

# LIVING SUSTAINABILITY. TOGETHER.

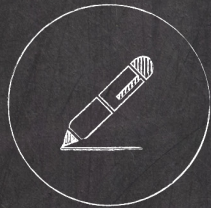
GRI REPORT 2017



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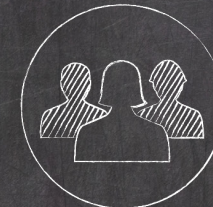


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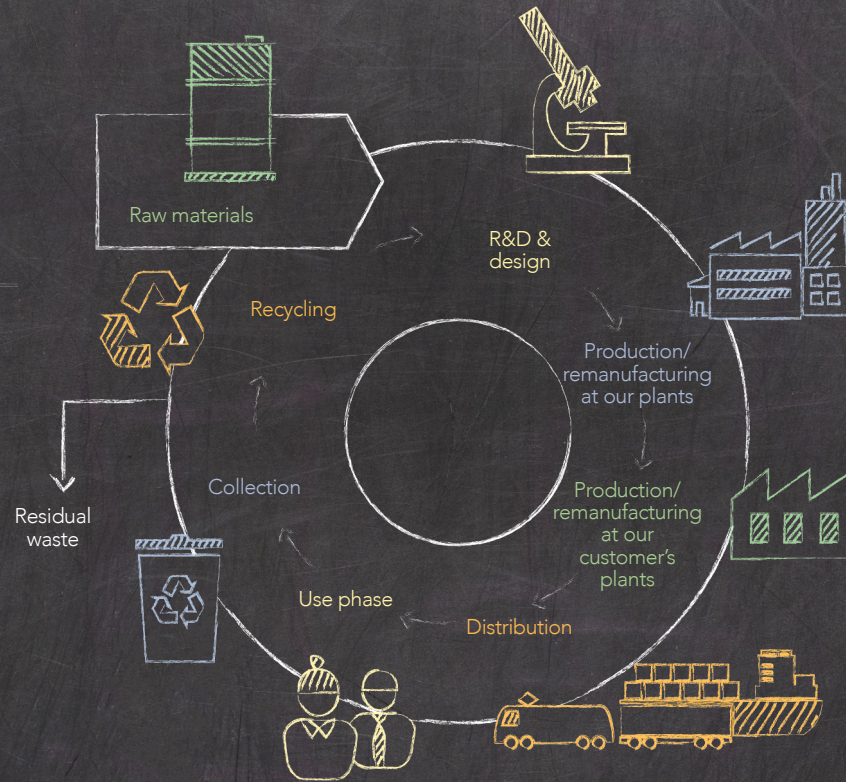
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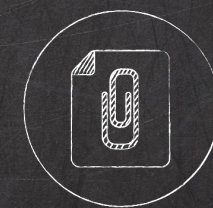
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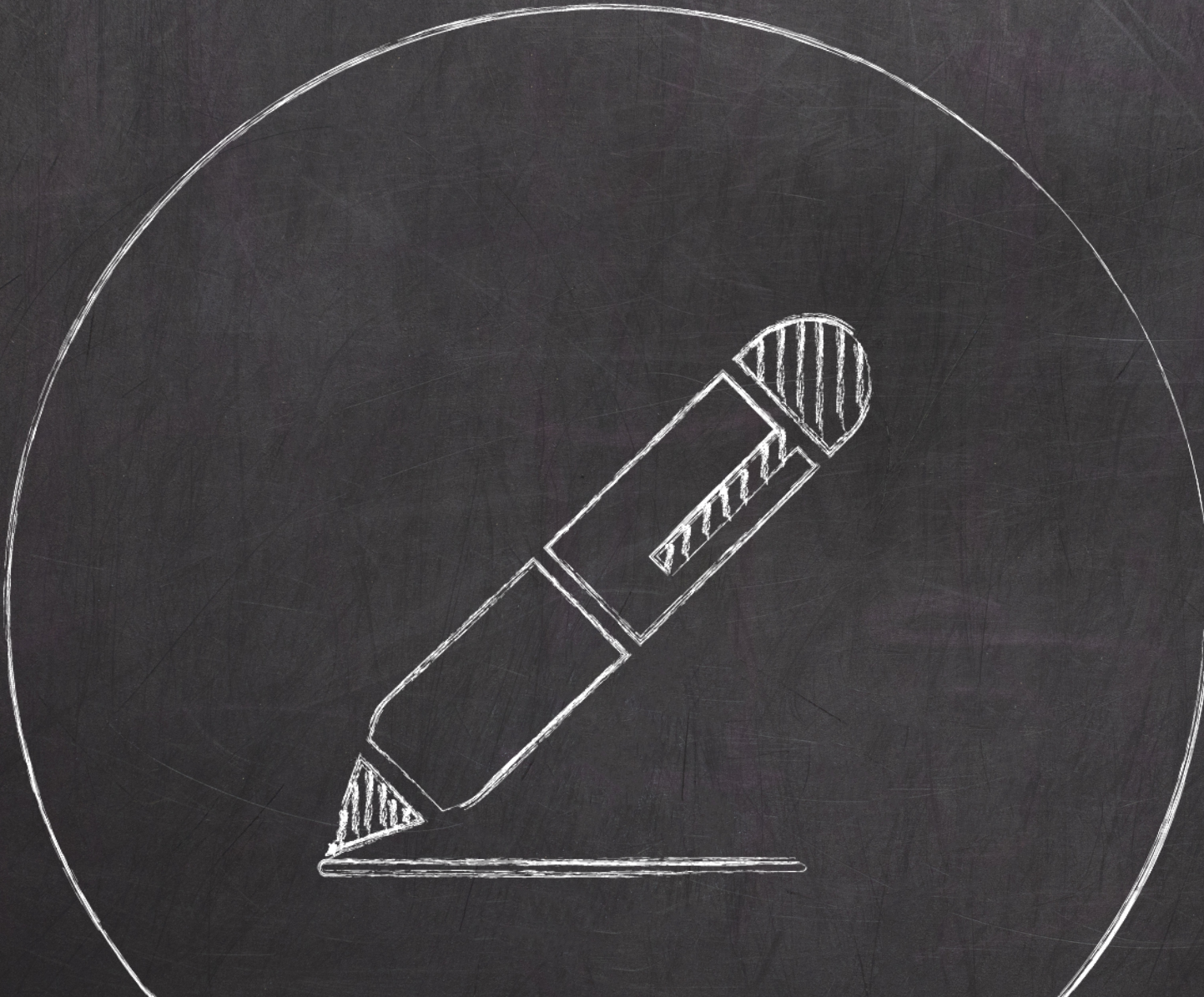
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## 1.1 MESSAGE FROM KEVIN MCQUADE

### DEAR VALUED STAKEHOLDER,

We are pleased to share with you our GRI report for 2017. Sustainability is an integral component of our business, and the title of this report “Living Sustainability. Together.” aptly reflects our ambition and our actions with respect to sustainability.

Since the introduction of our global sustainability programme in 2014, we have concentrated our efforts on resource-efficient operations throughout our value chain. Our aim has been to optimise our product portfolio to save energy and increase product yield for our customers and provide high-quality, safe and functional solutions to enhance the daily comfort of consumers. Due to the increasing global challenges society faces with regard to the end-of-life of plastics, we have expanded our focus to include emerging topics, such as circular economy, prevention of pellet loss, and further reduction of our carbon emissions.

We are delighted to have our performance and progress acknowledged with a gold rating from EcoVadis. This achievement now places us best in class in the category of plastics manufacturers and we are committed to continue on our path forward.

As the only global styrenics producer with a worldwide market presence, we are ideally positioned to provide both global and local products and services. Our products have become an indispensable part of our consumers’ everyday lives and provide solutions to societal challenges, such as climate change, resource scarcity, urbanisation, rising living standards and population growth. However, due to inadequate waste management and improper human behaviour, certain plastic products are not dis-

posed responsibly. This misuse of plastics leading to littering is a growing concern, which must be urgently addressed.

We believe that chemical recycling will significantly accelerate the circularity of polystyrene by unlocking its full inherent recycling potential. This solution brings polystyrene consumer waste back as a raw material without compromising its suitability for the most demanding applications. Chemical recycling of polystyrene contributes to reducing plastic waste, its leakage into the environment, and the use of fossil fuel. We have a proven track record in innovation and R&D and we are using this expertise to contribute to circularity. We have embarked on several projects focused on chemical recycling of plastics by collaborating with not only styrenics manufacturers but also the entire value chain. We have a long way ahead of us, but we are certain that this vision will lead to a more resource-efficient and circular plastics business model.

It is our responsibility to raise awareness on the importance of human behaviour and to use, recover, recycle and dispose our products responsibly – within and beyond our company gates. Thus, we actively participate in the stewardship programme Operation Clean Sweep® and embed good practices for the containment of pellets in our day-to-day practices and management systems at all our production sites, and encourage logistics suppliers to also adopt these good practices.

Environmental management is central to our daily operations and is how we drive operational excellence at all our sites. Since 2014, we have converted landfill waste to recycling waste and have



gradually reduced our energy use as well as our emissions, such as dust and combustion gases.

Nothing is more important than the health and safety of our people, and I am pleased to report that, last year, we recorded our best-ever safety performance in our company history. The continuous implementation of safety measures and processes is a stellar example of what we can accomplish when we employ conscious, mindful competence toward safety.

Sustainable styrenics products will support the shift to a circular economy. With more than 1,500 products and 2,000+ applications, we possess the reach and scale to positively impact our customers as well as consumers. But we cannot do it alone. Therefore, we aim to advance on our path of “Living Sustainability. Together.” in close collaboration with our stakeholders.

Sincerely yours,

Kevin McQuade

CEO INEOS Styrolution

[Click here to view the video editorial](#)

## 1.2 BOARD MEMBERS' VIEW

"As the leading global styrenics supplier, we have incorporated sustainability in our operations. Ensuring responsible business practices in our plants, throughout all our processes and across the entire value chain is a key element of our sustainability drive. This includes many aspects, from the efficient use of resources and the reduction of our environmental footprint to achieving zero incidents in operations, making INEOS Styrolution a safe and secure place to work."

**Pierre Minguet**  
President Operations

"For us, sustainability is not mere lip service. A responsible approach to our product portfolio is key to us. This means looking at the entire supply chain – from development and production to transport, sale and use, and re-entry into the product life cycle. By offering styrenic solutions that deliver strong, sustainable performance, we want to ensure that our customers' businesses and end-consumers' choices become more sustainable."

**Rob Buntinx**  
President Europe Middle East & Africa

## SUSTAINABILITY IS KEY TO BUSINESS SUCCESS – INEOS STYROLUTION'S TOP MANAGEMENT IS CONVINCED!



Board members (from left to right): Rob Buntinx, Pierre Minguet, Kevin McQuade, Markus Fieseler, Alexander Glück and Steve Harrington

"Sustainable development is the pathway to the future and offers us a framework to engage with our customers, suppliers and other stakeholders to achieve growth while promoting environmental stewardship and social responsibility. This is a critical success factor for participation in emerging markets."

**Steve Harrington**  
President Global Styrene Monomer & Asia-Pacific

"Our stakeholders including investors, financial experts and rating agencies increasingly expect our company to address sustainability in all business areas. Through this report, we aim to provide higher transparency on our actions and thereby maintain the trust and credibility our stakeholders have placed in us. For us, sustainability and financial success simply go hand in hand."

**Markus Fieseler**  
Chief Financial Officer

"The most successful companies are those that have integrated sustainability into their core businesses. That is what we have done at INEOS Styrolution and this is why we apply the same standards throughout all regions, going beyond regional or country standards."

**Alexander Glück**  
President Americas

# 1.3 OUR APPROACH TO SUSTAINABILITY

# COMMITTING TO SUSTAINABLE STYRENICS



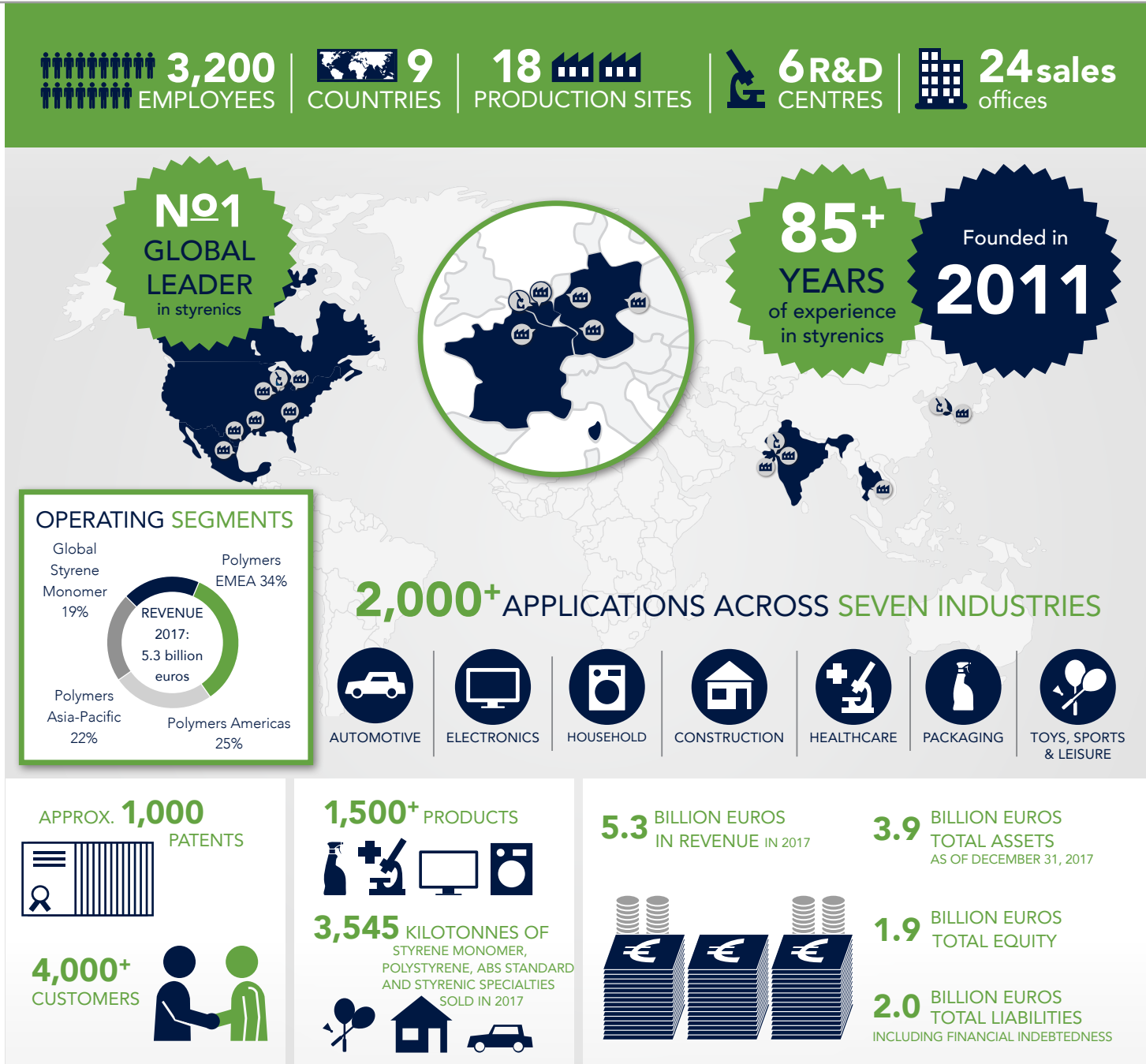
- 1.3.1 INEOS Styrolution at a glance
- 1.3.2 How we define sustainability
- 1.3.3 Our global sustainability programme
- 1.3.4 Our sustainability team and working structure
- 1.3.5 Key sustainability highlights 2017
- 1.3.6 Sustainability targets
- 1.3.7 Stakeholder dialogue

For INEOS Styrolution, sustainability is not just about safeguarding our license to operate. We go one step further: To us, it is a lever for growth and will enable us to tap into new and emerging business models. As an essential next step, we have committed to further improving our resource efficiency and promoting sustainable operations throughout our entire value chain.

### 1.3.1 INEOS STYROLUTION AT A GLANCE

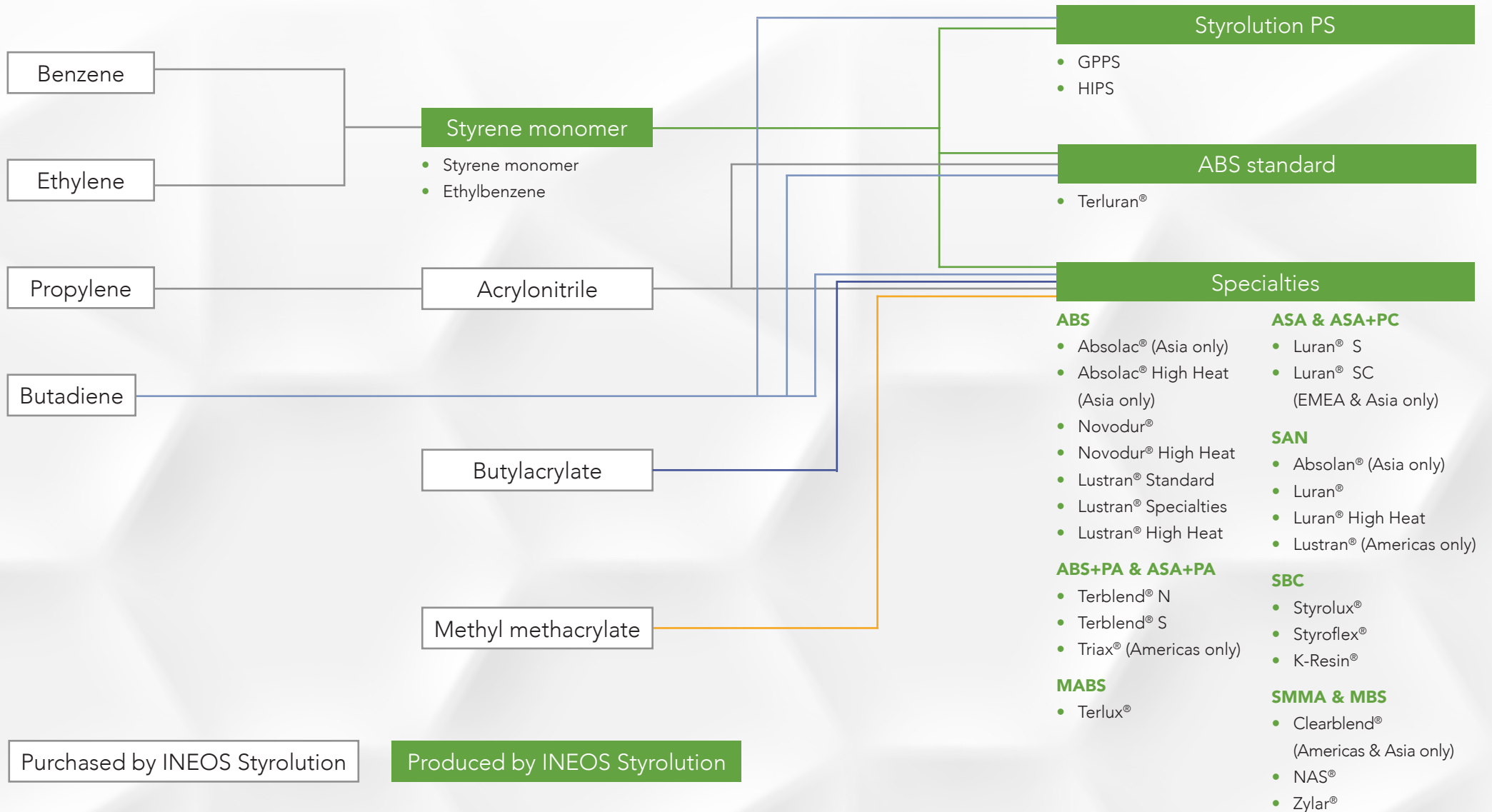
INEOS Styrolution is the leading global styrenics supplier with a focus on styrene monomer, polystyrene, ABS standard and styrenic specialties. The company operates 18 manufacturing sites in Belgium, Canada, France, Germany, India, Mexico, South Korea, Thailand and USA, with six R&D centres and 24 sales offices around the globe.

