

11. Share capital and other reserves

Avantium N.V. listed on Euronext Amsterdam and Euronext Brussels on 15 March 2017. The listing follows the company's successful IPO, with a total offering and total gross cash proceeds of €109 million (including over-allotment exercise).

11.1 Ordinary shares

The authorized share capital amounts to €4,500,000 consisting of 45,000,000 ordinary shares, with a nominal value of €0.10 each. The issued share capital at 31 December 2018 comprises 25,831,817 ordinary shares (2017: 25,764,466). In 2018, 70,111 options were exercised by employees and nil employee shares were re-purchased. This option exercise resulted in an additional 67,351 ordinary shares issued during 2018. All 25,831,817 shares issued are fully paid and 49,850 shares are held by the Stichting Administratiekantoor Avantium (the Foundation).

11.2 Other reserves

The costs of equity settled share-based payments to employees are recognized 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 recognized in the statement of comprehensive income is shown as a total of the equity category 'other reserves' in the consolidated statement of changes in equity.

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 2018 is €624,000.

12. Share-based payment

The group operates a share-based compensation plan for its employees, which consist of an Employee Share Option Plan (ESOP) and a Long-term Incentive Plan (LTIP). These plans are classified as an equity-settled share-based payment plans which was initially adopted in 2006 and replaced by the new share-based compensation plans at the IPO in 2017. Note that the reverse share split at the IPO, where the nominal value of the shares increased from €0.01 to €0.10, has a significant effect on the number of options outstanding in relation to the comparative information.

Long-term Investment Plan (LTIP)

The members of the Management Team are obligated to invest a percentage of their (net) in (depositary 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.

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 3 year vesting period. The vested options have an exercise period of five years after vesting, after which the option expires.

In 2018, 70,998 awards were granted under the new Long term Investment Plan (LTIP). These awards consists of 35,449 Investment shares and 35,449 Matching shares. Further details on the grants in 2018 can be found in the table below.

Grant date	**Plan**	**Number of awards granted - New LTIP plan**	**Share price in Euro at grant date**
16 March 2018	LTIP	70,998	5.63

In 2018, 340,000 share options were granted. In 2018, 70,111 options were exercised with a weighted-average share price of €4.38 at the date of exercise by the employees. Further details on the grants in 2018 can be found in the table below.

Grant date	**Plan**	**Number of options granted - New ESOP plan**	**Exercise price in Euro per option**
28 March 2018	ESOP	340,000	5.34

The movements in outstanding LTIP awards with the Management Board and senior management can be summarized as follows:

	2018		**2017**	
	Number	Weighted Average share price at grant date (in Euro)	Number	Weighted Average share price at grant date (in Euro)
Number of Shares outstanding 1 January	**5,418**	**10.50**	**0**	**0.00**
Number of shares forfeited	-	-	-	-
Number of shares granted (including matching shares)	70,998	5.63	-	-
Number of options outstanding 31 December	**76,416**	**5.98**	**5,418**	**10.50**

The movements in outstanding options with the Management Board, senior management and certain other employees can be summarized as follows:

	2018		2017	
	Number	**Weighted Average exercise price**	**Number**	**Weighted Average exercise price**
		(in Euro)		(in Euro)
Number of options outstanding 1 January	**1,505,045**	**2.15**	**9,673,852**	**0.13**
Number of options granted - prior to IPO	-	-	2,776,594	0.71
Number of options exercised	(70,111)	0.10	-	-
Number of options forfeited	(16,028)	8.28	(150,000)	0.01
Number of options expired	-	-	-	-
Reverse share split at IPO	-	-	(11,070,401)	0.26
Number of options granted	340,000	5.34	275,000	5.34
Number of options outstanding 31 December	**1,758,906**	**2.79**	**1,505,045**	**2.15**

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 1,133,289.

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**	**Investment shares 2018**
1 July 2017	10.50	5,418
16 March 2018	5.36	70,998
At 31 Dec 2018	**5.72**	**76,416**

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 2018 was €5.63 per award (2017: €10.50)

Share options outstanding at the end of the year have the following expiry date and exercise price:

Grant date	**Expiry date**	**Exercise price in Euro per option**	**Options 2018**
15 March 2017	15 March 2023	2,62	1,156,406
17 May 2017	17 May 2025	10,58	262,500
28 March 2018	28 March 2026	5,34	340,000
At 31 Dec 2018	**At 31 Dec 2018**	**4,34**	**1,758,906**

All outstanding options are exercisable, but still restricted by the vesting period. 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 2018 was €1.85 per option (2017: €8.83).

The significant inputs into this model were as follows:

	Mar-18	May-17	Mar-17
Input price	5,34	10,58	1,10
Volatility	32%	31%	34%
Risk free interest rate	0,34%	0,19%	-0,28%
Dividend yield	-	-	-
Expected life	7.6 years	7.6 years	5.7 years
Early exercise rate	5%	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, totaling €90,166, to reflect the effect of exercised and lapsed options in 2018.

13. Earnings per share

a) Earnings per share

Earnings per share for the years 2018 and 2017 are derived below:

	Year ended 31 December	
Earnings per share	**2018**	**2017**
Profit / (Loss) from continuing operations	(68,377,575)	(16,760,346,00)
Profit / (Loss) from discontinued operation	-	-
Profit / (Loss) for the period - basic	**(68,377,575)**	**(16,760,346)**
Dillutive adjustments	-	-
Profit / (Loss) for the period - diluted	**(68,377,575)**	**(16,760,346)**
Weighted average number of ordinary shares	**25,806,875**	**23,199,059**
Options per end of the year	1,835,321	1,510,462
Other relevant dilutive securities	-	-
Effect of dilutive / anti-dilutive securities	**1,835,321**	**1,510,462**
Weighted average number of shares - diluted	**25,806,875**	**23,199,059**
Earnings per share - basic	**(2.65)**	**(0.72)**
Earnings per share - diluted	**(2.65)**	**(0.72)**

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 have an antidilutive impact on the diluted earnings per share, for this reason the options for the year are not considered in the calculation of diluted earnings per share.

b) Basic earnings per share

	Year ended 31 December	
	2018 (euro)	**2017 (euro)**
From continuing operations attributable to the ordinary equity holders of the company	(2.65)	(0.72)
From discontinued operation	-	-
Total basic earnings per share attributable to the ordinary equity holders of the company	**(2.65)**	**(0.72)**

c) Diluted earnings per share

	Year ended 31 December	
	2018 (euro)	**2017 (euro)**
From continuing operations attributable to the ordinary equity holders of the company	(2.65)	(0.72)
From discontinued operation	-	-
Total diluted earnings per share attributable to the ordinary equity holders of the company	**(2.65)**	**(0.72)**

14. Trade and other payables

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
Trade payables	2,605	3,757
Social security and other taxes	794	-
Holiday pay and holiday days	788	649
Contract liabilities	1,618	1,614
Other current liabilities	3,720	4,294
	9,525	**10,314**

The other current liabilities comprise primarily of advances received in relation to government grants (€2,202,000), other staff pay related accruals (€769,000) and accrued expenses (€606,000). 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 recognized 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 recognized in the current reporting period relates to carried-forward contract liabilities:

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
Revenue recognized that was included in the contract liability balance at the beginning of the period:		
- Systems contracts	238	75
- Services contracts	143	-
- YXY	-	147

15. Borrowings

The group had no borrowings in 2017 and 2018.

a) Bank overdrafts

At the end of 2018, the group has an unutilized committed banking facility with Rabobank of €4.0 million with an interest rate determined on the basis of the average one-month EURIBOR +0,70% per annum (see also note 25). As at 31 December 2018, the group had not drawn down any amounts under this facility.