INEOS Styrolution has four headquarters around the world – the global and EMEA headquarters for specialties in Frankfurt am Main, Germany, the EMEA headquarters for commodities and standard products in Rolle, Switzerland, the American headquarters in Aurora, USA, and the Asia-Pacific headquarters in Singapore.



INEOS Styrolution product groups and product lines of styrene monomer, polystyrene, ABS standard and styrenic specialties:

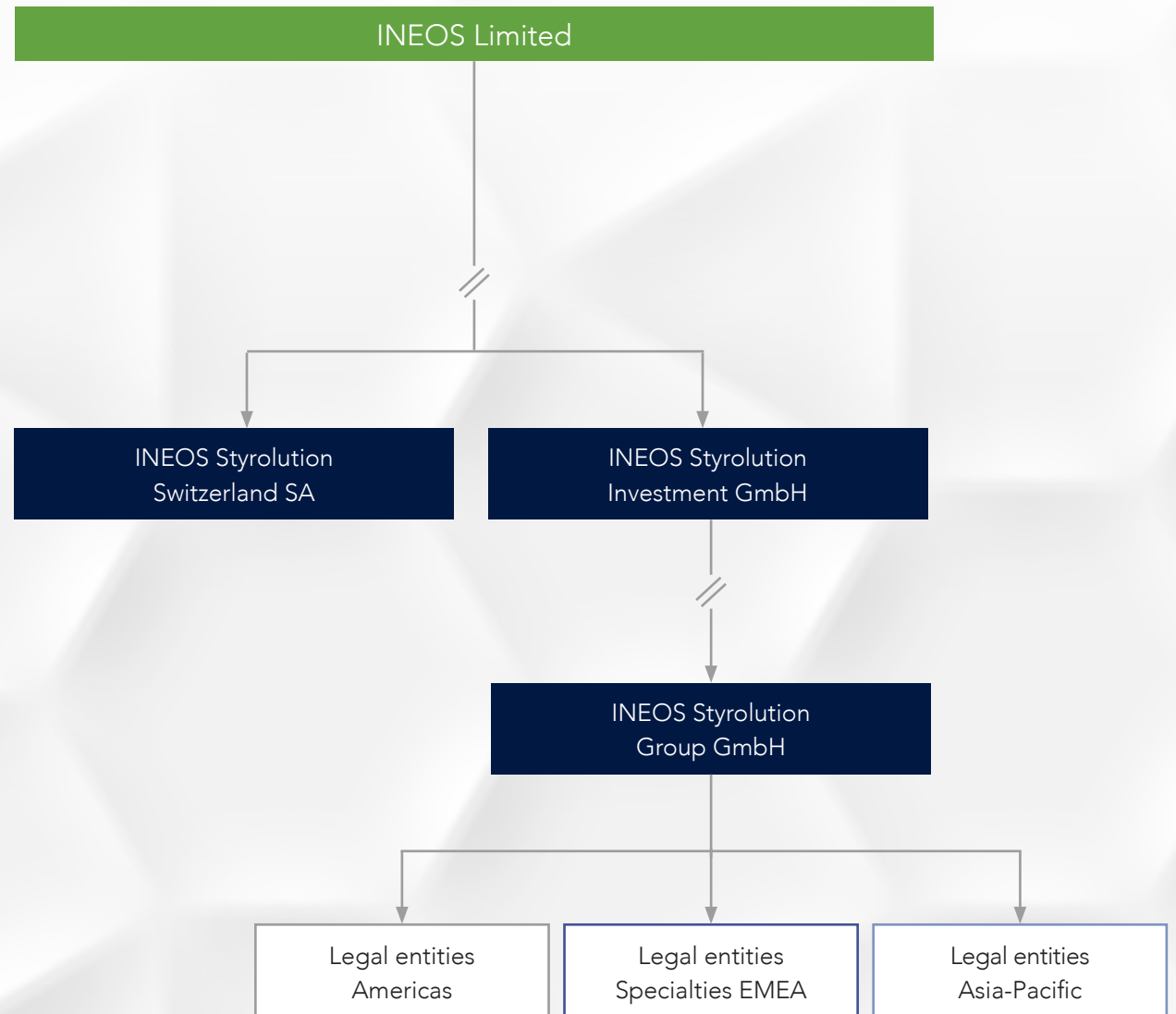
## PRODUCT SCOPE IN THE STYRENIC VALUE CHAIN



## OWNERSHIP

INEOS Styrolution is wholly owned by INEOS Limited. The company Styrolution was founded on October 1, 2011, as a 50:50 joint venture between the two shareholders, INEOS AG and BASF SE. In November 2014, INEOS acquired BASF's 50% share in Styrolution. Since then, the company has operated as a standalone business within INEOS. On January 18, 2016, the company changed its name to INEOS Styrolution to reflect its ownership by INEOS.

## OWNERSHIP OVERVIEW



## 1.3.2 HOW WE DEFINE SUSTAINABILITY

INEOS Styrolution intends to operate and develop its business in a way that balances our current and future needs, taking into account economic, environmental and social factors so that we can sustain and further grow our business in the long term.

## OUR FOCUS INDUSTRIES ARE DRIVEN BY SUSTAINABLE MEGATRENDS SUCH AS ...



### 1.3.3 OUR GLOBAL SUSTAINABILITY PROGRAMME

As the global market leader in styrenics, we aspire to drive sustainable styrenics solutions for our customers. Plastics are one of the most versatile materials in modern society and contribute to every facet of our daily lives. Due to their versatility and capacity for innovation, plastics have a crucial role to play in delivering a more sustainable future. Through their unique combination of lightweight, durability and other intrinsic properties, they contribute to addressing global challenges, such as environmental and climate protection, resource efficiency, and rising living standards in emerging countries.

However, we currently face a global challenge with regard to certain types of plastic waste. Due to inadequate waste management and improper human behaviour, many plastic packaging products end up in the oceans where they do not belong, causing harm to wildlife and ecosystems. Yet, giving up plastics is not the solution. Plastics are too valuable a resource to be thrown away and this challenge of plastic waste must be addressed for our products to achieve their fullest potential.

This is why INEOS Styrolution supports the shift from a linear to a circular economy, where the benefits of plastics are maximised, and negative environmental impacts are minimised. Instead of only using virgin raw materials to



manufacturing products that sometimes end up as waste, we see an opportunity in converting this plastic waste into raw materials for the plastics industry, making the value chain more resource-efficient and circular.

To achieve this, we need to consider a holistic approach. Solutions can only be found if we take into account the impacts of the entire value chain: From use of recycled plastic as raw materials, resource-efficient production, eco-design of plastics, environmental and societal benefits during the

use phase, prevention of waste leakage, enhanced collection and sorting through to the end of life of the product, when its embedded resources can be recovered or reintroduced into the product's life cycle by reuse or recycling.

We are committed to playing a key role in contributing to innovative and sustainable solutions, together with our value chain. Therefore, together with the European plastics industry, we have set a series of ambitious targets and initiatives up to 2030 called  "[Plastics 2030: Plastics-Europe's Voluntary Commitment to increasing circularity and resource efficiency](#)." This set of targets and initiatives aims at achieving the goal of 100% reuse, recycling and recovery of all plastics packaging in the 28 EU member states, Norway and Switzerland by 2040. European plastics manufacturers, including INEOS Styrolution, have committed to ensure high rates of reuse and recycling with the ambition to reach 60% for plastics packaging by 2030.

More information on our initiatives in EMEA and the Americas to support circularity can be found in the chapter "[Responsible products](#)".

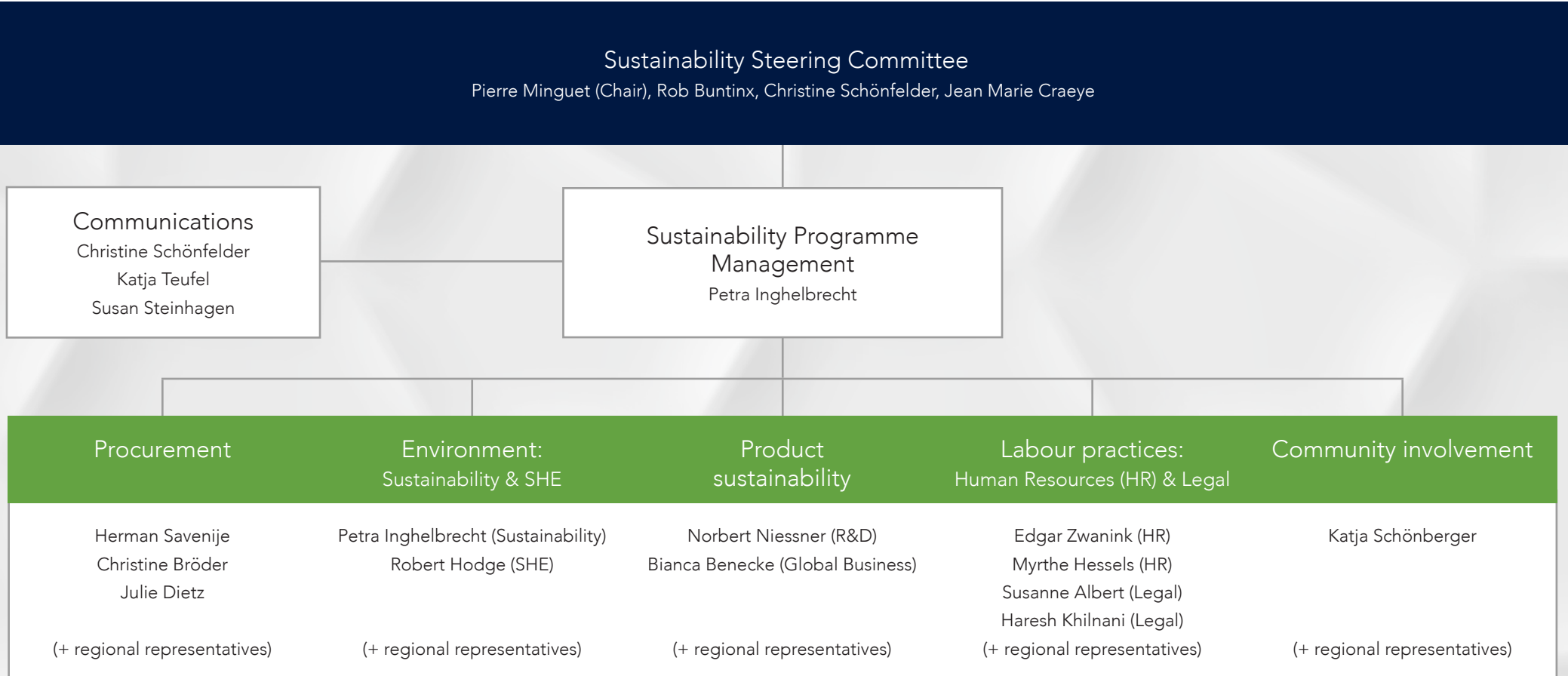


### 1.3.4 OUR SUSTAINABILITY TEAM AND WORKING STRUCTURE

We have a dynamic team that manages our sustainability efforts across all our business areas. For each business area listed below, we have established a workstream staffed with global and regional experts, driving the implementation of our sustainability programme. The responsibility for steering

and aligning our company-wide sustainability strategy lies with our steering committee at board level. The steering committee sets targets, gives strategic guidance, creates and implements initiatives and ensures top management backing. Moreover, the team is supported by an internal ambassador

group, comprising colleagues from all functions, regions and levels. It is their role to promote sustainability within and outside INEOS Styrolution.



### DETERMINING WHAT IS MATERIAL

We regularly engage with our stakeholders to understand the sustainability issues that are of relevance to them and important to our business. To ensure we prioritise these issues, we periodically conduct a formal materiality assessment. In accordance with the reporting framework of the new GRI Standards, we undertook a focused materiality assessment in 2017 involving key internal and external stakeholders.

### MATERIALITY ASSESSMENT PROCESS ✓

The starting point for the current materiality matrix was based on the findings of our materiality analysis conducted in 2014/2015. We re-evaluated these findings, and taking into account current trends and developments, we included three new topics – circular economy, low carbon economy, as well as marine litter and pellet loss. We then decided on 16 topics that we deemed as most important for our stakeholders as well as most relevant to our business.

External and internal stakeholders were identified based on their impact on our business operations and their knowledge of our business activities. All our key stakeholders represented a wide variety of functions, regions and business segments.

The views of our stakeholders were incorporated into a matrix, discussed with the management board in depth, and evaluated in light of the company's objectives, strategy and current development targets. In addition, an external verification of the matrix was also undertaken. The matrix on the right shows the position of all our 16 material topics relative to the degree

## MATERIALITY MATRIX ✓



of stakeholder interest and potential business impact. We are currently developing KPIs and targets for the three newly added topics, which we will share in our future reports.

We use the materiality assessment findings to prioritise the sustainability topics in our report so that it responds to our stakeholders' needs and expectations. The results of this assessment will be reviewed and approved by internal and external stakeholders on a periodic basis to confirm relevance and appropriateness.

### THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

The United Nations Sustainable Development Goals (UN SDGs) are essentially a materiality assessment of our planet and lay out a path to end extreme poverty, address inequality and injustice, and protect the earth. These goals provide guidance and direction on sustainable develop-

ment for both industry and society. We strongly believe that we can contribute positively to these goals through our concerted sustainability actions.

We have indicated below where we are focusing our sustainability efforts towards meeting these goals. For more information on the UN SDGs, please visit [www.un.org/sustainabledevelopment](http://www.un.org/sustainabledevelopment).

<p><b>3</b> GOOD HEALTH AND WELL-BEING</p> 	<p>Ensuring the health and safety of our entire workforce including contractors. Please see the chapter <a href="#">Responsible operations</a>.</p> <p>Promoting the well-being of our workforce as well as the people living in the communities we operate in. Please see the chapter <a href="#">Reliable employer</a> and <a href="#">Responsible neighbour</a>.</p>	<p><b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p> 	<p>Ensuring resource-efficient production and use of our products. Please see the chapter <a href="#">Responsible operations</a>.</p>
<p><b>4</b> QUALITY EDUCATION</p> 	<p>Promoting lifelong learning opportunities through training and development of our workforce. Please see the chapter <a href="#">Reliable employer</a>.</p> <p>Supporting education and providing necessary infrastructure to ensure inclusive education in our local communities. Please see the chapter <a href="#">Responsible neighbour</a>.</p>	<p><b>13</b> CLIMATE ACTION</p> 	<p>Shifting to a low carbon economy and taking action to combat climate change and its impacts. Please see the chapter <a href="#">Responsible operations</a>.</p>
<p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> 	<p>Driving sustainable economic growth through investments and strong business performance. Please see the chapter <a href="#">Responsible business management</a>.</p> <p>Promoting productive employment and decent work for all. Please see the chapter <a href="#">Reliable employer</a> and <a href="#">Foundation of our business success</a>.</p>	<p><b>14</b> LIFE BELOW WATER</p> 	<p>Addressing marine litter and pellet loss in our operations as well as in our value chain. Please see the chapter <a href="#">Responsible operations</a> and <a href="#">Reliable partner to suppliers</a>.</p>
<p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 	<p>Contributing to a circular economy by developing innovative and sustainable solutions. Please see the chapter <a href="#">Responsible products</a>.</p>	<p><b>17</b> PARTNERSHIPS FOR THE GOALS</p> 	<p>Forming strategic partnerships to drive sustainable development across our entire value chain. Please see the chapter <a href="#">Responsible products</a> and <a href="#">Reliable partner to suppliers</a>.</p>

## 1.3.5 KEY SUSTAINABILITY HIGHLIGHTS 2017 ✓

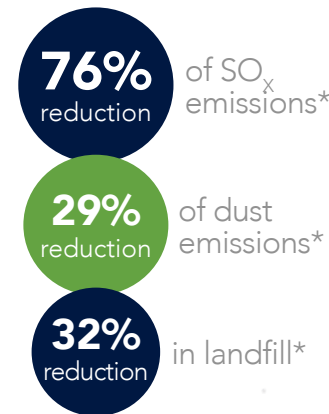
Below is a selection of our key achievements that demonstrate our sustainability performance in our key focus areas.

OVERALL	SAFETY	RESPONSIBLE OPERATIONS	RESPONSIBLE PRODUCTS
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**ECOVADIS**  
GOLD  
RECOGNITION

**Driving circular solutions** for  
POLYSTYRENE through  
DEPOLYMERISATION  
PROJECTS

**Best company safety**  
performance to date  
with a reduced total case  
INJURY RATE (TCIR) of 0.17



\* over the period 2014 to 2017

**90%**  
**HIGHEST-EVER SUSTAINABILITY RATING**  
of R&D and RDC\*  
PROJECTS

\* Regional Development Centres

COMPLIANCE	RELIABLE EMPLOYER	RELIABLE SUPPLIER	COMMUNITY INVOLVEMENT
------------	-------------------	-------------------	-----------------------

**Training** on  
ANTI-BRIBERY, ANTI-CORRUPTION  
& ANTI-MONEY LAUNDERING

**Training** on  
CODE OF CONDUCT  
in EMEA & Americas

**Training** to protect against  
EMAIL PHISHING &  
SOCIAL ENGINEERING ATTACKS

**EMPLOYEE SURVEY**  
for the ENTIRE  
WORKFORCE  
conducted in  
2017



17 out of 18  
**production sites &**  
3 out of 4  
**headquarters &**  
3 sales offices\*  
completed their CSR  
PROJECTS

\* the three largest sales offices out of our 24 offices

## 1.3.6 SUSTAINABILITY TARGETS

We committed ourselves to short-term and medium-term global sustainability targets for the period 2016 to 2019, covering key focus areas of our business. Here is an update of our progress in the past year. All targets marked with an "achieved" icon depict targets achieved in 2017. The other targets have a longer duration and are still in progress.

### SAFETY

#### CONTINUOUS IMPROVEMENT

of our company's  
SAFETY PERFORMANCE



Annual **TOTAL CASE INJURY RATE** (TCIR) of **0.33** by 2018 

### RESPONSIBLE OPERATIONS

- 100%** of sites ISO 14001 certified by 2019
- 60%** of sites ISO 50001/ EMS certified by 2018
- 10%** reduction\* of waste by 2018
- 7%** reduction\* of waste water by 2018
- 7%** reduction of VOC\*\* by 2018
- 3%** reduction\* of water use by 2018

\* baseline year 2014, \*\* VOC = volatile organic compounds, baseline year 2015

### RESPONSIBLE PRODUCTS


- Increase **SUSTAINABILITY QUOTA** for RDC\* above **50%** 
- Keep sustainability quota for R&D above **90%** 
- Develop proof of concept of **POLYSTYRENE DEPOLYMERISATION** including **BUSINESS CASE** by 2019

\* Regional Development Centres

### COMPLIANCE

- ALL RELEVANT EMPLOYEES** trained on **ANTI-BRIBERY & CORRUPTION** 
- BIENNIAL TRAINING** of entire active employee base on **CODE OF CONDUCT**
- NEW POLICY** on **DATA PROTECTION** introduced in 2018
- REFRESHER TRAINING** on **ANTITRUST** in 2018

### RELIABLE EMPLOYER

- 80%** of exempt employees to have an **EMPLOYEE DEVELOPMENT INTERVIEW** by 2018
- Implementation of **MANAGEMENT DEVELOPMENT PROGRAMMES** in all regions in 2017 
- EMPLOYEE SURVEY** for the entire workforce conducted in 2017 

### RELIABLE SUPPLIER

- 80%** of total supplier spend to be third-party assessed by end of 2020
- 100%** of buyers trained on sustainability by end of 2017 
- SUSTAINABILITY** to be included as a key component in **SUPPLIER EXCELLENCE PROGRAMME** by 2020

### COMMUNITY INVOLVEMENT

- ALL SITES, OFFICES\* & HEADQUARTERS** to have at least one **CSR PROJECT**

\* the three largest sales offices out of our 24 offices

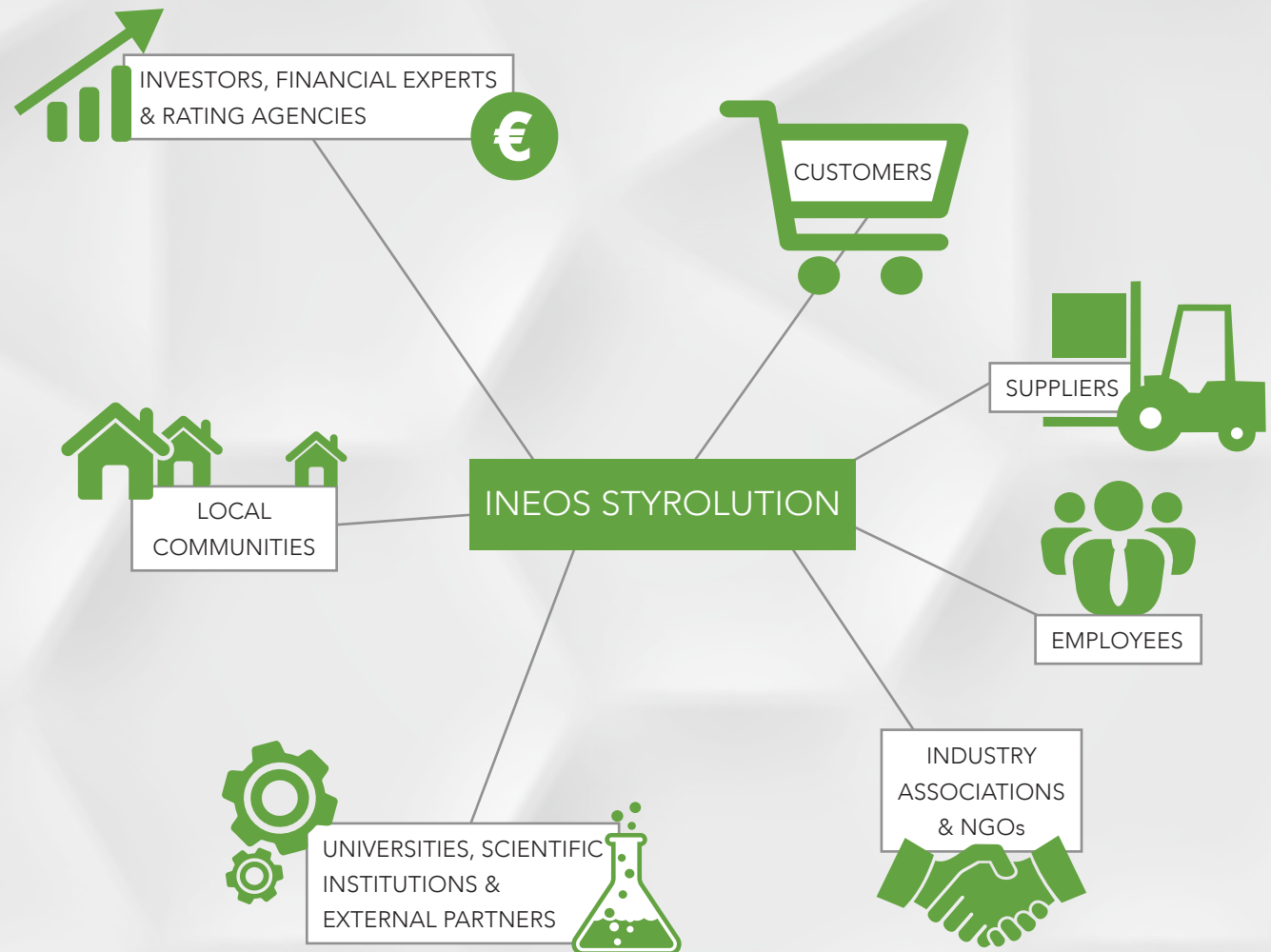
## 1.3.7 STAKEHOLDER DIALOGUE








Engaging stakeholders and developing meaningful partnerships with them over time is essential for our long-term business success. We realise that regular, open and proactive dialogue with all relevant stakeholders helps us to understand their perspectives, expectations, key issues and needs. In this way, we are able to integrate them into our business decision-making processes wherever possible, ensuring that our strategy addresses the issues that are important to them. Dialogue with stakeholders gives us the opportunity to explain our clear and committed approach to sustainability as well as the value of our work, and our products and services for society.

We have identified our key stakeholders as those who contribute to our economic, social and environmental performance. These stakeholder groups comprise our customers, suppliers, employees, investors, financial experts and rating agencies, local communities, industry associations, NGOs, universities, scientific institutions and external partners.

We hold membership in national and international industry associations, such as the European Chemical Industry Council (Cefic), PlasticsEurope, the Chinese International Chemical Association (AICM), the Styrene Information & Research Center (SIRC), the Plastic Food Packaging Group in the American Chemistry Council, the World Plastics Council as well as local community advisory panel organizations in Canada, Mexico and USA.

## STAKEHOLDER GROUPS ENGAGED

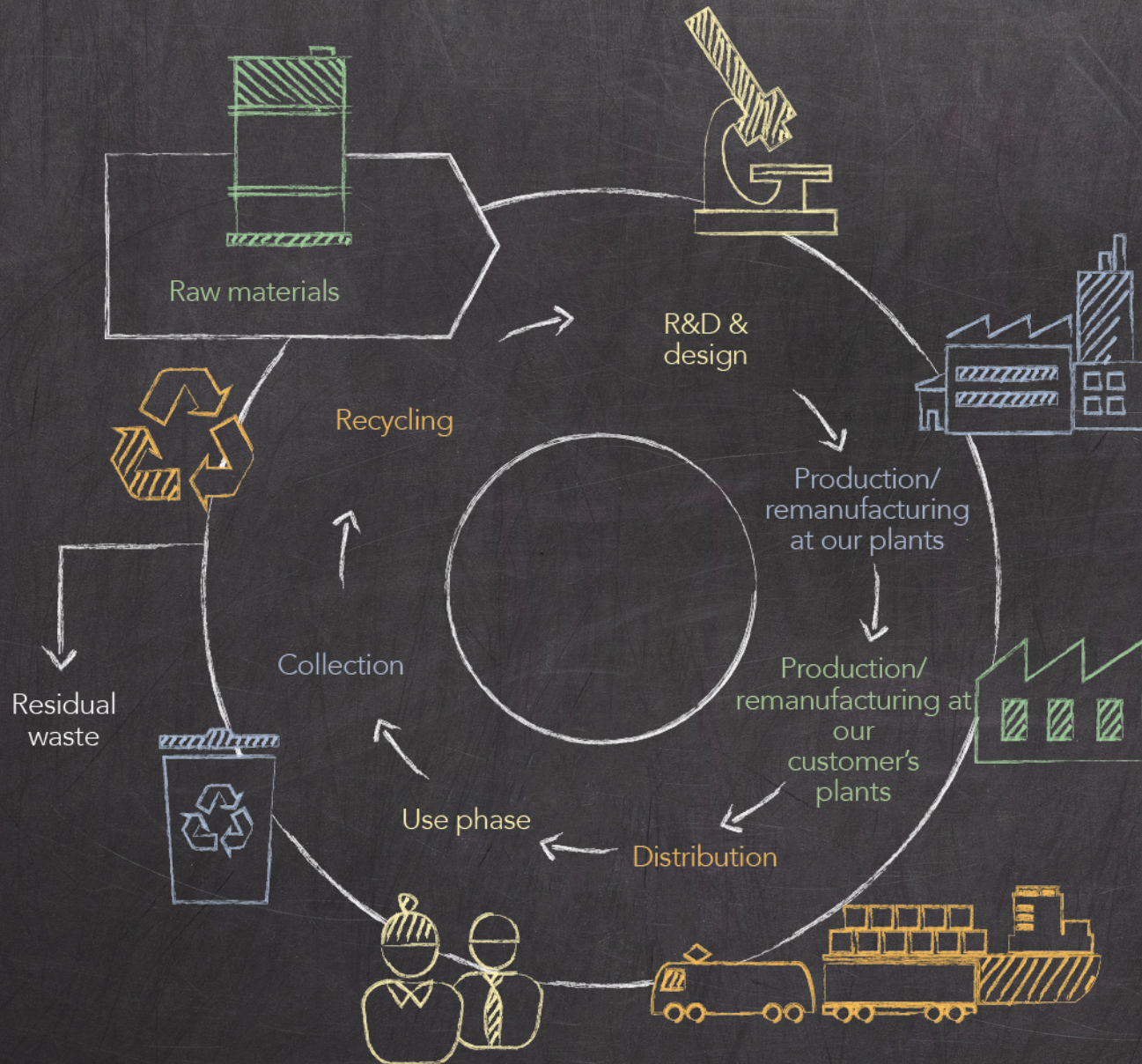


STAKEHOLDERS	METHODS OF ENGAGEMENT	KEY TOPICS
 <p>Investors, financial experts &amp; rating agencies</p>	<p>Quarterly disclosures, sustainability report, annual investor days, investor relations releases</p>	<p>Strategy, performance, market and corporate developments, sustainability</p>
 <p>Customers</p>	<p>Innovation workshops, customer meetings, direct engagement, industry trade group meetings</p>	<p>Strategy, performance, sustainability, product quality, safety and reliability (safety data sheets)</p>
 <p>Suppliers</p>	<p>Direct engagement, assessments and audits</p>	<p>Product quality, safety and reliability, sustainability</p>
 <p>Employees</p>	<p>Group &amp; regional conferences, town hall meetings, work council meetings, workshops, management board briefings, intranet, eMagazines, newsletters, training sessions, webinars, anonymous 24/7 hotline</p>	<p>Strategic initiatives, business performance, policies, IT security, new developments, personnel changes, R&amp;D, innovation, sustainability, safety and health</p>
 <p>Industry associations &amp; NGOs</p>	<p>Memberships, direct engagement, task force &amp; working group engagements, dialogue, conferences, workshops</p>	<p>Sustainable business practices</p>
 <p>Universities, scientific institutions &amp; external partners</p>	<p>Direct engagement, collaborative partnerships, quarterly face-to-face meetings</p>	<p>R&amp;D, innovation, sustainability</p>
 <p>Local communities</p>	<p>Direct engagement, collaborative partnerships, sports and educational programmes, philanthropic efforts, employee volunteering, sponsorships</p>	<p>Community sponsorships, volunteering, local engagement</p>

# 2

## SUSTAINABLE STYRENICS

- RESPONSIBLE PRODUCTS 2.1
- RESPONSIBLE OPERATIONS 2.2
- RELIABLE PARTNER TO SUPPLIERS 2.3



## 2.1 RESPONSIBLE PRODUCTS

# SHAPING THE FUTURE WITH SUSTAINABLE STYRENICS

- 2.1.1 Our approach
- 2.1.2 Our performance



We strive to provide sustainable solutions to our customers and end-consumers by taking a responsible approach to our product portfolio across the entire value chain.

### 2.1.1 OUR APPROACH ✓

Our styrenics products contribute to every facet of our daily lives due to their intrinsic and versatile properties. Styrenics can be durable and weather-resistant, making them a longer-lasting alternative to other materials. They also have a low density and a high stiffness compared to other engineering plastics, which allows the manufacture of lightweight applications with reduced transportation costs and fuel emissions.

When it comes to processing, styrenics offer even more benefits in terms of sustainability. Due to their amorphous character, styrenics consume less energy during processing and cooling compared to engineering plastics, such as polyamides or polyesters. Not only does this result in cost savings for our customers, it also significantly reduces the use of process additives. Therefore, styrenics are often the material of choice across a broad range of industries and applications.

As the global market leader in styrenics, we take a responsible approach to our product portfolio looking at the entire value chain – from procurement, development and production to transport and sales, through integration into customer processes to final intended use. Together with customers and the scientific community, we engage in collaborative innova-

tion of cutting-edge sustainable products. By driving product stewardship and quality management, we ensure compliance with product regulations and deliver safe, best-quality and high-performance products to our customers. Together with associations and our business partners, we strive to achieve high and well-acknowledged sustainability standards in the styrenics industry.

Marine litter, inadequate waste management systems, low recycling rates and lack of end-of-life options for plastics waste are significant challenges not only for OEMs, plastics packaging producers and plastics manufacturers, but also for our society. Applications, such as bags and straws and other 'disposable' plastics, are perceived to be inexpensive and are thrown away because consumers do not allocate a value to it. We are aware that some of our polystyrene products are used in single-use applications and cannot accept that these applications are found in marine and land environments where they do not belong.

Instead of disposing polystyrene and other styrenics products after a single use, a sustainable and resource-efficient solution is to close the loop to contribute to a circular economy: by keeping resources in use for as long as possible, followed by recovering and recycling products and materials at the end of each service life.

We want to be part of this solution. Being part of a circular economy will be a transformative way of doing business, as it essentially requires a low amount of feedstock to create a continuous cyclical value chain. This is why we are actively pursuing potential solutions, such as depolymerisation to successfully achieve circularity of our products.

"After almost three years of our successful partnership I am excited about the results, but also about the entrepreneurial spirit in our R&D teams across Neue Materialien Bayreuth and INEOS Styrolution.

The close proximity of all R&D projects to hands-on applications makes INEOS Styrolution an attractive partner, providing new insight in the process of bringing research result to the market in a fast, structured, yet sustainable way. I am looking forward to having new, ambitious and high value co-creation projects with our partner INEOS Styrolution."

**Prof. Dr. Volker Altstädt**  
CEO Neue Materialien Bayreuth

Polystyrene has intrinsic chemical properties that allows for thermic depolymerisation into styrene monomer, the main raw material of our production. Using recycled styrene as a raw material in our production will close the loop from cradle to cradle, and establish a true circular plastic solution.

**MATERIALITY ASSESSMENT** ✓

Circular economy is a topic of very high relevance to us and our stakeholders. It offers a solution to global and societal challenges, such as marine litter. Contributing to a circular economy will help to improve our resource efficiency and to address the issue of insufficient waste management. Innovation will drive this change.

We are constantly striving to optimise the resource efficiency of our products in order to develop innovative products and applications. We work closely with our customers by offering services ranging from innovation workshops to development support and co-development projects to solve technical and performance challenges.

Our customers require safe products that are compliant with local and international regulations on their handling and for their final applications. Thus, responsible product stewardship by complying with product regulations and delivering safe, top-quality products to our customers is at the heart of our business.

**2.1.2 OUR PERFORMANCE**

**KEY HIGHLIGHTS 2017** ✓

In 2017, we actively worked on circular solutions for polystyrene through depolymerisation projects.

**OUR SUSTAINABILITY TARGETS** ✓

In order to demonstrate our commitment to provide improved sustainable solutions for our customers, we defined global sustainability targets in 2016. These targets are aligned with our material topics and underscore our commitment for continuous improvement.

For product sustainability, we aimed to bring our sustainability quota for all research and development projects – be it global R&D or Regional Development Centre (RDC) projects – to above 90%. A comprehensive analysis of all global R&D and regional development projects in our innovation pipeline undertaken in 2017 shows that our Global R&D/ Intellectual Property unit, which drives fundamental, mid-to-long-term oriented developments, maintained its high level of more than 90% of projects having a positive sustainability impact. Regional development projects achieved above 80%, hence, on average all our R&D projects worldwide have a positive sustainability rating of 90%. This is the highest ever achieved within the company to date.

We are also working on a proof of concept for promising depolymerisation technologies for polystyrene by 2019, through our close collaborations with leading research institutes and partners along the value chain.

In 2017, we received a grant from the German Federal Ministry of Education and Research for a research project on recycling polystyrene post-consumer waste. We also entered into cooperations with Agilyx, an environmental technology and development company, and Pyrowave, a recycling technology provider, to develop polystyrene recycling solutions in North America.

We place great importance on a responsible approach to our product portfolio along the entire value chain. The complexity of a circular economy requires a collaborative approach. Thus, we are currently embarking on several projects to develop sustainable solutions in our products' lifecycle, by engaging not only the styrenics manufacturers but also stakeholders across our value chain, such as recyclers, brand owners and customers.