16. Provisions for other liabilities and charges

(In Euro x 1,000)	Warranty provision	Onerous contract with Synvina provision	Total
At January 1, 2017	**166**	**-**	**166**
Additional provision	174	-	174
Unwinding of discount	-	-	-
Unused amounts reversed	(191)	-	(191)
Used during the year	(12)	-	(12)
At December 31, 2017	**137**	**-**	**137**
At January 1, 2018	**137**	**-**	**137**
Additional provision	62	13,088	13,150
Unwinding of discount	-	-	-
Unused amounts reversed	(13)	-	(13)
Used during the year	(30)	-	(30)
At December 31, 2018	**157**	**13,088**	**13,244**

a) Onerous contract

The provision at year-end for an onerous contract relates to the exit payment to be made to BASF for their exit from the Synvina joint venture. The provision was expensed via the statement of comprehensive income in 2018 (see note 7).

b) 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.

17. Segment information

a) Description of the segments and principal activities

In the company, the Management Team is considered the chief operating decision maker. This team consists of the chief executive officer, chief financial officer, chief technology officer, group legal counsel, the managing director of Renewable Chemistries and the managing director of Catalysis, and it has identified three separate segments:

- Catalysis: parallel fixed bed reactor equipment for catalysis R&D at industrial conditions and process R&D projects for the industry, tailored to specific applications. Catalysis offers two specific types of R&D solutions for organizations looking to advance their catalysis and chemical process development.
- Renewable Chemistries: a portfolio of development projects based on renewable chemistry and catalytic process technology. 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 programs include the Mekong and Volta programs and Dawn Technology™.
- YXY (assets transferred to Synvina in 2016): the adjusted EBITDA and revenues reported in the YXY segment in 2017 are the result of remaining commitments from the YXY business, of which the assets, employees and intellectual property were transferred to Synvina in November 2016. As a result, the YXY business no longer classified as a separate operating segment as defined in IFRS 8 – Operating Segments. Given the after balance sheet event with the reintegration of the Synvina business into Avantium in 2019, we expect this operating segment to return.

b) Adjusted EBITDA

The main KPI of the company within the profit & loss account is an adjusted EBITDA figure. Note that the adjusted EBITDA figure excludes overheads.

The adjusted EBITDA is calculated in the following manner:
Operating profit/loss + depreciation & amortization -/- capex

The adjusted EBITDA figures of the company segments are as follows.

(In Euro x 1,000)	**2018**	**2017**
Catalysis	1,982	2,810
Renewable Chemistries	(9,672)	(7,095)
YXY	-	73
Total adjusted EBITDA	**(7,690)**	**(4,211)**

Revenue is only generated from external customers and no transactions with other segments have taken place.

c) Revenues per segment

(In Euro x 1,000)	**2018**	**2017**
Catalysis	10,873	12,504
Renewable Chemistries	410	-
YXY	-	147
Total segment revenue	**11,283**	**12,652**

d) Reconciliation

(In Euro x 1,000)	**2018**	**2017**
Total adjusted EBITDA	**(7,690)**	**(4,211)**
Amortisation	(249)	(162)
Depreciation	(1,550)	(723)
Finance costs - net	(68)	(617)
CAPEX	8,058	5,015
Share based compensation	(1,384)	(2,783)
Rent	(1,006)	(717)
Share in loss of joint ventures	(43,948)	(6,032)
Expense for onerous contract	(13,088)	-
Other	(7,452)	(6,530)
Profit before income tax from continuing operations	**(68,378)**	**(16,760)**

The 'Other' costs category comprises mainly of company overhead costs. The increase in other costs in 2018 is mainly due to an increase in wages, including bonus payment, due to organizational growth and investments in the company's operating segments.

e) Other profit and loss disclosures

2018 (in Euro x 1,000)	**Subsidies recognized**	**Depreciation and amortisation**	**Income Tax expense**
Catalysis	-	(597)	-
Renewable Chemistries	3,637	(777)	-
YXY	-	-	-
Unallocated items	-	(429)	-
Total	**3,637**	**(1,804)**	**-**

2017 (in Euro x 1,000)	**Subsidies recognized**	**Depreciation and amortisation**	**Income Tax expense**
Catalysis	-	(448)	-
Renewable Chemistries	2,588	(78)	-
YXY	42	-	-
Unallocated items	-	(359)	-
Total	**2,630**	**(885)**	**-**

18. Revenues

Reported consolidated revenue from continuing operations decreased by 11% from €12.7 million in 2017 to €11.3 million in 2018, all recognized over time, except for revenues from renewable chemistry development agreements and systems revenue generated out of spare parts sold (see note 2.21). Revenues per segment are reported under note 17. All revenue reported originates in the Netherlands.

The following table depicts the disaggregation of revenue from contracts with customers:

2018 (in Euro x 1,000)	**Services revenue**	**Systems revenue**	**Renewable chemisty development agreements**	**Total**
Segment revenue	3,767	7,106	410	11,283
Revenue from external customers	**3,767**	**7,106**	**410**	**11,283**
Timing of revenue recognision				
- At a point in time	-	597	410	1,007
- Over time	3,767	6,510	-	10,276
Total	**3,767**	**7,106**	**410**	**11,283**

2017 (in Euro x 1,000)	**Services revenue**	**Systems revenue**	**YXY revenue**	**Total**
Segment revenue	3,038	9,466	147	12,652
Revenue from external customers	**3,038**	**9,466**	**147**	**12,652**
Timing of revenue recognision				
- At a point in time	-	415	147	563
- Over time	3,038	9,051	-	12,089
Total	**3,038**	**9,466**	**147**	**12,652**

19. Expenses by nature

Overall operational costs in 2018 were €12,882,000 higher compared to 2017. The increase is mainly driven by the onerous contract expenses that resulted from the BASF exit notice from the Synvina joint venture. Further to this there was €913,000 higher depreciation, amortization and impairment charges, partly compensated by €965,000 lower raw materials and contract costs.