**KEY HIGHLIGHTS 2017**

**90%  
HIGHEST-EVER  
SUSTAINABILITY  
RATING**

of **R&D** and **RDC\* PROJECTS**

\* Regional Development Centres

**SUSTAINABILITY TARGETS**

Increase **SUSTAINABILITY QUOTA** for RDC\* above **50%**

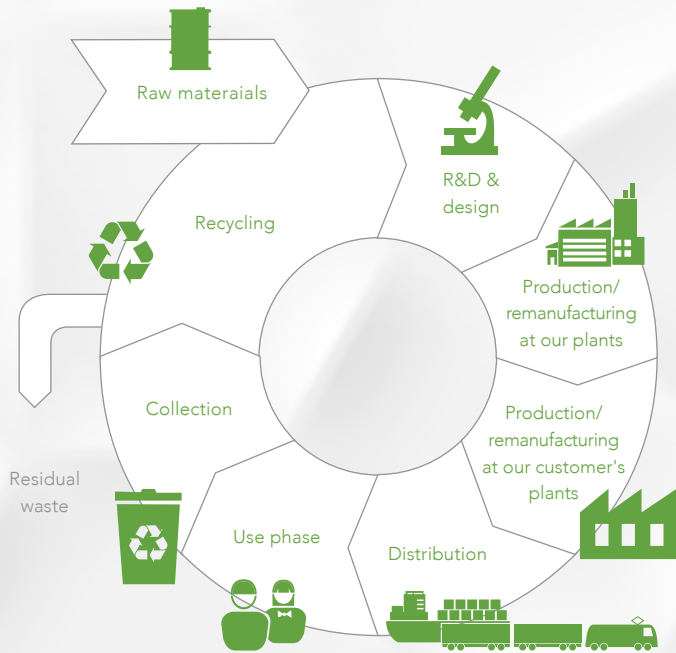


Keep sustainability quota for **R&D** above **90%**



Develop proof of concept of **POLYSTYRENE DEPOLYMERISATION** including **BUSINESS CASE** by 2019

## RESPONSIBLE BUSINESS PRACTICES ACROSS OUR VALUE CHAIN

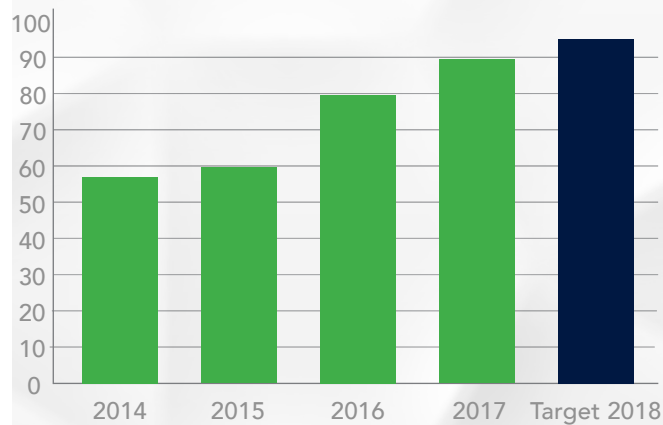


Together with the European plastics industry, we have set a series of ambitious targets and initiatives up to 2030. Called ["Plastics 2030: PlasticsEurope's Voluntary Commitment to increasing circularity and resource efficiency,"](#) this set of targets and initiatives aims at achieving the goal of 100% reuse, recycling and recovery of all plastics packaging in the 28 EU

member states, Norway and Switzerland by 2040. European plastics manufacturers, including INEOS Styrolution, have committed to ensure high rates of reuse and recycling with the ambition to reach 60% for plastics packaging by 2030.

We are also part of a joint initiative of the styrenics industry called Styrenics Circular Solutions (SCS) to increase the circularity of polystyrene by strengthening its sustainability and improving resource efficiency. This initiative aims to engage stakeholders across the styrenics value chain in identifying, developing and industrialising new closed-loop recycling technologies and solutions. It will be set up in 2018 as an independent legal entity.

### PERCENTAGE OF PROJECTS DRIVING SUSTAINABILITY\* ✓



\* including global R&D and RDC projects in our innovation pipeline

### DRIVING SUSTAINABILITY FROM THE START WITH OUR SUSTAINABILITY SCREENING TOOL

We place great importance on a responsible approach to our product portfolio along the entire value chain. To monitor and report on our progress, we developed a sustainability screening tool, an easy-to-use online system that allows us to identify the impact of new products and processes throughout the whole life cycle. As not only products but also major application developments are evaluated analogously, the whole innovation pipeline can be measured against its sustainability impact.

The screening tool is based on a multi-criteria analysis evaluating new solutions in terms of their sustainability footprint. The criteria include material and energy savings during production as well as in application, the toxicological profile, emissions of volatile organic compounds and the ability to be recycled.

After this assessment, the new product or product application can be adjusted or further improved and may even be scored for advanced sustainability as the project progresses.

ON AVERAGE, ALL OUR R&D AND RDC PROJECTS WORLDWIDE HAVE A POSITIVE SUSTAINABILITY RATING OF 90%, WHICH IS THE HIGHEST EVER ACHIEVED WITHIN THE COMPANY TO DATE

## LURAN® S PROCESSED WITH SINGLE-STAGE COLORFORM TECHNOLOGY

Our high-grade polymer Luran S KR 2864C can be processed with the ColorForm technology developed by KraussMaffei, which provides a more cost-efficient alternative compared to traditional painting. This new technology sets new standards in terms of efficiency as the paint is directly injected between the mould and the part surface with no second work step needed. It is, in addition, extremely scratch-resistant due to the polyurea coating from PANADUR, a manufacturer of functional surface systems based on polyurea. This coating ensures longer-lasting quality and sustainability.



### KEY BENEFITS FOR OUR CUSTOMERS AND END-CONSUMERS



- Cost-efficiency due to processing with single-stage ColorForm technology
- Safer and more economical manufacturing, less waste due to lower scrap rate
- No separate repolishing necessary



- High-quality surface texture
- UV resistance
- Chemical and scratch resistance
- Durability



LURAN S KR 2864C IMPROVES PRODUCTIVITY, AS THE USE OF POLYUREA ELIMINATES THE NEED FOR MOULD RELEASE AGENTS, RESULTING IN A SIGNIFICANT REDUCTION OF THE PROCESS INTERVAL PERIODS, MANUFACTURING COSTS AND WORK WASTE DUE TO A DROP IN REJECT RATES

## OPTIMUM THERMAL INSULATION WITH LURAN® S



LURAN S 778T G2 UV HELPS TO IMPROVE ENERGY EFFICIENCY AND SUSTAINABILITY AND STANDS OUT DUE TO ITS HIGH SURFACE QUALITY AND LONG-LASTING AESTHETICS

This system for building glass facades is the first of such applications in the market made from styrene-based polymers, meeting the highest standards in terms of design, comfort, safety and energy efficiency. Luran S 778T G2 UV, an 8% glass-fibre-reinforced ASA grade, offers a clear advantage in terms of UV resistance and shrinkage compared to other plastic solutions. Well-suited for metal-plastic combinations and structural parts for outdoor applications, it features high impact strength and dimensional stability, best-in-class weatherability as well as low thermal conductivity.

### KEY BENEFITS FOR OUR CUSTOMERS AND END-CONSUMERS

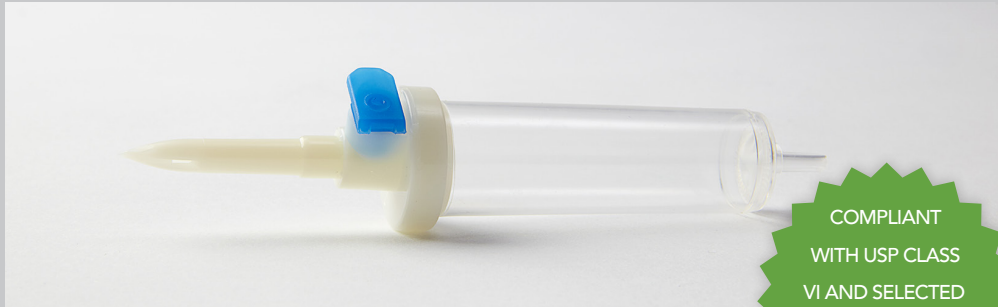


- High surface quality inspite of glass-fibre-reinforcement
- Low shrinkage



- Advanced energy efficiency
- Heat and UV resistance
- Low thermal conductivity
- Best-in-class weatherability
- Durability

## STYROLUX® FOR SAFE AND RELIABLE HEALTHCARE APPLICATIONS



COMPLIANT WITH USP CLASS VI AND SELECTED ISO 10993 STANDARDS

Styrolux 4G60 has been specifically designed for the development of medical drip chambers in IV sets. This new grade represents the first solution of the fourth generation of advanced copolymer materials. This dedicated grade for drip chambers not only excels in softness, elasticity and transparency, it also offers good flowability and high impact strength. Very good bonding properties make this new grade an excellent fit for the production of drip chambers.

Styrolux 4G60 is available with the Essential HD Package with a signed long-term supply contract. This package includes up to 12 months Notification of Change (NOC).

### KEY BENEFITS FOR OUR CUSTOMERS AND END-CONSUMERS



- Low density allows more parts to be made per ton produced
- High stiffness enables thinner walls
- High flowability supports efficient production of small and fine parts
- Regulatory compliance



- High impact strength
- Chemical resistance and colour fastness for longer lifetime of the final product
- Patient safety and adherence to medical industry requirements

## ENERGY-EFFICIENT CUPS MADE OF STYROLUTION PS FOR SAFE AND HYGIENIC PACKAGING



POLYSTYRENE REQUIRES ABOUT 60% LESS ENERGY THAN POLYPROPYLENE AND ABOUT 40% LESS ENERGY THAN PET

Polystyrene cups exhibit high mechanical strength at low weight, do not require pre-drying and consume less process energy compared to other plastic materials. In fact, the production of polystyrene requires approximately 60% less energy than polypropylene, and 40% less energy than PET.

### KEY BENEFITS FOR OUR CUSTOMERS AND END-CONSUMERS



- No pre-drying necessary
- Less process energy
- Thinner wall thickness
- Easier thermoforming



- High mechanical strength
- Low weight
- Compliance with Food and Drug Administration (FDA) and European Food Safety Authority (EFSA) standards

## REDUCED ENERGY AND MATERIAL CONSUMPTION WITH SUSTAINABLE SELECTIVE LASER SINTERING

Global R&D is developing a new product for 3D selective laser sintering (SLS). The new material is a powder-grade styrenics blend, suitable for printing prototypes and small series items in an additive manufacturing process. The powder grade developed for 3D printing offers sufficient mechanical properties, low shrinkage as well as low warpage properties and good surface quality. In the SLS process, the powder also shows a multitude of sustainability features, such as robust processability, faster cycling times, lower energy consumption due to a lower powder bed temperature as well as a higher recycling rate (currently 50% waste).

The German Federal Ministry for Economic Affairs and Energy (BMWi) decided to grant €650,000 from the 6th Energy Research Programme of the German Federal Government for the development, which covers about 50% of the total project cost over three years.

THE NEW BLEND FOR SELECTIVE LASER SINTERING PROVIDES A MULTITUDE OF SUSTAINABLE FEATURES, SUCH AS FAST CYCLING TIMES, A LOW ENERGY CONSUMPTION AND A HIGH RECYCLING RATE

### KEY BENEFITS FOR OUR CUSTOMERS AND END-CONSUMERS



- Faster cycling times
- Lower energy consumption due to a lower powder bed temperature
- Higher recycling rate (currently 50%)



- High surface quality



“We are proud that our efforts in sustainability and recycling are supported by a fund from the German Federal Ministry of Education and Research.

Initial experiments show that styrene monomer can be recovered from waste polystyrene in sufficient yields and we will present our first results in 2018.”

**Bianca Benecke**  
Global Application Development Manager,  
Global R&D/ IP  
INEOS Styrolution

“We are excited about this collaborative effort with INEOS Styrolution. The ability of our technology to divert waste polystyrene from landfills and create a sustainable recycled polymer aligns with global efforts of waste diversion and the move to a circular economy. This is one of many privileged partnerships we are continuing to develop to help advance the scaling of this technology both domestically and in international markets.”

**Joseph Vaillancourt**  
CEO Agilyx Corporation

“We believe the future of plastics is circular. Plastics are meant to stay in our modern world to continue delivering broad span benefits during their use phase. However, this must include end-of-life-solutions. Therefore, we are pleased to collaborate with INEOS Styrolution to demonstrate recyclability of post-consumer polystyrene packaging. Our technology combined with the support of the industry will help improve the life-cycle of polymer products.”

**Jocelyn Doucet**  
CEO Pyrowave

## REUSE AND RECYCLING ✓

Finding new ways to recycle represents an increased opportunity to save valuable resources for future generations and to avoid plastics ending up in landfills.

In the past, economic and technical challenges prevented the commercial development of chemical recycling. Today we are seeing a number of encouraging new developments and initiatives in this area. Further innovation and funding is required to make feedstock recycling technically and economically a reality.

Therefore, as a complement to mechanical recycling, we are looking for potential solutions in chemical recycling in order to divert plastic waste from landfills and incineration. Recycling this plastic waste as a raw material will enable us to establish circular solutions for polystyrene.

In 2017, we received a grant from the German Federal Ministry of Education and Research for a research project on recycling polystyrene post-consumer waste, with the target to generate high-quality polystyrene to meet the most demanding standards, ultimately for food contact applications. The project includes a technical feasibility study, the development of a holistic recycling concept in collaboration with waste management companies, and a commercial and an ecological evaluation of the recycling process. This project will be executed with contributions from INEOS in Köln. Two institutes of the University of Aachen (RWTH) – the Institute for Processing and Recycling (Institut für Aufbereitung und Recycling, I.A.R.) and the Institute of Plastics Processing (Institut für Kunststoffverarbeitung, IKV) – as well as Neue Materialien Bayreuth will support the project which is planned to run for three years.

We also entered into cooperations with Agilyx, an environmental technology and development company, and Pyrowave, a recycling technology provider, to develop polystyrene recycling solutions in North America.

Our Americas-based collaborations with Agilyx and Pyrowave not only aim towards deploying a new chemical recycling process, but also aim to create a new innovative supply chain that bridges both the plastics and waste management industries. Along with various key players along the value chain of the polystyrene industry, we aim to demonstrate the recyclability of post-consumer polystyrene packaging using innovative depolymerisation technology.

These technologies, through an extensive collaboration along the value chain, can provide efficient and sustainable solutions to today's environmental challenges.

## PRECAUTIONARY PRINCIPLE

As a manufacturer, committed to the long-term sustainability of our business, we manage the use of our chemicals in a responsible manner by applying the precautionary principle. This principle is an inherent part of our approach to risk assessment and risk management: We are familiar with and closely scrutinise our substances' properties, establish guidelines for safe handling and processing and will continuously review and update our criteria and guidelines for the development of new products. In all of our plants, the precautionary principle is an integral component in our management of change process, requiring a documented risk assessment for all process changes.

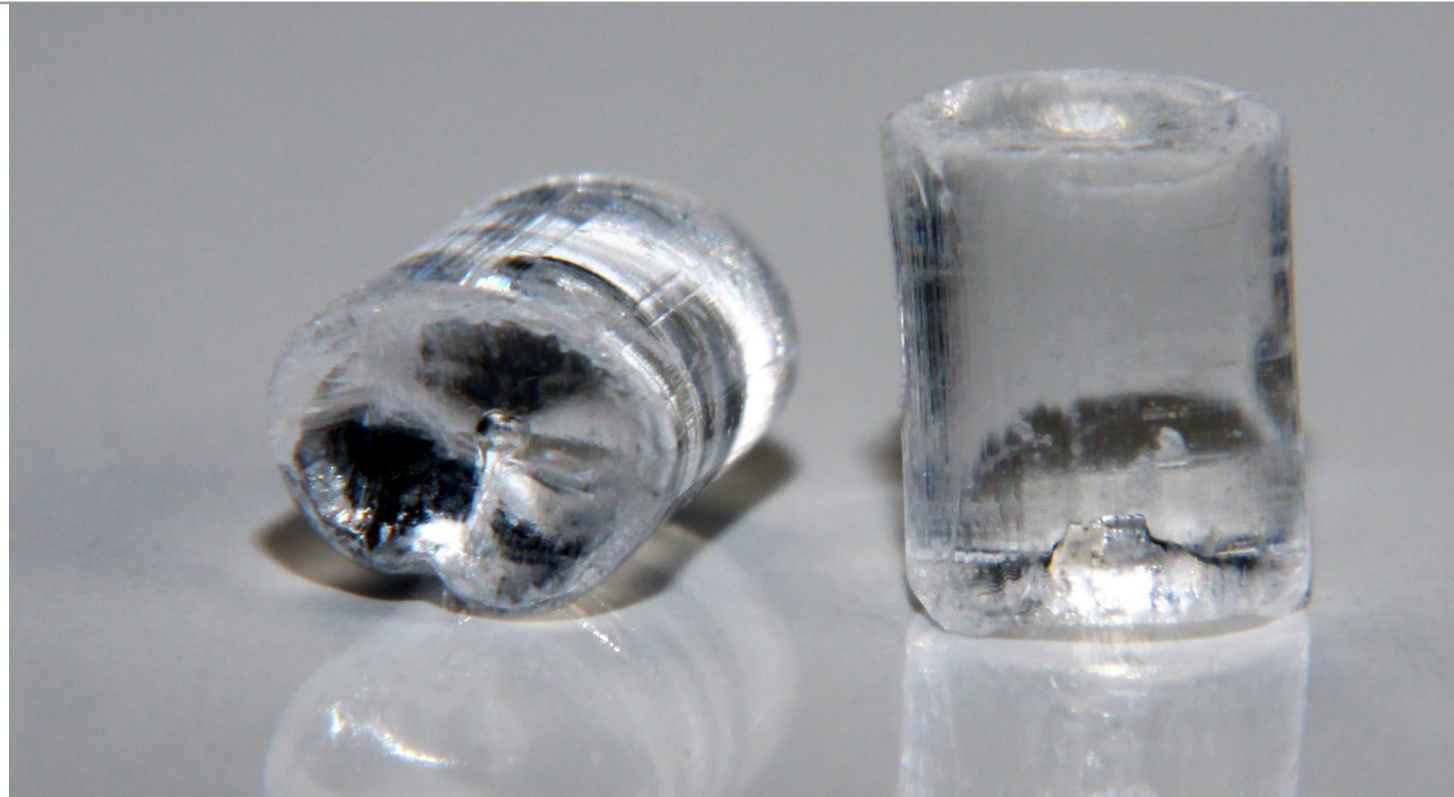
### RESPONSIBLE PRODUCT STEWARDSHIP

INEOS Styrolution takes its responsibility very seriously to ensure the safety of our end-consumers, business partners, as well as employees and contractors who process our materials.

Ensuring compliance with various national and international regulations is an ongoing obligation and forms an integral part of our operations. We make sure that our styrenics and raw materials comply with legal requirements in all the regions and industries we serve. For example, in the food packaging industry, our products meet strict standards, including those set by the European Food Safety Authority (EFSA) and the U.S. Food and Drug Administration (FDA).

In order to provide customer-centric regulatory support and proactively address global regulatory and product safety trends, we rely on our global network of internal and external experts. As specialists in chemical and product regulations related to our portfolio, they can offer regulatory consulting services to our own businesses and in certain cases – for example, when dealing with product approvals in different regions – directly to our customers.

To ensure product safety and to give our customers a competitive edge, we offer a comprehensive range of services. Via an online portal, we provide various important information – such as safety data sheets in various languages, technical data sheets and regulatory documents. In addition, a team of dedicated professionals is on hand to help our customers meet strict international regulatory requirements. This especially applies to customers from the healthcare industry. We offer our healthcare customers comprehensive medical service packages that go well beyond industry benchmarks, such as our Full Service HD



Package or our Essential HD Package. The Full Service HD Package helps customers save time and money, so that they can focus their energies on product vision and design. For example, a Notification of Change (NOC) term of up to 36 months can be offered when signing a long-term supply contract. Furthermore, it comes with full regulatory compliance, including USP class VI, ISO 10993, FDA and food contact compliance, Drug Master File (DMF) as well as letters of authorisation.

Increased technical support (such as colour and application development, design support) as well as an obligation of

suppliers to control the specification of their raw materials are other characteristics of the Full Service HD Package. Moreover, it has specific medical grade nomenclature and long-term security of global supply availability.

INEOS Styrolution leverages its expertise to engage in collaborative development projects that anticipate legislative changes, thereby generating value for our customers and creating a competitive advantage for all involved.



"As part of our commitment to the long-term sustainability of our business, we focus on responsible use of our raw materials in order to provide our customers with

high-quality, sustainable products. Our quality and product stewardship procedures are fundamental to creating and maintaining our customers' trust."

**Jean-Marie Craeye**  
Global Head of Sustainability,  
Quality Management and Regulatory Affairs  
INEOS Styrolution

To gain a broader market overview, assess product quality and minimise risks, we also work closely with industry associations, such as PlasticsEurope and the U.S. Styrene Information & Research Center. These partnerships help us better understand current and future regulatory developments, for instance, by giving us access to studies on feedstock and product safety.

Our certified quality management system ensures the consistent delivery of high-quality products around the world and, in combination with regulatory affairs, assists in building and maintaining the trust of our customers. The system is based on best practices and international standards, such as ISO 9001: 2015. It is crucial in helping us keep the promises we make to customers in terms of quality parameters, such as consistently high technical product properties or delivery deadlines. The system facilitates on-time supply of products in a clean and serviceable condition. We have now achieved the matrix certification for our European business (including sales, product development and European operations) rather than certification for each individual plant, providing greater confidence to our customers in our completely integrated quality approach. We plan to extend this step by step into the rest of our global activities. Good manufacturing practices (GMP) are being implemented globally as a part of our quality system.

### PRODUCT RESPONSIBILITY

We constantly monitor international regulations as they develop to anticipate requirements, to improve our products and to ensure compliance in all markets in which we operate. For example, in applying global inventory management, we have implemented automated tools such as the Substance Volume Tracking Tool for REACH to avoid non-compliance cases. We make use of an eShop on our website to provide

up-to-date information to our customers on product stewardship, providing a wide range of information that can be downloaded at any time to assist customers in using our products effectively and safely.

We provide over 3,000 downloadable safety data sheets directly on our website that cover our large range of products. They are provided in 32 languages covering the 40 different countries in which those products are sold.

For customers who register on our website, around 265 regulatory documents are available for download, including regulations on food contact, RoHS\*, REACH\*\*, and SVHC\*\*\*. Customers who download regulatory documents receive notification of updates. In 2017, we received around 10,000 requests that were addressed either via our product stewardship network or via regulatory documents on our website. We are constantly reviewing and improving our website services in order to make it more user-friendly for our customers.

Concerning "conflict minerals" as defined by the Securities and Exchange Commission (SEC), i.e. cassiterite, columbite-tantalite, gold, wolframite and their derivatives, these have not been intentionally added as ingredients in the manufacture of our products and, to the best of our knowledge, are not known to be present in the final products.

\* RoHS: Restriction of Hazardous Substances Directive

\*\* REACH: EU regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals

\*\*\* SVHC: substance of very high concern

## 2.2 RESPONSIBLE OPERATIONS

# ENSURING SAFE AND RESOURCE-EFFICIENT OPERATIONS



- 2.2.1 Making safety our #1 priority
- 2.2.2 Our approach
- 2.2.3 Our performance
- 2.2.4 Improving our environmental footprint
- 2.2.5 Our approach
- 2.2.6 Our performance
- 2.2.7 Environmental data
- 2.2.8 Environmental footprint highlight: Americas

### 2.2.1 MAKING SAFETY OUR #1 PRIORITY

Our employees, contractors and on-site logistics personnel are our most valuable asset, which is why workplace safety is and remains our undisputed #1 priority. For us, incident-free operation is our objective.

### 2.2.2 OUR APPROACH ✓

INEOS Styrolution is convinced that being a market leader goes hand in hand with an outstanding safety record and that all accidents are preventable. We take our responsibility for safety, health and environment (SHE) very seriously and are fully committed to delivering a continually improving performance across all our operations.

Our commitment to safety starts at the top, with the management board being responsible for our safety performance. However, it is the responsibility of everyone at INEOS

Styrolution to ensure the highest standards of safety and health in everything that we do every day.

We have established a SHE culture of open dialogue, coaching and trust that reinforces our SHE performance. We aim to minimise the impact our facilities have on local communities and local environments. This means working in close partnership with community groups and key stakeholders to ensure that we are a responsible neighbour and partner.

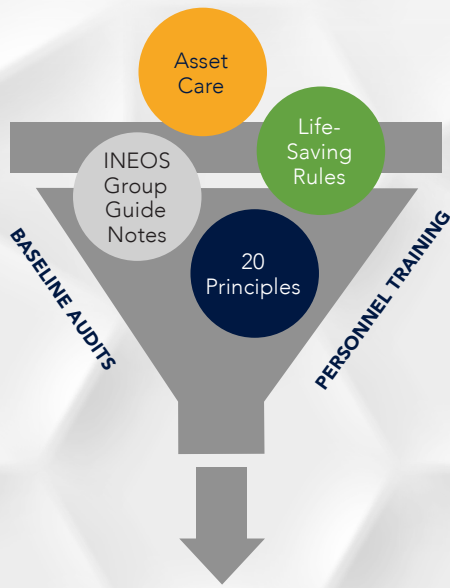
We strive to meet, and where feasible, exceed strict safety and health performance targets. We are transparent about our performance and publish our results locally and nationally, as required.

### MATERIALITY ASSESSMENT ✓

According to our recently conducted materiality analysis, out of all 16 key topics, workplace safety was rated as being of highest importance to our internal and external stakeholders.

### OUR GLOBAL SHE EXCELLENCE PROGRAMME ✓

Our global SHE Excellence programme was introduced in early 2012 to establish high SHE standards and management systems. In 2015, INEOS Styrolution started to integrate the INEOS Group's SHE principles, guidelines and life-saving rules in its SHE Excellence programme. In order to facilitate this integration, we implemented a SHE leader training, covering all aspects of our SHE Excellence programme and the expectations of INEOS. The training provides a common baseline for SHE understanding, is interactive and includes a tool kit to help our leaders train their department employees and contractors. This integration of the INEOS Group's SHE standards into our SHE Excellence programme was completed in April 2016 across all our sites around the globe.



**OUR FOUNDATION FOR SHE EXCELLENCE**



**INEOS GROUP PRINCIPLES & GUIDELINES**

OUR SAFETY PRINCIPLES ✓

We focus our attention on safety in the processes we apply and the behaviours we expect. In alignment with all other INEOS Group businesses, we follow two sets of ten key safety principles that have become our 20 principles. These 20 principles form the foundation of our SHE Excellence programme, and define what is expected of all our employees, contractors and businesses on a day-to-day basis. They were developed using experience and learnings over the years from INEOS as well as external learnings from major safety incidents worldwide.

Ten of our principles deal with process safety and are aimed at ensuring that the right leadership and values are in place to maintain asset integrity. Process safety involves continual safety improvements to existing manufacturing processes as well as the design of new processes. The other ten are behavioural safety principles that focus on human factors to instil the right values and behaviours so that people understand that we do not put production ahead of their safety.

We do not want individuals at our plants to take unnecessary risks, and therefore, we ensure proper risk assessments are in

place. Regular training activities, auditing and the exchange of best practices across all regions and sites keep safety at the forefront of operations.

We performed extensive audits at all our sites in 2016 to review compliance with our ten behavioural safety principles. Each site is measured on its adherence to these principles and on its performance regarding specific safety targets. The audit protocols are practical and focus on how these ten principles are actually put into practice by the people working at our manufacturing facilities. To provide third-party perspective in terms of compliance, these audits were designed to be cross-functional, which means that our company's internal audit teams performed audits at each other's facilities. This not only guarantees a consistent audit approach, but also allows for sharing of internal best practices.

These audits are led by trained members within our Operational Leadership team, accompanied by an Internal Audit team knowledgeable in SHE and the operational aspects of our business. Across the business, over one hundred internal INEOS Styrolution auditors are trained to conduct these audits at our manufacturing sites.

During such audits, findings related to serious deviations were resolved by immediate corrective actions. Findings related to minor deviations were integrated into the site's annual SHE improvement plan. These audit processes take place according to a rolling three-year schedule. The year 2017 was an off-cycle audit year in which we further worked on the SHE improvement proposals as result of the previous year's audits. In 2018, our ten process safety principles will be audited at all our sites.

**SHE EXCELLENCE**

**WORKING TOGETHER TO STAY SAFE AT WORK**

**PROCESS SAFETY PRINCIPLES**

- 1 The asset operating manager is responsible for its overall integrity
- 2 The asset engineers are responsible for maintaining the asset and protective systems integrity
- 3 The responsibilities in the organisation for defining and maintaining the correct operating envelopes must be clear
- 4 Operating procedures and envelopes must be observed. Deviations must be reported and investigated
- 5 Any changes must be properly risk assessed and subjected to MOC procedures
- 6 Process hazards are systematically identified, risk assessed, reviewed and managed
- 7 All assets must be subject to periodic inspection designed to ensure their integrity and the reliability of their protective systems
- 8 Operations must always place the safe operation or shutdown of the asset ahead of production
- 9 When in doubt the asset must always be taken to its safest state
- 10 We have emergency plans based on assessed risks which are regularly tested

**INEOS STYROLUTION** Driving Success. Together.

**SHE EXCELLENCE**

**ON OUR WAY TO ACHIEVE INCIDENT-FREE OPERATION**

**BEHAVIOURAL SAFETY PRINCIPLES**

- 1 We believe all incidents and injuries can be prevented
- 2 Everyone's first responsibility is to ensure they work safely
- 3 Everyone has the duty to stop work if they feel the situation is unsafe
- 4 The expectations and standards are the same for everyone on the site
- 5 Rules and procedures must be observed and respected
- 6 We should look out for each others safety and unsafe situations
- 7 All injuries and incidents/near misses must be reported and investigated
- 8 Risk assessment must be carried out prior to, during and on completion of work
- 9 All team leaders have a special responsibility for promoting and upholding these principles
- 10 We must always work within the limit of our competency and training

**INEOS STYROLUTION** Driving Success. Together.

### OUR BEHAVIOURAL-BASED SAFETY OBSERVATION (BBSO) PROGRAMME ✓

BBSO has been a safety component at many of our manufacturing sites for over a decade. Starting in 2013, INEOS Styrolution established a BBSO programme for all manufacturing locations and offices. The expansion of BBSO to all locations increased our awareness of potentially unsafe acts and workplace conditions, as well as organisational factors, such as leadership and culture. In 2017, INEOS Styrolution sites submitted more than 15,000 BBSOs.

### 2.2.3 OUR PERFORMANCE

#### KEY HIGHLIGHTS 2017 ✓

For 2017, we achieved a step change with respect to safety. Within one year, we dramatically improved our overall safety performance with a considerably reduced total case injury rate of 0.17, compared to an overall target TCIR of 0.38 and 2016's TCIR of 0.40. This was due to our focus on continuous improvement of our safety performance.

We also significantly increased the health and safety trainings for both employees as well as on-site contractors working under our supervision at our production sites. We documented that our employees completed approximately 115,000 hours of safety training in 2017, an equivalent of about 35 hours or one work week of training per employee. Our contractors attended more than 30,000 hours of health and safety training courses.

#### OUR SUSTAINABILITY TARGETS ✓

In 2017, we defined global sustainability targets for all seven focus areas of our business including our company's safety performance. These targets are aligned with our material

topics and underscore our commitment to continuous improvement.

Last year's improved performance demonstrates that accidents are preventable and that striving for zero incidents is a realistic objective. For 2018, we further strive for continuous improvement of our safety performance and aim to reach our annual overall safety target of 0.33 for 2018 – which includes a target TCIR of 0.33 for our employees and 0.34 for our contractors.

### SAFETY TRAININGS TO ENSURE THE HIGHEST STANDARDS ✓

Extensive safety trainings are provided on a regular and ongoing basis to our employees and new hires, as well as to our contractors and on-site logistics personnel to ensure the highest standards of health and safety. Our employees and contractors are also encouraged to participate in safety committees, to contribute to incident learning and to suggest ongoing improvements in safety standards and procedures.

With several safety methods and procedures in place, we ensure that our contractors are informed about our life-saving rules and the INEOS Group Guide Notes (IGGNs) so that they are appropriately trained before they step foot on site. When entering our manufacturing facilities, we ensure that they wear proper personal protective equipment (PPE) and only perform authorised work according to their specifically issued work permit.

In order to receive feedback and suggestions to ensure ongoing safety improvement, we organise regular safety management meetings with our contractors at our site and plant levels. In addition, we conduct regular SHE audits and

inspections to strengthen contractor safety on our premises.

As part of our procurement process when selecting new contracting companies, we work hand in hand with our Procurement department to make sure their occupational safety performance meets our safety pre-qualification requirements. Seven out of 18 production sites, which account for 40% of our manufacturing locations, use third-party auditing to evaluate contractor SHE performance.

### KEY HIGHLIGHTS 2017 ✓

#### Best company safety

performance to date

with a reduced total case

INJURY RATE (TCIR) of 0.17

### SUSTAINABILITY TARGETS ✓

#### CONTINUOUS IMPROVEMENT

of our company's

SAFETY PERFORMANCE

Annual

TOTAL CASE INJURY RATE

(TCIR) of

**0.33**

by 2018



**EMEA SHE TASK FORCE PUSHES FOR SAFETY**

We constantly review our safety performance and look for possible trends that may help identify safety concerns. In 2016, our safety performance data indicated that we experienced an escalated number of SHE incidents, involving contractors at our EMEA production sites. To improve our EMEA safety performance and to address these issues, an EMEA SHE Task Force was set up by the EMEA Manufacturing Vice President, Site Directors and SHE Managers in 2016. Based on root-cause analyses of all incidents so far, this project team developed a phased action plan and began implementing short and mid-term mitigation measures across all our EMEA manufacturing sites. In the years to come, we will continue our focus on the implementation of longer-term measures.

One reason for the tremendous improvement in our SHE performance – with only one injury recorded in the EMEA region in 2017 – is the EMEA SHE Task Force awareness programme. This improvement shows what we can accomplish when doubling our resolve and attention to safety.

At the moment, we are establishing and implementing similar initiatives for the Americas and Asia-Pacific regions.

**SHE EXCELLENCE AWARDS**

In the spirit of friendly competition for a worthy goal and to support and recognise safety improvements in a positive and fun way, we have established the SHE Excellence awards as of this year to reward sites and offices that have made significant contributions to sustainable safety, health and environmental compliance. One winning site or office will be selected per region, and one of the three regional winners will be chosen as global winner and awarded with a SHE trophy on an annual basis.

The first regional SHE Excellence award winners for Asia-Pacific, EMEA and the Americas are our manufacturing sites in Ulsan, Wingles, and Channahon. Out of these three, Ulsan was recognised as the global winner of the SHE award. These awards not only demonstrate our company's commitment to safety, but also recognise the commitment and meticulous work and team effort that goes into preventing injuries and saving lives.

**INJURIES, OCCUPATIONAL DISEASES, LOST DAYS AND WORK-RELATED FATALITIES** ✓

INEOS Styrolution reports all safety matters to its management board on a monthly basis. In terms of key parameters, we focus on personal injuries, environmental performance, non-compliance with regulations, asset integrity, loss of containment, technical inspections, other high-potential incidents or near misses and behavioural-based safety observations (BBSOs).

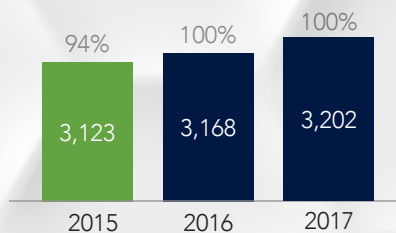
Our safety key performance indicators (KPIs) demonstrate that we have continued to improve from the start of the business in October 2011, and our company safety performance is on par with industry leaders in the chemical industry. Our safety KPIs include the injuries and worked hours of all of our employees and all contractors working at our sites. The definitions of our safety KPIs were refined in 2016 to include the worked hours and injuries associated with on-site logistics contractors (see infographic safety performance trend). In 2017, we saw an overall year-on-year improvement in our in-plant operations and safety performance. The number of injuries that resulted in employees or contractors being away from work for one or more days was reduced by 25% as reflected in the lost time injury rate (LTIR), which is 0.09 versus 0.11 in 2016. In addition, the overall severity of such injuries was also reduced, resulting in less days away from work per lost time injury, as indicated in the 70% improvement in severity rate compared to 2016.

We encourage reporting of all injuries and incidents no matter how minor. This ensures that we can investigate these incidents to learn what happened, share lessons learned and implement solutions to prevent future occurrences. We use the OSHA definition for first aid and recordable cases to

**PERCENTAGE OF TOTAL WORKFORCE REPRESENTED IN SAFETY COMMITTEES** ✓

In 2017, **100%** of our locations have **SAFETY COMMITTEES** comprised of both **MANAGEMENT AND WAGE EMPLOYEES**

**HEADCOUNT COVERED BY SAFETY COMMITTEE**



categorise all worker and contractor injuries. All these cases combined represent the total number of work-related injuries across our business. Since 2012, we have realised a 2% annual reduction in all work-related injuries including OSHA recordable injuries and injuries requiring first aid treatment only.

**LOSS OF CONTAINMENT**

We are required to report any loss of containment (LOC) events that occur at our production sites or are above release thresholds equal to 1/10th the U.S. EPA reportable quantity (RQ) threshold, as a process safety and environmental impact KPI. This LOC reporting has consistently been in place at all our operations since 2015. We have demonstrated year on year improvement in reducing the number of releases since we started measuring and reporting these incidents.