Raw materials and contract costs in 2018 amount to €3,065,000 (2017: €4,030,000) and comprises of cost of goods sold, costs of laboratory consumables directly attributable to revenue projects, and other specific costs related to revenues. This decrease is mainly the result of lower revenues on systems sold due to delays in landing new deals, with associated lower costs of goods sold.

Employee benefit expenses in 2018 amount to €10,094,000 (2017: €10,611,000) and includes wages and salaries, social security costs, share options granted to directors and employees, pension costs, and government grants received. The group recognized total government grants of €3,637,000 (2017: €2,630,000) to contribute to the Avantium development program in Renewable Chemistries, where efforts are focused on developing a new catalytic process for making bio-based ethylene-glycol and on developing an economical viable chemical process to convert ligno-cellulosic biomass into high quality glucose as feedstock for bio-based chemicals. The underlying increase in wages and salaries in 2018 is mainly due to organizational growth following investments in the Renewable Chemistries programs. Also refer to note 20.

Depreciation, amortization and impairment charges increased to €1,799,000 (2017: €885,000). This increase is mainly attributable to investments in the Dawn Technology™ and Mekong pilot plants, and in the air treatment and ventilation systems of the Penta 1 building in Amsterdam.

Office and housing expenses in 2018 amount to €2,208,000 (2017: €1,649,000) and comprises of rent, other facility related costs, telephony and other IT related office materials and costs. The increase in costs is related to additional floor space. Laboratory expenses in 2018 amount to €1,737,000 (2017: €1,348,000) and comprises of laboratory consumables, spare parts, maintenance and repair work in the laboratory, and small laboratory projects. Patent, license, legal and advisory costs in 2018 amount to €1,897,000 (2017: €2,122,000).

Advertising and representation expenses relate to external and internal marketing, communications, and business development efforts, including travel. They exclude wages for internal business development staff, which are included under employee benefit expenses.

Based on the Synvina joint venture agreement, Avantium is required to purchase all shares in case of an exit. Following BASF's notice to exit in December 2018, this obligation is reflected and management recorded an onerous contract provision amounting to €13.1 million in the 2018 financial statements.

Other operating expenses in 2018 amount to €447,000 (2017: €988,000) external development costs, such as trials, and other general costs including company insurances.

20. Employee benefits

(In Euro x 1,000)	2018	2017
Wages and salaries	11,547	9,835
Subsidies recognized	(3,637)	(2,630)
Government grants R&D (WBSO)	(1,262)	(1,043)
Social security costs	1,513	1,254
Share options granted to directors and employees (note 12)	970	205
Expense related to accelerated vesting of options (note 12)	-	2,578
Expense related to LTIP shares granted	415	-
Pension costs – defined contribution plans	549	412
	10,094	**10,611**
Number of full time equivalent employees at December 31	**168.5**	**138.9**

The average number of FTEs during 2018 was 155 (2017: 116).

The group received government grants in 2018 and 2017. In 2018, €1,262,000 (2017: €1,043,000) government grants were recognized relating to research and development (WBSO) and €3,637,000 (2017: €2,630,000) for other specific development projects related to development programs that were deducted from the employee benefits.

21. Finance income and costs

(In Euro x 1,000)	2018	2017
Finance costs:		
- Interest on Innovation loan	-	87
- Interest on Convertible loans agreement	-	507
- Net foreign exchange (gains) loss	5	(42)
- Interest current accounts	24	48
- Other finance costs	58	68
Finance costs	**87**	**667**
Finance income:		
- Interest current accounts	(19)	(50)
Finance income	**(19)**	**(50)**
Finance costs - net	**68**	**617**

The finance costs for the innovation loan and convertible loans agreement (CLA) in 2017 are non-cash; interest was added to the principal amount of the loans and subsequently was part of the repayment of the innovation loan in April 2017, and the CLA conversion to shares at the IPO in March 2017. Also refer to note 16.

22. Income tax expense

No tax charges or tax income were recognized in 2018 since the company was in a loss-making position and no deferred tax asset was recognized for carry-forward losses. The loss in 2018 was mainly driven by significant investments in product development programs. As a result of the significant investment in our product development programs, we do not expect any taxable income in the following year(s).

The company forms an income tax group with its subsidiaries. Under the standard conditions, the members of the tax group are jointly and severally liable for any taxes payable by the group.

Tax loss carry-forward is subject to a time limitation of nine years. As from 1 January 2019 the carry forward term has been reduced from nine to six years, however for the tax losses incurred prior to 2019 the loss carry forward term remains nine years.

In 2011, we completed a fiscally approved transaction that decreased but at the same time extended and refreshed a significant part of our losses carried forward. For corporate income tax purposes IP is valued and being amortized over a period of 10 years resulting in an additional depreciation which ensures that the carry-forward losses will increase again. The total amount of tax losses carried forward as of 31 December 2018 is estimated at €156,585,000 and a first part (the loss of 2012) will expire in 2021, which is estimated at €11,051,000.

(In Euro x 1,000)	2018	2017
Current tax	-	-
Deferred tax	-	-
	-	**-**
Profit / (Loss) before tax	**(68,378)**	**(16,760)**
Temporary differences	-	-
Expenses not deductible for tax purposes	-	-
Profit for the year offset against available tax losses	(68,378)	(16,760)
Tax losses for which no deferred income tax asset was recognized	-	-
Tax charge	**-**	**-**

The nominal tax rates and amounts in 2018 are 20% up to €200,000 and 25% over €200,000.

23. Dividends

The company declared no dividends for any of the years presented in these consolidated financial statements.

24. Cash flow statement

In the cash flow statement, purchases of property, plant and equipment comprise:

(In Euro x 1,000)	2018	2017
Additions according to note 5	7,958	4,828
Purchases of property, plant and equipment	**7,958**	**4,828**

The following table presents additional cash flow information:

(In Euro x 1,000)	Convertible Loans Agreement (CLA)	Innovation Loan
Non-cash financing activities		
Net debt as of 1 January 2017	**21,809**	**4,634**
Accumulated accrued interest	506	88
Conversion of CLA to Shares	(22,315)	-
Repayment of loan incl. accrued interest	-	(4,722)
Net debt as of 31 December 2017	**-**	**-**
Interest movements in the year	-	-
Net debt as of 31 December 2018	**-**	**-**

25. Contingencies

The assets of the following legal entities, excluding the intangible assets and a permitted security (currently not utilized) relating to RVO grants up to €5.0 million for the possible Dawn Technology™ and Mekong pilot plants, are pledged to the Rabobank for our €4.0 million committed credit facility:

- Avantium N.V.
- Avantium Technologies B.V.
- Avantium Knowledge Center B.V.
- Avantium Support B.V.
- Renewable Technologies B.V.
- Furanix Technologies B.V.
- Feedstock Technologies B.V.
- Avantium Chemicals B.V.