**LOC DATA BY NUMBER OR OCCURRENCES ACROSS GLOBAL BUSINESS SINCE 2015:**

Year	Loss of containment (LOC)
2015	16
2016	15
2017	6

**TRANSPORTATION AND DISTRIBUTION SAFETY**

In the interest of improving transportation and distribution safety (TDS), we monitor and track logistics safety incidents involving our products and raw materials. Most of these occurrences are the responsibility of our carriers. However, we understand that our selection of carriers that demonstrate

high performance in SHE provides reliable material delivery to our operations and customers, as well as ensures public safety in the communities where we do business. Major transportation incidents are reported according to the following criteria: The following TDS incidents have occurred on a global basis since tracking was consistently implemented in 2015.

Incident type	Criteria
Injury incident	Death or >3 days absence from work
Spillage/ leakage	> 50 kg ADR transport category 0 & 1
	> 333 kg ADR transport category 2
	> 1000 kg ADR transport category 3 & 4
Property damage	> 50,000 euros
Public disruption	Impact of more than 1 hour
Media coverage	National media coverage

Year	Loss of containment (LOC)
2015	3
2016	1
2017	5



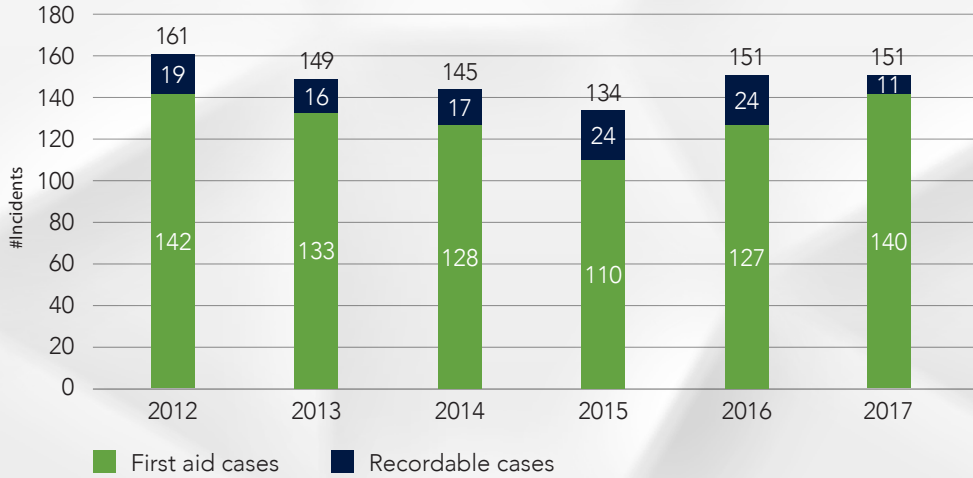
“Safety cannot exist on best-practice guidelines and policies alone. A safe working environment is based on how well our colleagues and

contractors on the factory floor or in the office environment adhere to our safety standards. Our colleagues around the globe feel encouraged to identify unsafe behaviours and opportunities for improvement while also making well-informed safety decisions during routine tasks. This truly shows the commitment, the meticulous work and team effort that goes into preventing injuries and saving lives.”

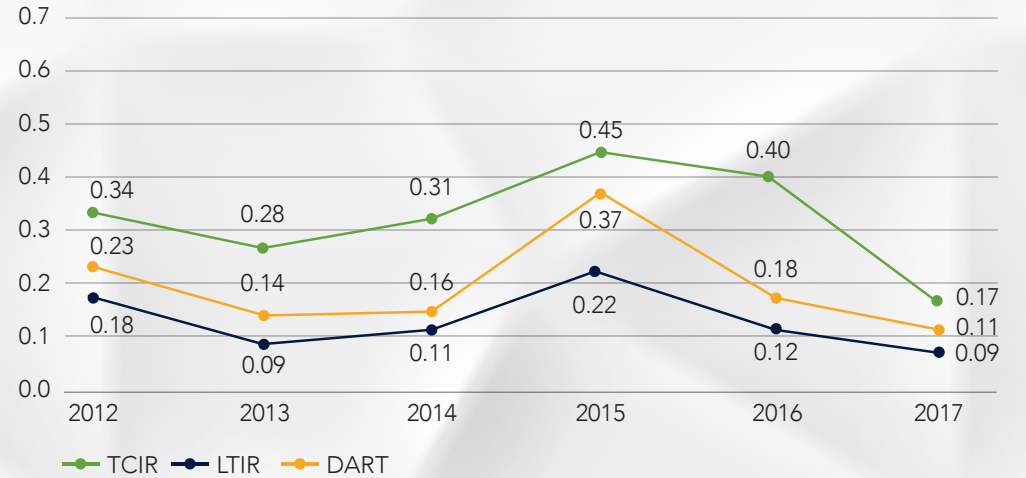
**Suk-Hwan Choi**  
SHE Hub Manager Asia-Pacific  
INEOS Styrolution

## TOTAL NUMBER OF INJURIES ✓

#Total Injuries



## PERFORMANCE TREND ✓



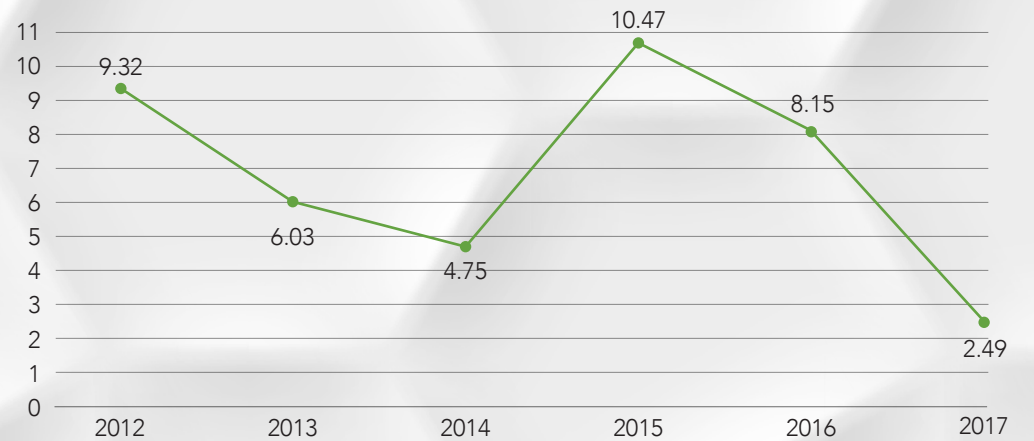
**TCIR** = Total case injury rate per 200,000 work hours (includes employees and contractors)

**LTIR** = Lost time injury rate per 200,000 work hours (includes employees and contractors)

**DART** = Rate of injury cases involving days away or restricted transfer per 200,000 work hours (includes employees and contractors)

**Severity rate** = Reflects the number of days away from work per 200,000 work hours (includes employees and contractors)

## SEVERITY RATE ✓



## 2.2.4 IMPROVING OUR ENVIRONMENTAL FOOTPRINT ✓

Operating responsibly is deeply embedded in our corporate values. We are strongly committed to protecting the safety and health of individuals, using resources efficiently, and safeguarding the environment.

## 2.2.5 OUR APPROACH ✓

For INEOS Styrolution, full compliance with environmental regulations is a minimum expectation. Our sustainability programme drives continuous reduction in our environmental footprint by enhancing our operations' overall resource efficiency and by reducing our emissions.

We look at the entire production value chain – from the responsible use of raw materials and optimisation of processes at production sites through to more efficient distribution of products to our customers. The key drivers for our environmental management programme are the following:

- **Reduction in energy use and greenhouse gas emissions:** We strive to continuously optimise the energy efficiency of our technology and operations
- **Resource efficiency, including scrap reduction and waste management:** Efficient use of raw materials, including reuse, recycling and recovery through optimisation of our processes

- **Efficient use of water:** Reducing the use of water where possible and optimising the water efficiency of our operations
- **Reduction of air emissions and waste water discharge:** Evaluating best available technology and prevention of accidental emissions through advanced process control
- **Reduction of pellet loss:** We take measures, especially in terms of enhanced housekeeping, to prevent plastic pellet loss at our production sites as well as during transportation.

Monitoring these key drivers is built into the business processes at all of our sites and plants. We have established key performance indicators (KPIs) on resource efficiency and material yield, energy use, water use, waste management, and emissions.

These key indicators are integrated into our operations. Parameters, such as waste, air emissions and waste water discharge, have been key components of environmental management programmes at our production sites for decades. Parameters such as energy use and related greenhouse gas emissions, water and waste water volumes and material yield are part of our operational excellence journey and are crucial components for improving our resource efficiency.

On a global level, the sustainability data of operations are annually reported, reviewed and validated by our site management, regional management, global management, and ultimately our management board. A multi-disciplinary team of site representatives, SHE managers, energy manag-

ers, sustainability managers and technology managers reviews each relevant increase or decrease in our statistics. This helps us better understand our current performance and future measures to be taken for further improvement. Resource efficiency is an important business factor and is monitored by our performance management team as well as our management board. Dedicated energy managers or project managers monitor energy and greenhouse gas emissions. There is a strong focus on energy improvement projects to ensure a continuous increase in the energy efficiency of our operations.

Emissions and waste are also linked to resource efficiency and are highly regulated by the relevant authorities. Management of these aspects, including pellet loss, is part of our SHE Excellence programme and is managed by site-level, regional and global SHE representatives. This includes reporting of data, investigation of environmental incidents, risk assessments, defining and review of processes as well as internal and external ISO audits. Environmental topics are part of our Risk & Control audit programme and includes testing on compliance evaluations, soil investigations or remediation, and environmental control measures. In addition, all our sites have programmes to ensure open communication with the local communities.

Sustainability indicators are integrated into our capex projects and operational initiatives with savings tracked over time. Our sustainability initiatives and projects are subject to internal target setting.

Plans and progress are reported annually to operations management, the sustainability steering committee as well as the sustainability ambassador group.

**MATERIALITY ASSESSMENT** ✓

In our materiality assessment undertaken in 2017, greenhouse gas emissions, energy, resource efficiency, marine litter and pellet loss, water use, waste water and waste generation, and emissions were rated as being of high significance to our stakeholders and of key importance to our business.

**2.2.6 OUR PERFORMANCE**

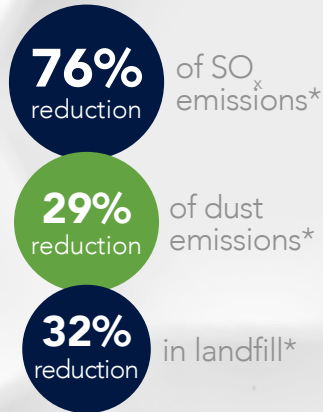
**KEY HIGHLIGHTS 2017**

Environmental management is embedded in our daily operations and in how we drive operational excellence at the site. In 2017, we further advanced the implementation of our environmental reduction projects and continued to ensure ISO certifications. The preparations for having all our manufacturing sites in the Americas ISO 14001 certified were initiated. Operation Clean Sweep (OCS) was further implemented in our European and Asia-Pacific production sites in addition to expanding our efforts in the U.S., where we extended the scope of OCS to our supply chain, performing OCS audits at both our internal and external logistics sites. These efforts will be continued in our European and Asia-Pacific sites in the upcoming year.

Click [here](#) to read more in the chapter “Reliable partner to suppliers”.

We observed a significant shift for waste from landfill towards recycling, with a 32% reduction in landfill over the period 2014 to 2017. We significantly reduced our SO<sub>x</sub> emissions by 76% and dust emissions by 29% globally since 2014 due to the use of more eco-friendly fuels and combustion technology. We

**KEY HIGHLIGHTS 2017** ✓



\* over the period 2014 to 2017

continued to further reduce our energy and greenhouse gas emissions. The other parameters, such as VOC and NO<sub>x</sub>, are in line with previous years’ performance, but the impact of a newly acquired site can be seen. For water and waste water, continued efforts have been undertaken to sharpen the methodology and scope of reporting, which has led to a further reduction. This enhanced baseline will help us to better define further reduction measures.

**OUR SUSTAINABILITY TARGETS** ✓

We have defined global sustainability targets for seven focus areas of our business including our operations. We are on track to meet our targets for water and waste water. Our VOC emissions have increased due to a newly acquired site as well as more intensive measurements. We have increased

**SUSTAINABILITY TARGETS** ✓



\* baseline year 2014

\*\* VOC = volatile organic compounds, baseline year 2015

our total waste; however, we are significantly shifting our waste from landfill to recycling.

**PREVENTING PLASTIC PELLET LOSS WITH OPERATION CLEAN SWEEP** ✓

Marine litter and pellet loss are a global issue. Plastic packaging waste as well as small plastic pellets that are littered or spilled end up in the marine environment. They are mistaken for food by fish and other wildlife, and as a consequence, re-enter the food chain. In order to combat the growing issue of marine litter, actions need to be taken at a societal level, requiring the support of all stakeholders. The plastics industry

will play a key role in supporting new solutions for plastics recycling and collaborate with the value chain to make this happen.

Nevertheless, to avoid losses of smaller sized pellets, measures can be taken at manufacturing sites as well as at the sites of our suppliers. Therefore, the role and importance of our industry programme on pellet loss reduction, called Operation Clean Sweep® (OCS), is of increasing relevance to us. It is being integrated into our existing housekeeping and cleaning processes, and improves the awareness and respect for our marine environment throughout the value chain.

OCS is the industry standard on pellet loss reduction. It entails commitment from our leadership, internal awareness campaigns and trainings for all our employees, a focused level of implementation at all our sites, internal and external audits, as well as collaboration with the supply chain. During implementation, our first priority is to prevent pellets from leaking into the environment. This means that occasional pellet spills from trucks need to be prevented and systematically cleaned up in case they occur. Common measures to be undertaken are trainings and instructions for truck drivers, cleaning equipment at all critical locations as well as daily checks by supervisors. Irregularities are identified and addressed. Where relevant, OCS is integrated in our contracts with contractors and optionally part of the bonus-malus performance measurement. For locations with a high frequency of trucks being loaded, we evaluate additional semi-automated truck-cleaning units with blowers to avoid manual cleaning.

We also ensure that no pellets leave the site via rainwater drains or waste water. At our sites, waste water treatment

plants have been installed, which are designed to remove suspended solids and/or pits for retainment of sediments. For rainwater, we have filters installed and maintained at critical locations.

In addition to this, our operations personnel and supervisors evaluate measures to avoid spills in operations and make spill clean-up part of our intensive housekeeping programme. Internal site audits and clean ups with brushing machines are done regularly. Our progress and level of implementation is measured within internal audits and integrated by ISO 14001 as a relevant environmental aspect. Due to its importance and relevance within the company, we have organised awareness campaigns as well as internal communications on OCS.

Having our own sites clean and conformed to OCS standards is not enough. We want to encourage our suppliers to join our efforts and contribute to pellet loss reduction.

OCS was rolled out and implemented at all our European sites in the last years. In 2017, we expanded the scope to our Asia-Pacific sites, with an intensive training programme as well as a commitment by signing a pledge. After conducting a gap analysis, improvement measures are currently being implemented. INEOS Styrolution is one of the early adopters of OCS in Asia-Pacific and we are proud to see the involvement of our colleagues.

In the Americas region, OCS was introduced already in the nineties, and further improvements have now been realised. In the U.S., our focus is on the supply chain including external audits. This approach will be further expanded in our European and Asia-Pacific sites going forward.



“At our production site in Wingles, OCS is firmly integrated in our existing housekeeping and cleaning processes as well as in our training to our

employees. We have implemented several measures to prevent leakage of pellets into the environment at different levels, such as installation of sieves to filter rain and process water as well as a street sweeping machine to clean critical zones. In addition, we are also working on truck cleaning stations for bulk trucks and decantation systems at sewer drains.”

**Philippe Bres**  
Site Director Wingles  
INEOS Styrolution



At our Antwerp site, we collaborate with the Port of Antwerp. The resin manufacturing sites, the logistics sites and other stakeholders, share knowledge and best practices on pellet loss and jointly monitor the presence of pellets in the harbour. This is a positive signal to our stakeholders. This best practice should be expanded to other ports. In the meantime, we recognise the support of several additional associations as a positive evolution of the commitment for OCS.

For 2018, further OCS implementation at our Asia-Pacific sites and continued efforts for logistics have been planned. In addition, there will be enhanced reporting by way of our contribution to the PlasticsEurope OCS report and further assessment of an industry-wide standard for self-evaluation.

 <http://www.opcleansweep.eu>

 <http://www.opcleansweep.org>

Click [here](#) to read PlasticsEurope's Operation Clean Sweep Report 2017.

## 2.2.7 ENVIRONMENTAL DATA

### KPI MEASUREMENT AND BOUNDARIES ✓

#### Boundary

All data in this chapter represent a summary of environmental impacts measured for all INEOS Styrolution assets and legal entities at our 18 production sites worldwide.

#### Scope

Performance data refer to the net impacts of INEOS Styrolution’s production activities, including emissions and consumption of resources. Treatment of waste water or air emissions resulting from activities provided to non-INEOS Styrolution plants are excluded.

For 2017, the scope expanded due to the acquisition of the Yeosu site in South Korea. Yeosu is a specialty polymers plant, with a relatively high consumption of energy and emissions of greenhouse gas and VOC. We also expanded the scope of already reported indicators, for example, water use including cooling water and further air emissions measurement points. We detailed sources of the consumption, emissions and destinations in line with GRI Standards.

#### Method and accuracy

Water, waste water, waste and energy use are mostly based on conducted measurements. In the cases where no measurements were taken, estimates and assumptions have been made. For air emissions from combustion gases (NO<sub>x</sub>) and solvent air emissions (VOC), our measurements and estimates comply with local legal requirements for monitoring and

reporting. As measuring equipment is not available at all sites, we used an accuracy limit of +/- 3% for measuring, monitoring and collection of data for emissions and consumption.

In 2017, we fine-tuned the methodology for our production sites in Altamira, Mexico and Bayport, U.S., by improved monitoring and refining of the methodology at our integrated chempark. We changed to new conversion factors for greenhouse gases at our manufacturing site in Sarnia, Canada, in line with new regulations on the emissions trading system (ETS).