The consolidated statement of financial position of these entities forms the credit base and the credit agreement requires a tangible net worth above €120.0 million. The tangible net worth of the credit base was €90.4 million on 31 December 2018. This resulted in the breach of the financial covenant agreed with Rabobank. The company received a waiver statement on 12 March 2019 from Rabobank which relates to an amendment to the original agreement and a new financial covenant being at least €60.0 million tangible net worth, following the intent of BASF to exit the joint venture Synvina.

26. Commitments

Operating lease commitments

The operating lease commitment comprises a lease contract to rent the site at Zekeringstraat 27 – 31, Penta 1, 2 and 4 for a remaining €9.5 million as of 31 December 2018. This contract expires on 29 February 2028. A bank guarantee is in place which covers three months of rent, to an amount of €0.3 million.

A lease contract is in place for the HUGS government grant program in order to house five research participants. The lease contract was signed in October 2016 for three years. Our operating lease commitments under the lease agreement as at 31 December 2018 are €22,500.

A lease agreement is in place for additional office and laboratory space in the Matrix VI building in the Amsterdam Science Park, primarily in use for Avantium's Volta and Parana programs. The lease contract was extended by 12 months on April 2018. Our operating lease commitments under the lease agreement as at 31 December 2018 are €0.2 million.

As of July 2017, a lease contract with Akzo Nobel is in place to rent a pilot plant building in Delfzijl to house our Dawn Technology™ pilot plant. The lease period is for three years. Our operating lease commitments under the lease agreement as at December 31, 2018 are €31,500. A new lease contract was signed on 27 December 2018 to rent an additional pilot plant building in Delfzijl to house the Mekong demonstration plant. The lease period is for 20 months, and our operating lease commitments under the lease agreement as at December 31, 2018 are €17,000.

As at 31 December 2018, there are seven cars under operational lease with a remaining commitment of €0.4 million. The average lease period is four years.

The future aggregate minimum lease payments under non-cancellable operating leases for continuing operations are as follows:

	Year ended 31 December	
(In Euro x 1,000)	**2018**	**2017**
No later than 1 year	1,292	1,058
Later than 1 year and no later than 5 years	4,335	3,930
Later than 5 years	4,543	4,479
	10,171	**9,467**

Based on the impact assessment with regard to the introduction of IFRS 16 the company expects to recognize right-of-use assets relating to the operating lease commitments and a corresponding lease liability in respect of all these leases.

On 1 January 2019, the lease commitments will be transferred to the balance sheet using the modified retrospective approach creating a right-of-use asset and corresponding lease liability amounting to €9.2 million.

The weighted average incremental borrowing rate applied to the lease liabilities on 1 January 2019 is 2.1%. The total operating lease commitment as at 31 December 2018 is €10,171,000, and the effect of discounting the lease commitments at annual rate of 2.1% is €963,000.

Guarantees

Guarantees to third parties issued by Avantium total €852,000, which are primarily issued in relation to payments from customers following a systems deal for which a bank guarantee had to be issued.

27. Related-party transactions

Avantium does not grant its key management with any personal loans, guarantees or advance payments.

The following transactions were carried out with related parties:

a) Key management compensation

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.

The following persons were members of the Management Board on 31 December 2018:

- Tom van Aken, Chief Executive Officer
- Frank Roerink, Chief Financial Officer

The following persons were members of the Supervisory Board on 31 December 2018:

- Kees Verhaar, chairman
- Margret Kleinsman, vice chairman
- Denis Lucquin
- Jonathan Wolfson
- Gabrielle Reijnen

The total remuneration paid to or for the benefit of members of the Management Board and independent members of the Supervisory Board in 2018 amounted to €763,000 and €285,000 respectively. The payout ratio at Avantium (defined as gross wages, plus social securities and bonus of the CEO versus the median of all employees) is 5:1. The following table provides a breakdown of the remuneration in 2018 of the members of the Management Board and Supervisory Board:

(In Euro x 1,000)	Salary	Cash bonus	Investment share bonus	Share-based payments	Post-employee benefits	Total
Management Board						
Tom van Aken						
2018	**261**	**-**	**-**	**145**	**18**	**423**
2017	254	75	-	370	17	716
Frank Roerink						
2018	**235**	**-**	**-**	**87**	**17**	**339**
2017	230	51	-	298	16	595
Total - 2018	**496**	**0**	**0**	**232**	**35**	**763**
Total - 2017	484	126	0	668	33	1312

(In Euro x 1,000)	Salary	Bonus	Share-based payments	Post-employee benefits	Total
Supervisory Board					
Kees Verhaar					
2018	**80**	**-**	**-**	**-**	**80**
2017	6	-	-	-	6
Denis Lucquin					
2018	**50**	**-**	**-**	**-**	**50**
2017	53	-	-	-	53
Gabrielle Reijnen					
2018	**55**	**-**	**-**	**-**	**55**
2017	50	-	31	-	81
Jonathan Wolfson					
2018	**50**	**-**	**-**	**-**	**50**
2017	45	-	26	-	71
Margret Kleinsman					
2018	**50**	**-**	**-**	**-**	**50**
2017	27	-	-	-	27
Total - 2018	**285**	**0**	**0**	**0**	**285**
Total - 2017	181	0	58	0	239

b) Shares and share options held by key management

The Management Board currently holds 33,650 shares, while the Supervisory Board holds none. The following table provides information on their share options:

Management Board

Share Options	2018		2017	
	Number	Exercise price (in Euro)	Number	Exercise price (in Euro)
Number of options outstanding 1 January	**632,405**	**2.47**	**4,944,046**	**0.08**
Number of options granted - prior to IPO	-	-	580,005	0.55
Number of outstanding options after reverse share split at IPO	-	0.00	552,405	1.29
Number of options granted	80,000	5.34	80,000	10.58
Number of options exercised	-	-	-	-
Number of options forfeited	-	-	-	-
Number expired	-	-	-	-
Number of options outstanding 31 December	**712,405**	**2.79**	**632,405**	**2.47**

In 2018, 80,000 additional share options were granted to the Management Board. The share-based payment expenses of the Management Board of €232,000 comprise the part of the share-based compensation (note 12) contributable to the share options granted in previous years.

Supervisory Board

Share Options	2018		2017	
	Number	Exercise price (in Euro)	Number	Exercise price (in Euro)
Number of options outstanding 1 January	**44,000**	**4.92**	**300,000**	**0.33**
Number of options granted - prior to IPO	-	0.00	140,000	0.84
Number of outstanding options after reverse share split at IPO	-	0.00	44,000	4.92
Number of options granted	-	-	-	-
Number of options exercised	-	-	-	-
Number of options forfeited	-	-	-	-
Number expired	-	-	-	-
Number of options outstanding 31 December	**44,000**	**4.92**	**44,000**	**4.92**

The following table provides information on the Management board's Investment shares granted under the Long Term Investment Plan:

	2018		2017	
	Number	Share price at grant date (in Euro)	Number	Share price at grant date (in Euro)
Number of options outstanding 1 January	**0**	**0.00**	**0**	**0.00**
Number of investment shares granted	26,460	5.36	-	0.00
Number of investment shares forfeited	-	-	-	-
Number of options outstanding 31 December	**26,460**	**5.36**	**0**	**0.00**

As at 31 December 2018, the members of the Management Board and Supervisory Board held the following shares and other interests in the company:

	Number of outstanding options at 31 December 2018	Number of Investment shares at 31 December 2018
Management board		
Tom van Aken	429,157	14,882
Frank Roerink	283,248	11,578
Total - executive board	**712,405**	**26,460**
Supervisory board		
Jan van der Eijk (Former member)	15,000	-
Jonathan Wolfson	15,000	-
Gabrielle Reijnen	14,000	-
Total - supervisory board	**44,000**	**0**

Note that just prior to the IPO date (15 March 2017), a capital restructuring took place, which consisted of the following steps: an amendment to the company's Articles of Association providing for a reverse share split and consequently an increase in the nominal value of the shares from €0.01 to €0.10.

c) Transactions with the Synvina joint venture

Several transactions were recorded between the group and Synvina in 2018, primarily in relation to the service level agreements for which Avantium's support departments deliver services to Synvina, on which the below are the outstanding balances as at 31 December 2018:

(In Euro x 1,000)	2018	2017
Receivable recorded by the group	930	207
Payable recorded by the group	415	405
Total reimbursement recorded in the conolidated statement of comprehensive income	1,352	1,782

There are no related party transactions that would need to be disclosed other than those described above.

28. Proposed appropriation of result

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.

In anticipation of the annual General Meeting's adoption of the annual accounts, the net loss for the year of €68,378,000 has been added to retained earnings (accumulated deficit).

29. Events after the balance sheet date

In December 2018, BASF announced its exit from the Synvina joint venture. In January 2019, Avantium acquired full ownership of Synvina and its YXY plants-to-plastics technology bringing the 49% stake of Avantium in Synvina to 100%. Avantium paid BASF €17.4 million for the full ownership of Synvina, with the transfer of shares taking place on 25 January 2019.

The integration of Synvina into the Avantium structure has led to it becoming a new business unit, alongside the Catalysis and Renewable Chemistries business units. Synvina has resolved the technical challenges to commercialization announced in January 2018. Avantium remains fully confident in the YXY technology and the unique properties of PEF. It looks forward to building on the work undertaken at Synvina and pursuing further options to reach the full potential of polyethylene furanoate (PEF).

Avantium is redefining the path to commercialization for its YXY technology, which it developed to catalytically convert plant-based sugars into furandicarboxylic acid (FDCA) and materials such as the new plant-based packaging material PEF. PEF can fulfill the demand of leading brands and consumers for next-generation materials that are environmentally friendly and recyclable, and has the potential to be a game-changer in the circular economy. Avantium plans to make further announcements on its new strategy to commercialize YXY during the first half of 2019.

The acquisition of the 51% BASF stake on 25 January 2019 leads to a number of balance sheet movements. The main elements to highlight are:

1. Cash & cash equivalents reduced by €17.4 million which relates to the gross cash payment made to BASF
2. Property, plant & equipment increased by €8.0 million relating to Synvina's assets being placed onto the Avantium balance sheet
3. Investments in joint ventures and associates decreasing by €4.2 million, i.e. the unwinding of the JV
4. Provisions for other liabilities and charges falling by €13.1 million, i.e. the provision for an onerous contract booked as per 2018 year-end relating to the BASF announcement intending to exit the JV

In March 2019, Avantium elected to build the new demonstration plant for its Mekong technology in Chemie Park Delfzijl. The construction of the new plant is on track, with the opening scheduled for the second half of 2019. Avantium received a €2 million grant towards constructing the Mekong plant from the European Regional Development Fund/Partnership Northern Netherlands (Samenwerkingsverband Noord-Nederland). This grant is intended to accelerate innovation in the quest for a low-carbon economy.

Company financial statements 2018

Company income statement

in Euro x 1,000	Year ended 31 December	
	2018	**2017**
Expenses		
Employee benefit expenses	(1,007)	(2,800)
Office and housing expenses	(1,006)	(712)
Patent, license, legal and advisory expenses	(117)	(218)
Other operating expenses	(115)	(108)
Operating profit / (loss)	**(2,245)**	**(3,839)**
Finance costs - net	(33)	(604)
Result before income tax	**(2,278)**	**(4,443)**
Income tax expense	-	-
Result subsidiaries and joint ventures	(66,100)	(12,317)
Profit / (Loss) for the period	**(68,378)**	**(16,760)**

Company balance sheet

		As at 31 December	
(In Euro x 1,000)	Note	**2018**	**2017**
ASSETS			
Non-current assets			
Financial fixed assets	31	32,445	72,106
Total non-current assets		32,445	72,106
Current assets			
Other receivables		127	1
Cash and cash equivalents		81,015	95,303
Total current assets		81,142	95,304
Total assets		**113,587**	**167,411**
EQUITY			
Capital and reserves attributable to equity holders of the company			
Share capital	11	2,583	2,577
Share premium	11, 12	204,296	204,296
Other reserves	11, 12	9,331	8,252
Accumulated losses	11	(125,053)	(56,765)
Total equity		**91,157**	**158,360**
LIABILITIES			
Non-current liabilities			
Provisions	33	8,800	8,680
Total Non-current liabilities		**8,800**	**8,680**
Current liabilities			
Liabilities to group companies			
Trade payables		512	308
Convertible loans agreement		-	-
Provisions		13,088	-
Finance lease liabilities		-	-
Other current liabilities		30	63
Total current liabilities		13,630	371
Total liabilities		**22,429**	**9,050**
Total equity and liabilities		**113,587**	**167,411**

The balance sheet has been prepared before appropriation of current year result.

Notes to the company balance sheet and company income statement

30. General information

The company statements are part of the 2018 financial statements of Avantium N.V.

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 (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 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 recognized 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.