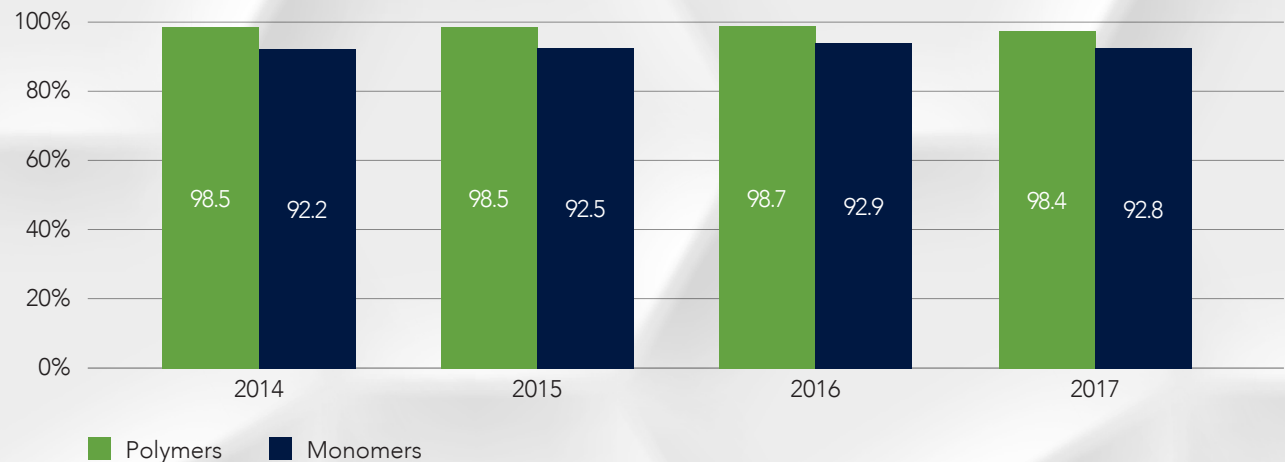
At our production site in Ulsan, South Korea, additional legal monitoring for NO<sub>x</sub> was required, which explains the change in scope and methodology from 2017 onwards.

### RESOURCE EFFICIENCY ✓

Resource efficiency relates to the effectiveness of raw material use in our operations. It is explained by the tonnes of output divided by tonnes of raw material input. This is an important environmental indicator given the scale of our operations. Efficient use of raw materials is important as they already generate some emissions during mining, production as well as transportation to our sites. It also explains how we are able to avoid waste due to reliable operations and optimisation.

Resource efficiency is central to our business and fundamental to our operational excellence. It is a driver in many of our capital expenditures and improvement initiatives as well as in our daily work at our production sites. It is internally reported and reviewed by our management team.

### RESOURCE EFFICIENCY: RAW MATERIAL YIELD ✓



We use material yield as an indicator of our performance in resource efficiency. Raw material yield is defined as polymer or monomer produced per unit of raw material used. Our yield definition excludes by-products, which however are also mostly further reused, recycled or recovered.

**Discussion of results**

The diagram above illustrates the development of the material yield for our polymers and for ethylbenzene styrene monomer (EBSM) plants over the past years. The yield for both polymers and monomers are at a stable high level. Monomer yield is lower because there are more by-products produced, which is intrinsic to the EBSM production process, and also excluded in this definition. The by-products are mostly reused, recycled or recovered.

**WASTE REDUCTION**

For INEOS Styrolution, waste management starts with optimal resource efficiency and the avoidance of waste generation wherever possible. When waste is produced, we focus first on product recycling, followed by energy recovery, then incineration, and landfill as the last option. Although a significant amount of waste is avoided by optimised operations and reuse of side streams at neighbouring plants or sites, the amount of generated waste is still relevant. Our conscious waste management at our sites includes appropriate measurement, storage as well as handling of waste, to mitigate its impact.

We started measuring our global waste management performance in 2014. For these measurements, the definition of waste is in accordance with international standards and potentially even stricter national legislation. INEOS Styrolution complies with all local waste management regulations. Waste

tonnage at the sites varies according to the chemical processes in place and the presence of on-site utilities, such as waste water treatment plants.

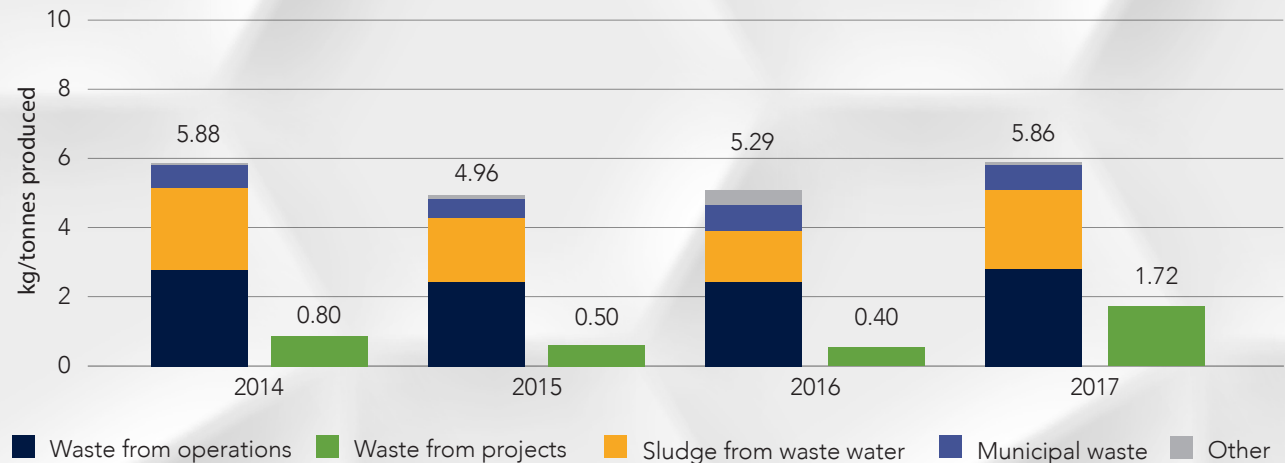
To give more insight into our global waste management performance, we separately report the data by waste origin, type and the method of disposal. Our waste has the following main sources: process waste, which is directly related to our chemical operations, waste from INEOS Styrolution waste water treatment plants, household waste and, as a special category, waste resulting from turnarounds and demolition projects at sites. The latter is directly related to construction, infrastructure works and/ or disposal of old, redundant and unused assets. For types of waste, we distinguish between hazardous and non-hazardous waste. The disposal methods that are used are recycling, energy recovery, incineration and landfill.

**Discussion of results**

Splitting the data by origin of waste makes it possible to distinguish between waste that is directly correlated with production of monomers or polymers. This is, for example, process waste, waste from waste water treatment and municipal waste, as well as waste that correlates to maintenance of our production facilities such as waste from planned periodic turnarounds and asset care projects. Our target to reduce waste refers to waste directly related to production. We aim to reduce the overall amount of waste from operations, and in addition, we strive to reduce waste to landfill by recycling and reuse of resources.

Compared to 2016, the total specific waste linked to the production of polymers and monomers increased by 11%. This is mainly due to process waste, which increased by 12% and waste from sludge which increased by 37% in 2017.

**SPECIFIC WASTE BY SOURCE**



The increase in sludge is caused by increases recorded at our manufacturing sites in Vadodara, India, and Altamira, Mexico. Both sites have updated their methodologies in reporting sludge, due to new national legislation. In Altamira, we also treat the waste water from a neighbouring company. In Ulsan, South Korea, significant efforts have been taken to reduce the amount of sludge by better dewatering. The total amount of sludge from a global perspective is back to 2014 levels, despite the efforts of better sludge dewatering in recent years. We will evaluate further measures to reduce sludge volumes over the next years.

The increase in process waste and sludge is also impacted by the increase in waste in Map Ta Phut, Thailand. An increased cleaning frequency of our reactors to produce premium quality products for special applications caused an increase in the amount of suspended solids ending up in the sludge.

At our European sites, we recorded a 4% increase of specific waste, due to turnarounds and cleaning of waste water pits. In Germany, scrap was reclassified from by-product to waste.

The total specific waste linked to demolition and infrastructure works increased sharply as an outcome of general housekeeping efforts on our sites. The main volumes are due to ethylbenzene styrene monomer (EBSM) turnarounds. These activities include the periodic replacement of catalysts in the hydrogenation reactors of the EBSM plants. During the shutdown, several other optimisation projects took place at the sites. This explains the high waste disposal during turnaround years for the EBSM plants. As part of a redundant asset removal plant, we expect the numbers on demolition waste to increase within the next years. While these efforts to improve housekeeping and remove unused

equipment from our sites will generate more waste, we are looking into recycling and recovery during these projects. Evaluating the best available waste handling method is key to mitigate impact.

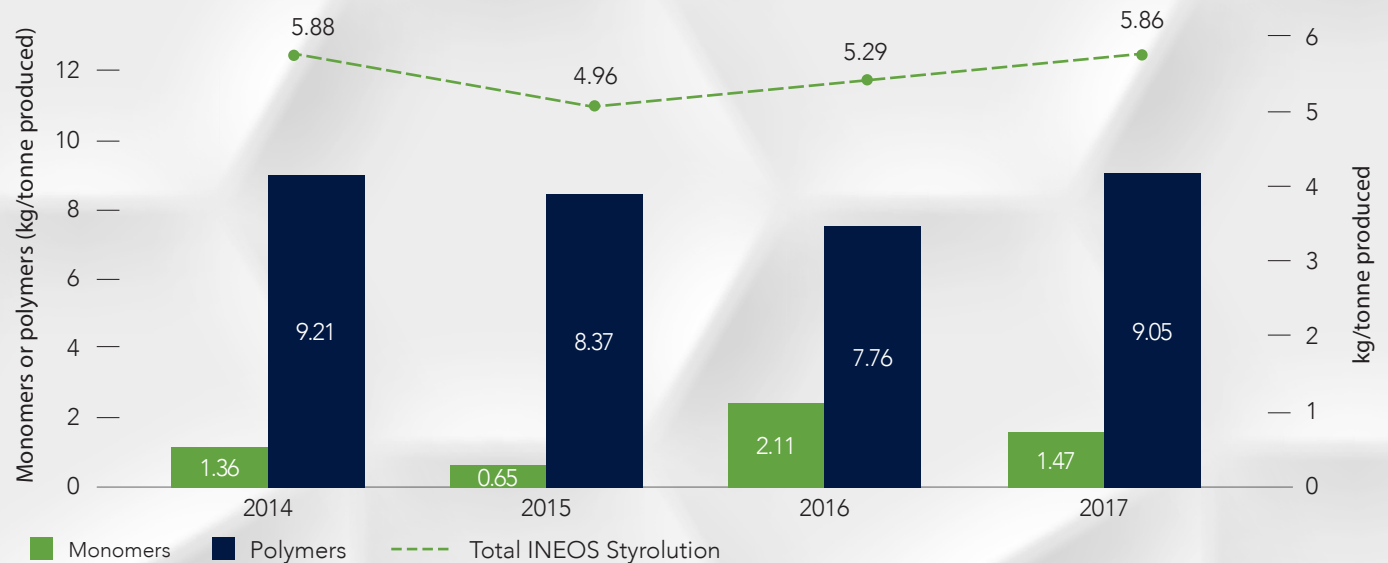
**Discussion of results**

The total specific waste linked to production is further split up into waste generated by monomers, and waste generated by polymers such as polystyrene, ABS, ASA and SBC. In 2017, the production of polymers generated more than six times as much waste as the production of monomers. Compared to 2016, the waste due to the production of monomers decreased by 30%, while the waste due to the production of polymers increased by 17%. The main sources

of production waste for polymers are process waste from ABS rubber production as well as the increase in sludge from waste water treatment plants in 2017. The main sources of waste in EBSM production is project waste, spent catalyst and exported waste water.

We aim to minimise the waste that is landfilled and are exploring opportunities to recycle and recover as many waste streams as possible. Splitting up the waste data by destination makes it possible to see the evolution of recycling, recovery and landfill of waste in recent years. Of the total waste generated, 49% is sent to recycling and recovery and 21% is sent to landfill. Over the period 2014 to 2017, the waste that is landfilled has been reduced by 32%, whereas waste that is

**SPECIFIC WASTE (excluding project waste\*)** ✓



\* project waste: waste from demolition, redundancy, asset care – not product related

recycled and recovered increased by 76%. The increase in waste volumes were caused by turnaround waste, which can be – in the case of good waste practices during turnarounds – made more suitable for recycling. In addition, since 2016, catalyst waste in our styrene monomer plants in the U.S. and Canada has been sent to waste recovery instead of landfills.

Another key waste indicator is the distribution between hazardous and non-hazardous waste: 33% of our waste is hazardous waste and 67% is non-hazardous waste. Hazardous waste requires special handling and storage measures. We aim to minimise and recover our hazardous waste and recycle non-hazardous waste as much as possible.

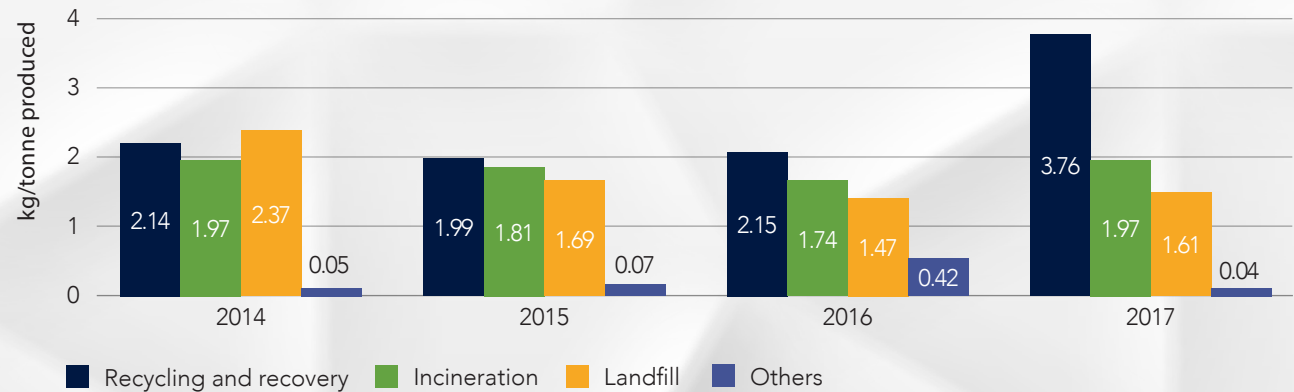
In conclusion, our overall waste volume increased from 2016 to 2017 due to operational issues and new reporting methodologies by local regulations. However, efforts have been taken to ensure a significant reduction in landfill waste and an increase in recycling of our waste.

For waste arising from necessary infrastructure or demolition works, we mainly focus on good handling practices and maximisation of recycling and reuse of the waste generated.

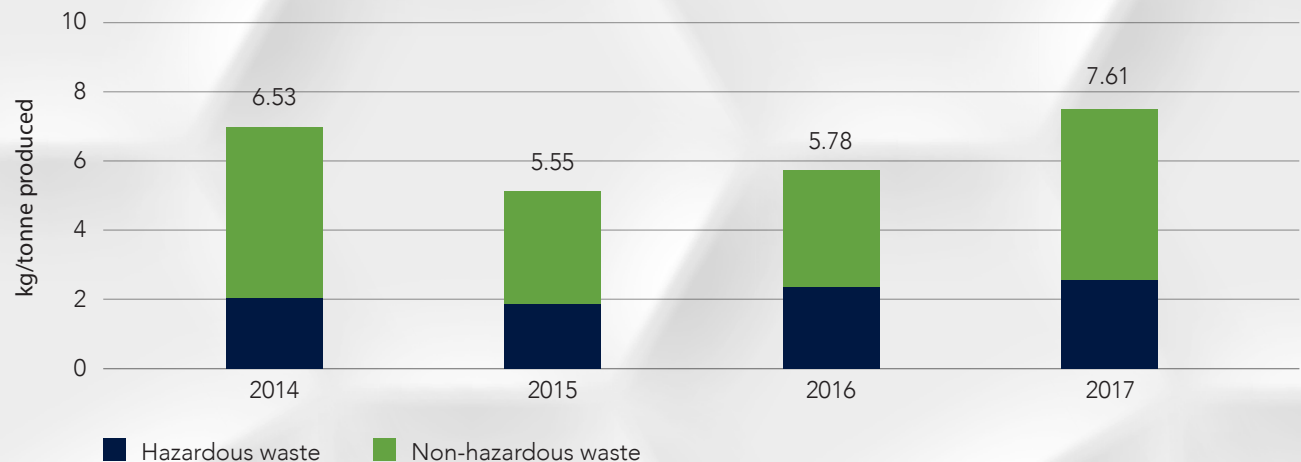
### ENERGY EFFICIENCY

Energy use is directly related to consumption of fossil fuels and also generates greenhouse gas emissions. Conscious energy use is integral to our resource efficiency efforts and is a key driver in all optimisation projects. Since the start of our company back in 2011, we have completed a significant number of energy reduction projects, and each year our capex programme has included numerous initiatives to improve energy efficiency. We

## SPECIFIC WASTE BY DESTINATION ✓



## SPECIFIC WASTE BY CATEGORY ✓



implemented energy management systems to measure, monitor, internally report and evaluate the use of energy.

We monitor the energy performance of our sites at a global level. In addition, capital expenditure to budget energy reduction projects and internal target setting goals are approved and reviewed by our management board.

Our energy performance is evaluated at site level, regional as well as global level as well as per technology, such as monomers, polystyrene or ABS/ASA. Each year, the evolution of energy performance versus goals and targets is reported to the management board. Thus, each relevant increase or decrease is addressed. During definition, review and approval of capex projects, our energy savings, together with other sustainability indicators, are evaluated. An inventory of all ongoing energy improvement projects as well as other potential projects is made, to ensure clear understanding of the pipeline on energy improvements. Best practices in terms of technology are shared during global technology exchange meetings. Benchmarks of sites with the same technology are shared and coordinated by our global technology group.

Energy management starts and ends with the efforts on each site. It is being integrated into daily operations and its implementation is continuously ensured. Therefore, the sites have energy managers or project managers in place, who coordinate actions within the departments.

For Europe and the Americas, energy management is further coordinated at regional level, led by a dedicated regional energy manager.

### **Energy Management in Americas**

Energy management in the Americas has traditionally utilised operating strategies focused on cost and reliability. In the course of 2017, energy measurements and metrics were organised and standardised within the region. Specific energy intensity is calculated at each site and broken down by energy type where relevant. These metrics will be used to establish baselines for tracking future improvements and understanding energy use at each site.

Projects are being screened and reviewed specifically with regards to energy and sustainability to ensure continuous improvement. In general, we focus on creating awareness within the organisation and equipment replacement is an excellent opportunity to improve efficiency. During early design stages, project steering can promote energy studies and alternative technologies as well as challenges the status quo. Large-scale projects with significant impact typically require years of design, process studies and engineering. As projects develop, energy opportunities will be calculated to determine economics and feasibility for review and approval. Completed projects or activities with sufficient reductions or gains will be calculated by the energy manager and verified where possible. These reductions are reported annually. Case studies based on completed projects will be used as examples to illustrate successful or unsuccessful projects. In addition, real-life examples are excellent opportunities as teaching tools.