31. Financial fixed assets

The company directly held a 100% interests in the following subsidiaries on 31 December 2018:

- Avantium Technologies B.V., Amsterdam
- Renewable Technologies B.V., Amsterdam
- Avantium Support B.V., Amsterdam
- Avantium Knowledge Centre B.V., Amsterdam
- Feedstock Technologies B.V., Amsterdam

The movements in financial fixed assets can be summarized as follows:

(In Euro x 1,000)	Investment in group companies	Loans to group companies	**Financial fixed assets assets**
On January 1, 2018	97,779	(25,673)	**72,106**
Share of profit of group companies	-	-	**-**
Movements in loans to group companies/ provision	(56,730)	17,069	**(39,661)**
On December 31, 2018	41,049	(8,604)	**32,445**

The financial fixed assets consist of investments in group companies and loans to group companies. The value of the loans of Avantium N.V. to group companies on 31 December 2018 was €8.6 million.

32. 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.

33. Provisions

(In Euro x 1,000)	Provisions
On January 1, 2018	**(8,680)**
Share of profit of group companies	-
Movements in loans to group companies/ provision	(120)
On December 31, 2018	**(8,800)**

The value of Avantium N.V.'s financial fixed assets as at 31 December 2018 is €8.8 million, with a negative net equity and this is reported under provisions.

The provisions for financial fixed assets with a negative net equity as at 31 December 2018 relate to the following:

- Equity deficit of Feedstock Technologies B.V. of €26,000
- Equity deficit of Avantium Support B.V. of €8,438,000
- Equity deficit of Avantium Knowledge Centre of €36,000
- Equity deficit of Avantium Technologies B.V. of €300,000

34. Commitment and contingencies

Guarantees as defined in Book 2, section 403 of the Dutch Civil Code have been given by Avantium N.V. on behalf of the following group companies in the Netherlands and filed with the Chamber of Commerce:

- Avantium Support B.V.
- Avantium Technologies B.V.

35. 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 individual partnerships and legal entities, including their tax services and advisory groups:

36. Remuneration of the Management Board and the Supervisory Board

The remuneration of the Supervisory Board amounts to €285,000 (2017: €238,000). The total remuneration paid to or for the benefit of members of the Management Board in 2018 amounted to €763,000 (2017: €1,312,000). For further details, refer to note 27 of the consolidated financial statements.

37. Employee information

The company had no employees in 2018 (2017: nil).

2018 (In Euro x 1,000)	PwC Accountants N.V.	Other PwC offices	Other auditors	Total audit fees
Audit of the financial statements	195	-	-	**195**
Other audit procedures	-	-	16	**16**
Tax services	-	-	-	**-**
Other non-audit services	-	-	-	**-**
Total	**195**	-	16	**211**

2017 (In Euro x 1,000)	PwC Accountants N.V.	Other PwC offices	Other audiors	Total audit fees
Audit of the financial statements	108	-	-	**108**
Other audit procedures	101	-	-	**101**
Tax services	-	-	-	**-**
Other non-audit services	-	-	-	**-**
Total	**209**	-	-	**209**

Amsterdam, 27 March 2019
Avantium N.V. (Chamber of Commerce number: 34138918)

Management Board
Tom van Aken, Chief Executive Officer
Frank Roerink, Chief Financial Officer

Supervisory Board
Kees Verhaar, chairman
Margret Kleinsman
Denis Lucquin
Jonathan Wolfson
Gabrielle Reijnen

The financial statements on pages 45-91 are authorized for issue by the Management Board on 27 March 2019.

T.B. van Aken, Chief Executive Officer
F.C.H. Roerink, Chief Financial Officer


SYNVINA

Independent auditor's report

To: the general meeting and supervisory board of Avantium N.V.

Report on the financial statements 2018

Our opinion

In our opinion:

- Avantium N.V.'s financial statements give a true and fair view of the financial position of the Group as at 31 December 2018, 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.
- Avantium N.V.'s company financial statements give a true and fair view of the financial position of the Company as at 31 December 2018 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the accompanying financial statements 2018 of Avantium N.V., Amsterdam (hereafter: 'the Company'). The financial statements include the consolidated financial statements of Avantium N.V. together with its subsidiaries (together: 'the Group') and the company financial statements.

The consolidated financial statements comprise:

- the consolidated statement of financial position as at 31 December 2018;
- the following statements for 2018: the consolidated statements of comprehensive income, changes in equity and cash flows; and
- the notes, comprising a summary of significant accounting policies and other explanatory information.

The company financial statements comprise:

- the company balance sheet as at 31 December 2018;
- the company income statement for the year then ended; and
- the notes, comprising a summary of the accounting policies and other explanatory information.

The financial reporting framework applied in the preparation of the consolidated financial statements is EU-IFRS and the relevant provisions of Part 9 of Book 2 of the Dutch Civil Code. The financial reporting framework that has been applied in the preparation of the company financial statements is Part 9 of Book 2 of the Dutch Civil Code.

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 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 requirements in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA – Code of Ethics for Professional Accountants, a regulation with respect to rules of professional conduct).

Our audit approach

Overview and context

Avantium N.V. is a chemical technology company, developing and commercialising innovative renewable chemistry solutions. As of 31 December 2018, the Company comprises two divisions (Catalysis and Renewable Chemistries) and the joint venture with BASF named Synvina C.V. ('Synvina'), 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 notice of BASF to exit from the Synvina joint venture in December 2018 and the subsequent obligated acquisition of the 51% BASF stake in January 2019 significantly impacted the financial year 2018 results. This affected our audit procedures as described in the section 'Key audit matters'.

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 paragraph 4 of the consolidated financial statements the company describes the areas of judgment in applying accounting policies and the key sources of estimation uncertainty. Given the significant estimation uncertainty and the related higher inherent risks of material misstatement relating to the timing and magnitude of the impact of the BASF exit notice on Avantium and the valuation of the Synvina joint venture, project revenue recognition and valuation of contract assets and liabilities and capitalisation of research and development expenses, we considered these to be key audit matters as set out in the section 'Key audit matters' of this report.

Other areas of focus in our audit, that were not considered to be key audit matters, include the shared-based compensation plan for employees, the assessment and disclosures of going concern basis of accounting, the impact of the new accounting standards IFRS 9 and 15 and the disclosure of the expected impact of IFRS 16 (which has been disclosed in note 2.1.2. of the consolidated financial statements).

As in all of our audits, we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the management board that may represent a risk of material misstatement due to fraud.

We ensured that the audit teams both at group and at component level included the appropriate skills and competences which are needed for the audit of a listed chemical technology company. We therefore included specialists in the areas of IT audit, and experts in the areas of valuations and share-based payments in our team.

The outline of our audit approach was as follows:

Materiality
- Overall materiality: €260,000.

Audit scope
- All group components were in scope, being the Catalysis and Renewable Chemistries divisions together with the head-office function in Amsterdam and the Synvina joint venture. All components were subjected to an audit of their complete financial information.
- Site visit was conducted for the Synvina joint venture.

Key audit matters
- Impact exit notice Synvina joint venture.
- Project revenue recognition and valuation of contract assets and liabilities.
- Capitalisation of research and development expenses.

Materiality

The scope of our audit is 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 judgment, 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	€260,000 (2017: €250,000).
Basis for determining materiality	We used our professional judgment to determine overall materiality. As a basis for our judgment we used 2% of the adjusted loss before income tax.
Rationale for benchmark applied	We used the adjusted loss before income tax as the primary benchmark, a generally accepted auditing practice, based on our analysis of the common information needs of users of the financial statements. The adjustments to the loss before income tax primarily relate to the impact of the BASF exit notice. The impact of the BASF exit notice significantly increases the loss for 2019, which would in case of not adjusting result in a significantly higher materiality level (given the primary benchmark). On this basis we believe that adjusted loss before tax is an important metric for the financial performance of the company.
Component materiality	To each component in our audit scope, we, based on our judgement, allocate materiality that is less than our overall group materiality.

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 misstatements identified during our audit above € 13,000 (2017: €12,500) 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 in the Netherlands. The financial information of this group is included in the consolidated financial statements of Avantium N.V.

We tailored the scope of our audit to ensure that we performed sufficient work to be able to give an opinion on the financial statements as a whole, taking into account the management structure of the Group, the nature of operations of its components, the accounting processes and controls, and the markets in which the components of the Group operate. In establishing the overall group audit strategy and plan, we determined the type of work required to be performed at the component level by the group engagement team and by the component auditor.

In performing our group audit procedures we identified two significant components. The first component consist of the Catalysis and Renewable Chemistries divisions together with the head-office function which are located in Amsterdam. The second significant component is the Synvina joint venture. Both components were subjected to audits of their complete financial information as they are individually financially significant to the Group.

The group engagement team audited the component comprising the Catalysis and Renewable Chemistries divisions together with the head-office function. For Synvina we used a component auditor to perform the work, for which we determined the level of involvement we needed to have in their audit work to be able to conclude whether we had obtained sufficient appropriate audit evidence as a basis for our opinion on the consolidated financial statements as a whole.

We issued instructions to the component auditor in our audit scope. These instructions included among others our risk analysis, materiality and scope of the work. We explained to the component auditor the structure of the group, the main developments that are relevant for the component auditor, the risks identified, the materiality levels to be applied and our global audit approach. We had individual calls with the component auditor during the year including upon the conclusion of their work. During these calls, we discussed the significant accounting and audit issues identified by the component auditor, the reports of the component auditor, the findings of their procedures and other matters, which could be of relevance for the consolidated financial statements.

The group engagement team visited the component auditor and local management. We reviewed the audit file of the component auditor.

In addition, the group engagement team performed audit work on the group consolidation, financial statement disclosures and a number of complex items at the head office. These include, accounting and disclosure of the impact of the exit notice of BASF on the Synvina joint venture, accounting and disclosures of share-based payments, going concern and assessing the impact of new accounting standards, being IFRS 9, IFRS 15 and IFRS 16.

By performing the procedures above at components, combined with additional procedures at group level, 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.

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 matters to the supervisory board. The key audit matters are not a comprehensive reflection of all matters that were identified by our audit and that we discussed. In this section, we described the key audit matters and included a summary of the audit procedures we performed on those matters.

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 comments or observations we make on the results of our procedures should be read in this context.

As a result of the announced exit by BASF from the Synvina joint venture in December 2018 we consider the 'impact exit notice Synvina Joint Venture' a key audit matter for this year. The key audit matters 'Project revenue recognition and valuation of contract assets and liabilities' and 'Capitalization of research and development expenses' are similar in nature to the key audit matters we reported in 2017 due to the nature of the company's business and its environment.

Key audit matter	How our audit addressed the matter
Impact exit notice Synvina Joint Venture *Refer to note 7, note 29 in the financial statements and the Risk management paragraph in the annual report*	
Avantium has a non-controlling interest of 49% in Synvina C.V., a joint venture together with BASF, with a value amounting to €4.2 million per 31 December 2018. Separate financial information and relevant assumptions for valuation of the joint venture are disclosed in note 7 of the financial statements. The exit notice of BASF in December 2018 and the subsequent obligated acquisition of the 51% BASF stake in January 2019 for an amount of €17.4 million significantly impacted the financial year 2018 results.	As part of our risk assessment procedures we have read and assessed the exit agreement between BASF and Avantium, the BASF exit notice and the 2016 joint venture agreement between BASF and Avantium. We have focused on the impact for each of the elements of the exit and specifically focused on the magnitude and timing of recording of such impact (i.e. in 2018 or 2019). 1. We obtained and read management's control assessment and conclusion that the Synvina joint venture is jointly controlled per 31 December 2018. We read the original (2016)

Key audit matter	How our audit addressed the matter
Avantium assessed the accounting and disclosure impact of the BASF exit notice on the Avantium financial statements. Management applied judgement on the (1) assessment of control over Synvina, (2) the valuation of the Synvina joint venture and (3) the recording of an onerous contract provision: 1. Management assessed that until the transfer of the 51% shares from BASF to Avantium the terms and conditions of the original (2016) joint venture agreement remain in place, which stipulate that all decisions about relevant activities require the unanimous consent of both parties. Management therefore concluded that joint control over the joint venture remains applicable on 31 December 2018.	joint venture agreement and determined that all decisions about relevant activities require the unanimous consent of both parties. We reviewed the exit agreement between BASF and Avantium and did not identify significantly contradicting information. Also, we validated that the legal transfer of the shares took place in January 2019, by reviewing the share transfer notary deed. We noted no significant matters in relation to management's control assessment.
2. Due to the BASF exit notice Synvina and Avantium management performed an impairment assessment over the Synvina business as a whole. Management assessed qualitative factors, such as milestones reached in terms of development of the technology and quantitative factors such as the expected (pre-tax) weighted average cost of capital, reference plant capital expenditure, license fee income and terminal value growth rate. These factors are subject to management's judgment. Following the BASF exit notice, management considers the probability of the businesscase to have decreased substantially and therefore Synvina recorded in 2018 a number of impairments and write offs amounting of €75.4 million (of which 49% is recorded through the share in loss in joint venture by Avantium).	2. Together with our valuation experts we have discussed with the component auditor the outcome of their audit procedures and reviewed their audit documentation in relation to the impairment procedures. We have challenged Synvina management's impairment assessment and the impact of the BASF exit notice. The key assumptions are expected (pre-tax) weighted average cost of capital, reference plant capital expenditure, license fee income and terminal value growth rate. We have challenged the key assumptions underlying the impairment test and concur with management that, following BASF exit notice, the probability of the business case has decreased substantially. We have assessed the impairment of assets and noted no significant matters. We verified that the disclosures sufficiently explain the key considerations (e.g. decrease in probability of the business case as a result of the BASF exit notice) for the impairment and noted no significant matters.
3. Management determined that the acquisition of the 51% stake is obligated under the original (2016) joint venture agreement between BASF and Avantium and can therefore not be used as basis for the fair value of the shares. Management concluded that the substantially decreased probability of the business case as applied in the impairment test should be reflected in the fair value of the shares to be acquired. Management therefore compared the valuation of the 51% stake in the joint venture per 31 December 2018 (€4.3 million) against the payment agreed in the exit contract (€17.4 million) and concluded this resulted in an onerous contract. Avantium recorded an onerous contract provision per 31 december 2018 of €13.1 million.	3. We obtained and read the the original joint venture agreement, exit notice and exit contract between BASF and Avantium N.V. to determine whether Avantium has as of 31 December 2018 an obligation to BASF which could result in an onerous contract. Based on this documentation, we concluded that Avantium has as of 31 December 2018 an obligation to purchase the shares from BASF and that it is appropriate to conclude that the consideration paid does therefore not reflect the fair value of the to be acquired shares. We assessed management conclusion that the valuation of the shares approximates the book value after impairment on the basis that the probability of the business case decreased substantially following BASF exit. We reconciled the consideration to be paid for

Key audit matter	How our audit addressed the matter
Management has elaborated on the specific risks in relation to Synvina in the Risk management paragraph as well as any impact of the cash outflow on the going concern assumption as outlined in note 2.1.1. Refer to note 7 in the financial statements. Given the significance and the level of judgment involved in assessing the impact of the exit notice of BASF, an incomplete or not timely recording of provisions or incorrect valuation of the joint venture could result in a material misstatement to the financial statements and consequently we considered this a key audit matter.	the shares as included in the exit contract between BASF and Avantium with management's calculation of the fair value of the shares. Based on the above we concluded the difference of €13.1 million between the amount to be paid for the shares and the fair value thereof to be an onerous contract for which management accounted a provision as per 31 december 2018. We have assessed the disclosures in relation to risk management, liquidity risk and financing need and noted no significant matters. We have assessed the information as disclosed in the subsequent event note in relation to Synvina and noted no significant matters.

Key audit matter	How our audit addressed the matter
Project revenue recognition and valuation of contract assets and liabilities *Refer to note 2.21, 3.1, 9 and 18* The project revenue recognized amounts to €10.7 million and represents 95% of the total revenue for the year. We consider this a key audit matter since project revenue recognition and the valuation of contract assets and liabilities are significant to the financial statements based on the quantitative materiality and because of the degree of management judgement required for revenue recognition and valuation of contract assets and liabilities. Management applied judgement to determine the cost-to-complete for contracts, which is the basis for revenue recognition and contract asset and liability valuation, as well as for assessing provisions for loss-making contracts. Key assumptions in determining cost-to-complete are: costing models, including applied hourly rates, number of hours allocated to a project, hours to complete and cost charges.	We have updated our understanding of the controls over (monitoring of) revenue streams, monthly closing procedures and the valuation of contract assets, contract liabilities and provisions for loss-making contracts. For our substantive procedures, we focused on the reasonableness of the assumptions applied by management to determine the cost-to-complete. We discussed and challenged the progress of the projects with the respective project managers and management of Avantium. We challenged management's assumptions by recalculating internal hourly rates based on wage details, reconciling recorded hours to the hour registration system, testing allocation of costs charges to projects and reconciling changes in budgets (e.g. increase or decrease in cost to complete) to supporting evidence such as contract modification approvals. To test the valuation of the contract assets and contract liabilities we tested a sample of revenue transactions by, amongst other, reconciling these to the terms included in the sales contract. This included verification of appropriate period allocation and timely identification and accounting for deviations from the initial budget. The company's disclosures concerning the contract assets and liabilities and the related risks in note 3.1 and 9 to the consolidated financial statements have also been assessed and are considered adequate.

Key audit matter	How our audit addressed the matter
Capitalisation of research and development expenses *Refer to note 2.6* As disclosed in the 'Report of the Management Board' Avantium has various innovative renewable chemistry product development programs in place for which expenses were made in 2018. These development programs are ultimately intended for commercialisation. We focused on this area due to the amount of research and development costs incurred, and the fact that there is significant management judgement involved in assessing whether the requirements detailed within the accounting standards for expensing or capitalising these costs have been met. Significant judgements relevant to management for capitalisation of research and development include determining if the research and development spend has met: • the technical feasibility of the project; • the likelihood of the project delivering sufficient future economic benefits. Management's conclusion is that no material element of the spending this year on research and development meets the criteria for capitalisation on the basis of either a lack of technical and/or economic feasibility.	We read management's accounting policy for research and development expenses as disclosed in note 2.6 of the financial statements and evaluated whether its in accordance with the applicable accounting standards. We have evaluated management's assessment over the development expenses incurred in 2018, that none of the projects meet all criteria for capitalisation. We have assessed this in particular for the Renewable Chemistries related expenses. We obtained project progress information and determined that the technical feasibility of the projects and the likelihood of the projects delivering sufficient future economic benefits is insufficiently supported. We found that the research expenses recognized as an expense in the consolidated statement of comprehensive income are related to early stage research trials. The early stage of the research trials supports management's assessment that insufficient technical and/or economic feasibility is present.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information that consists of:

- message from the CEO;
- the report of the management board;
- risk management;
- the report of the supervisory board;
- Corporate governance;
- Remuneration report; and
- the other information pursuant to Part 9 of Book 2 of the Dutch Civil Code.

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;
- contains the information that is required by Part 9 of Book 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and 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 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.

Report on other legal and regulatory requirements

Our appointment

We were appointed as auditors of Avantium N.V. on 16 May 2018 by the supervisory board following the passing of a resolution by the shareholders at the annual meeting held on 16 May 2018 and the appointment has been renewed annually by shareholders representing a total period of uninterrupted engagement appointment of fifteen years.

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

We have not provided any other services to the company and its controlled entities, in addition to our audit, for the period to which our statutory audit relates.

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 with 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, the management board is responsible for assessing the company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the management board should prepare the financial statements using the going-concern basis of accounting unless the management board either intends to liquidate the company or to cease operations, or has no realistic alternative but to do so. The management board should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

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 audit opinion aims to provide reasonable assurance about whether the financial statements are free from material misstatement. Reasonable assurance is a high but not absolute level of assurance which makes it possible that we may not detect all misstatements. Misstatements may arise due to fraud or error. They are considered to be 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.

Amsterdam, 27 March 2019
PricewaterhouseCoopers Accountants N.V.

Original has been signed by J. van Meijel RA

Appendix to our auditor's report on the financial statements 2018 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 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. 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 the management board.
- Concluding on the appropriateness of the management board'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 company's 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 safeguards.

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.