### **Energy Management in EMEA**

With ISO 50001 certificates for all sites and the headquarters, energy management in EMEA also provides targets for bottom-up internal energy savings. They are based on the

actual project pipeline at different locations and aligned with regional investment planning. For all polymer units, the objective is to realise an average saving of 1.3% of the plant's typical annual energy consumption. The corresponding objective for the monomer unit is to implement projects amounting to a total saving of 0.4% of its typical annual energy consumption.

In Germany and France, regulatory top-down external targets on specific energy consumption are effective. Progress is monitored on an annual basis, with the above-mentioned internal targets serving as leading indicators. Corrective actions are taken early on, if necessary.

In EMEA, an energy report is produced on a quarterly basis and allows the monitoring of monthly energy and utility consumption at plant level versus budget. Review of progress on the implementation of the selected projects is monitored and reported as well. Upon completion of the projects, the actual savings and the realised financial return are verified by the EMEA Manufacturing Energy Manager.

All EMEA production sites are ISO 50001 certified and undergo annual internal and external audits. To ensure objectiveness and to foster experience exchange, internal audits are conducted by a pool of trained auditors from different sites within the region. An accredited body performs the external audits.

### **Discussion of results**

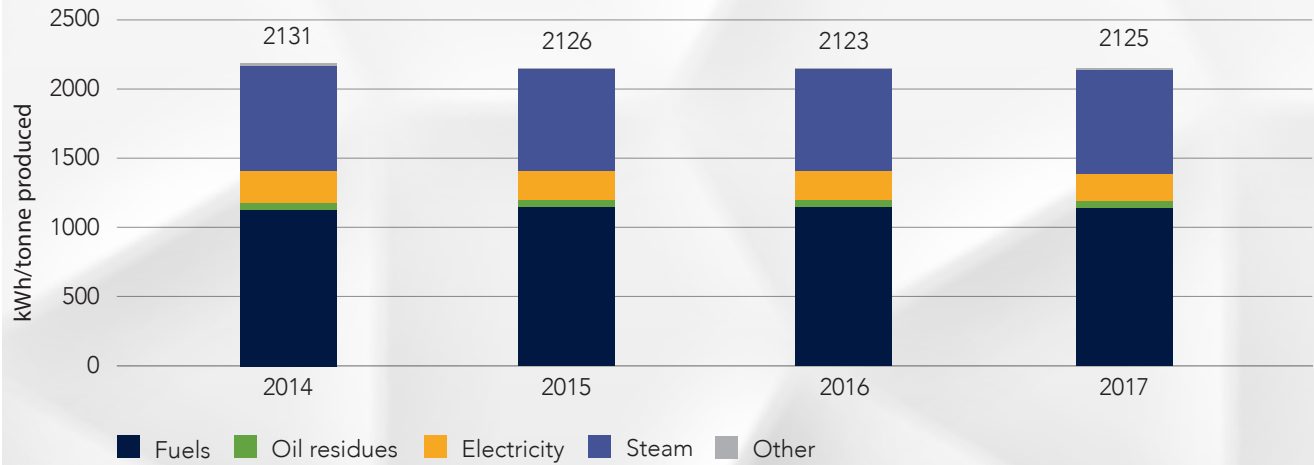
Energy use at INEOS Styrolution across our 18 sites involves fossil fuel, electricity, steam, oil residues and other utilities, such as compressed air. Energy use varies according to the

type of chemical processes in place and site-specific conditions such as steam production, total tonnes produced as well as turnarounds. In general, steam and fossil fuels are mainly used by EBSM plants, whereas the polymers production sites use more electricity. The use of the different types of energy has been stable over the last four years.

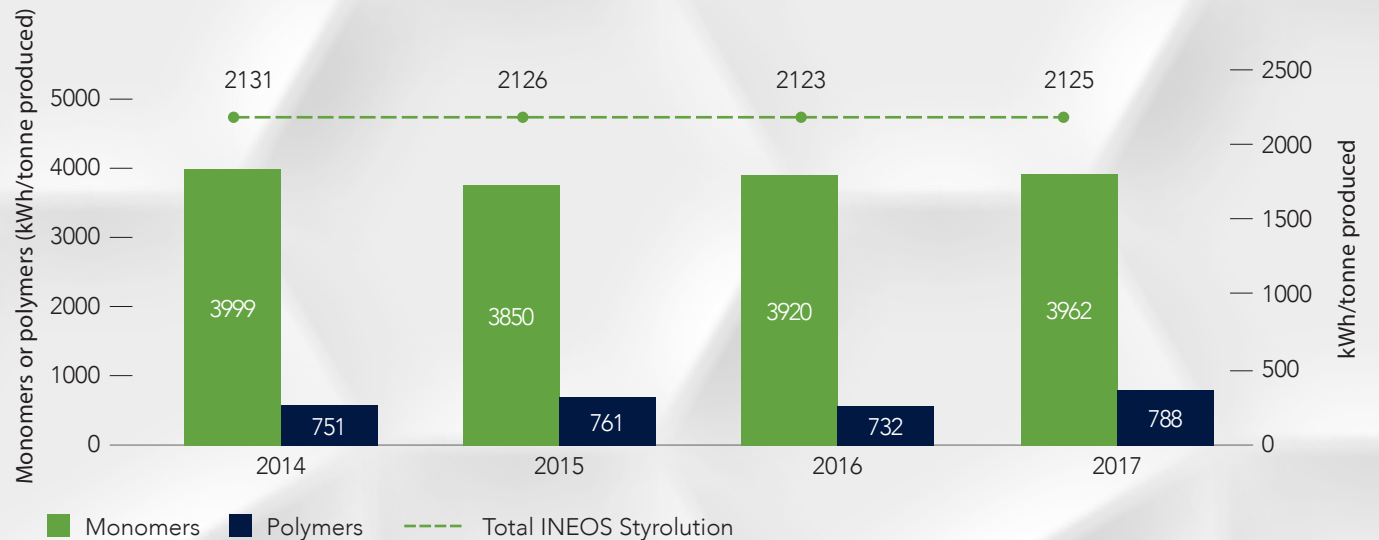
Specific global energy consumption was stable in 2016 with only a slight decrease of 0.1%. Our global energy use is the sum of all energy consumption of the sites divided by all tonnes produced. Due to the overall impact of styrene monomer, which represents 80% of total energy consumption, our energy consumption is split up by monomers and polymers.

Compared to 2016, our polymers production sites show a global increase of 7% in specific energy use in 2017. This significant increase in polymer production is mainly caused by specific increase in energy use at our Altamira production site in Mexico. This increase is due to the refinement of our methodology. In addition, polymer specific energy consumption has been impacted by the relatively higher specific energy consumption of our newly acquired polymer speciality plant in Yeosu, South Korea. In Map Ta Phut, Thailand, the addition and start-up of new production lines led to increased specific energy consumption. Nevertheless, all other sites demonstrated further progress in energy reductions. More specifically, in Map Ta Phut, the hot oil units were exchanged in 2017 to more energy-efficient natural gas burners. The cleaning of the convection section of the furnace in Bayport, Texas, USA was completed in 2017 and will lower the natural gas consumption by 16GWh.

### SPECIFIC ENERGY BY SOURCE ✓



### SPECIFIC ENERGY ✓



Our four EBSM plants represent approximately 80% of our global energy use. This is a direct result of the different thermodynamics of the EBSM and polymer processes. The specific energy use of our four EBSM plants increased by 1% compared to 2016, mainly due to the effect of the aging catalyst causing higher energy consumption in Bayport. Energy efficiency decreases over the lifetime of a catalyst, which is in the range of a couple of years. In addition, lower EBSM production volumes contributed to a relative lower energy efficiency as well.

### GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions are indisputably the main cause of climate change. Companies and governments are taking action to temper the negative effects of climate change and keep temperature rise well below 2°C above pre-industrial levels. Carbon pricing, such as the emission trade system (ETS), is a core instrument in the policy strategy of many countries. Rising standards on ETS in Asia and North America, as well as increased carbon emissions targets in Europe, are an important incentive for low carbon investments and facilitate the transition towards a low carbon economy. Our customers, investors and other stakeholders show a high level of interest in our efforts towards a low carbon economy.

Besides the climate impact, carbon emissions have a considerable business impact, and this will only increase over the next decades. We monitor the greenhouse gas emissions of all sites, review larger capex projects with relevant greenhouse gas reductions and participate in an INEOS network on energy and carbon. The follow-up and modelling of ETS regulation, the participation in R&D projects on carbon capture and storage and evaluation of other state of the art technologies is undertaken as a joint cooperation of INEOS

businesses. The outcome is shared in monthly follow-ups as well as annual meetings.

For operations, greenhouse gas stems from our energy consumption. However, we consider the greenhouse gas impact of our products not only during production, but also during the further stages of our products, as for instance the conversion to plastic products, consumption or waste handling. Here, we face significant opportunities and challenges. By examining how we can recycle waste that was not recycled in the past, we can avoid landfill, incineration or littering. This will need new technologies, such as chemical recycling. We believe significant amounts of carbon loss can be avoided, thus making us more competitive by lower dependency on fossil fuels. This is part of our efforts on circular economy.

Click [✕ here](#) to read more on this topic in our chapter “Responsible products”.

In addition, the chemical and plastics industry is continuously innovating and evaluating new products or differently sourced raw materials, which could lead to lower greenhouse gas emissions. This is at the R&D stage and form part of our efforts on developing sustainable products.

We report and review our carbon dioxide scope 1 and 2 emissions on an annual basis. This includes review and validation of each site, review of the methodology, conversion factors and ETS reporting. Currently, four out of our 18 sites are under ETS regulation.

In EMEA, our four production plants in Antwerp, Belgium, are part of the European Emission Trading System (EU ETS), which covers direct greenhouse gas emissions. The monomer plant is the main direct emitter of greenhouse gases through the combustion of gas in its dehydrogenation furnaces. Steam is procured from the central energy provider on site and the corresponding indirect emissions are compensated via a separate arrangement. A management strategy was implemented in 2016 to minimise exposure to CO<sub>2</sub> price fluctuations over the remainder of ETS phase III (until 2020) and the entirety of ETS phase IV (2021–2030). Improvements in greenhouse gas emissions are driven entirely by energy efficiency gains with impact on direct and indirect emissions. The main energy savings that were realised in the last few years are based on process intensification, optimisation of distillation and scrubbing columns, combustion tuning, improved compressed air use and production, thermal oil furnace upgrades and thermal insulation modernisations.

North America is quite diverse with regard to carbon policy. Currently, the styrene monomer facility in Sarnia, Canada, is the only plant that falls under carbon policy. The state of Ontario has implemented a carbon cap-and-trade framework under the Western Climate Initiative (WCI), and merged with the California and Quebec systems on January 1, 2018. The greenhouse gas emissions from our Sarnia facility are direct via combustion furnaces, and indirect via steam and electricity production through a regional cogeneration facility. In Texas, a cap-and-trade system is applicable on VOC and NO<sub>x</sub>. The combustion of fuels is monitored closely even in the case of no carbon emissions. Fossil fuels are the largest energy cost in the Americas region and directly contribute to greenhouse gas emissions; therefore, we are both economically and

socially motivated to reduce consumption. Going forward, our priority and focus will be on fossil fuel usage and thermal efficiency. Our goal is to practice energy efficiency throughout all our premises, facilities, activities and equipment.

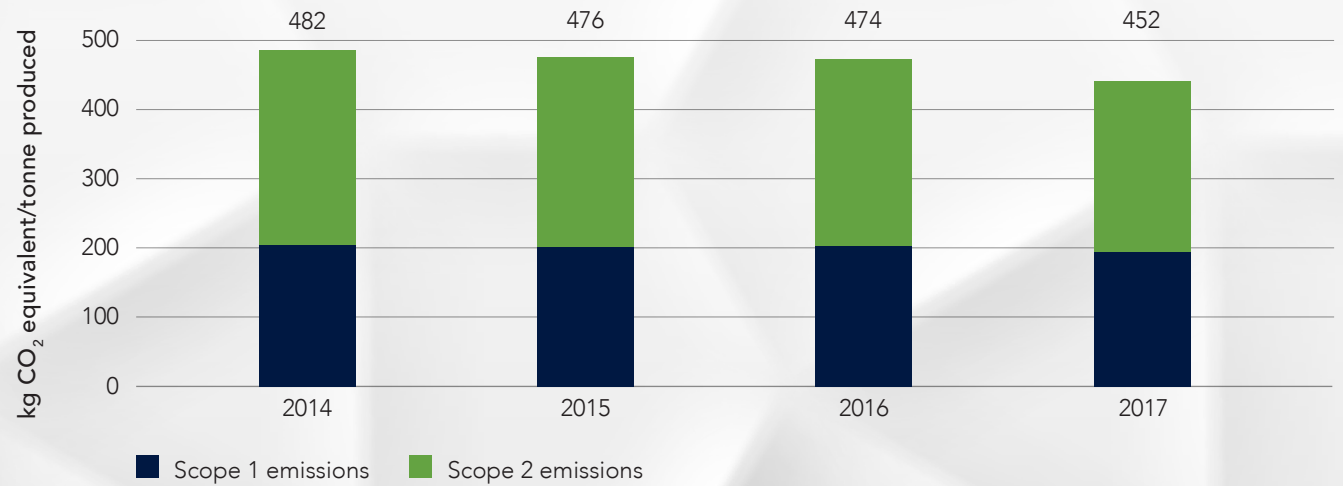
In Asia-Pacific, our two South Korean sites, Ulsan and Yeosu producing ABS, ASA and K-Resin®, are subject to ETS. The ETS covers both direct and indirect greenhouse gas emissions. Although our main focus is on reduction of direct greenhouse gas emissions, efforts have been taken with the local supply of utilities to reduce indirect greenhouse gas emissions as well.

**Discussion of results**

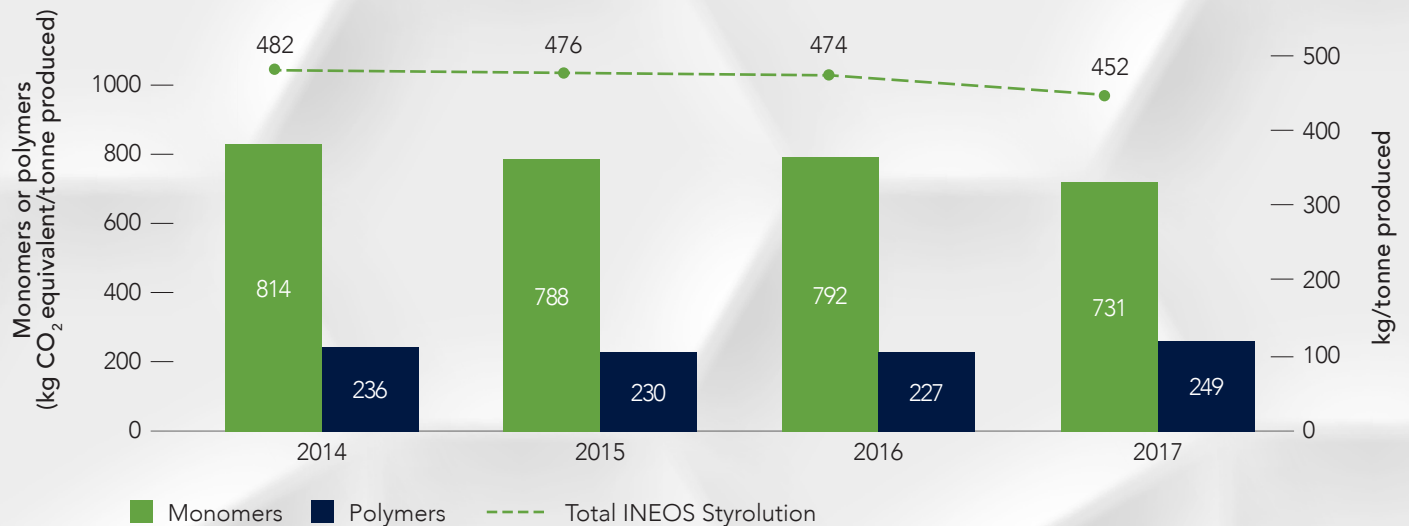
We measure and monitor our CO<sub>2</sub> footprint on an annual basis. This covers the emissions from our activities or utilities that we source from third parties. It does not cover carbon dioxide emissions from our raw materials.

The measured emissions cover the scope 1 and 2 CO<sub>2</sub> emissions as defined in the Greenhouse Gas Protocol. Our greenhouse gas emissions also cover other emissions such as N<sub>2</sub>O (nitrous oxide), CH<sub>4</sub> (methane) and CFCs (chloroflourocarbons), which are converted to CO<sub>2</sub> equivalent. Scope 1 emissions include fossil fuel consumption at our sites, process-related CO<sub>2</sub> emissions, and emissions from cooling and transportation at our sites. Scope 2 emissions include the CO<sub>2</sub> emissions related to sourced electricity and utilities, such as steam. Scope 2 emissions are foremost based on conversion factors delivered by electricity or utility providers. Secondly, they are based on nationally or regionally defined conversion factors and in case of non-availability, they are based on the technology used. In 2017, 44% of our total greenhouse gas emissions are due to scope 1

**GHG EMISSIONS BY CATEGORY ✓**



**GHG EMISSIONS ✓**



greenhouse gas emissions and 56% of total greenhouse gas emissions are due to scope 2 greenhouse gas emissions.

Compared to 2016, our EBSM production sites achieved a reduction of 7.7% in specific greenhouse gas emissions in 2017. This was achieved mainly due to new conversion factors for scope 2 greenhouse gas emissions in Sarnia, Canada, in line with the new ETS regulation. For the polymer production sites, an increase in greenhouse gas emissions of 10% was recorded. This can be explained by the increase of our energy consumption by 7% as well as by a slight shift in energy sources with different CO<sub>2</sub> impact, for example, variation in use of gas, electricity or steam. The combination of polymers and monomer production sites led to an overall further reduction of 5%.

**WATER AND WASTE WATER REDUCTION**

Water is a very important resource in our production process. Monitoring and reporting of the total volume of water use by source contributes to our understanding of both overall impact and potential risks. Clean freshwater is becoming increasingly scarce, and this scarcity can impact production processes that rely on large volumes of water. Therefore, water consumption and conservation as well as waste water generation and reuse are an integral part of our focus on resource efficiency. INEOS Styrolution plants, especially those in water-stressed areas, are committed to responsible water use and are exploring measures for implementing sustainable water management systems.

**WATER USE**

For 2017, we expanded the scope of the indicator on our reported water use. Last year, we reported water use as total process water, excluding cooling water. For us, process water

is the indicator with the highest focus in water management, as this relates to the efficiency of our processes. Also, process water is water with product contact.

From this year onwards, we have included cooling water into our total reported water use. Cooling water is only used for cooling purposes and is therefore not in direct contact with the product. After its use in cooling processes, it contains no organic contamination, except chemicals for water treatment. If the cooling water is discharged separately from process water, it can be routed back directly to a river or sea and has

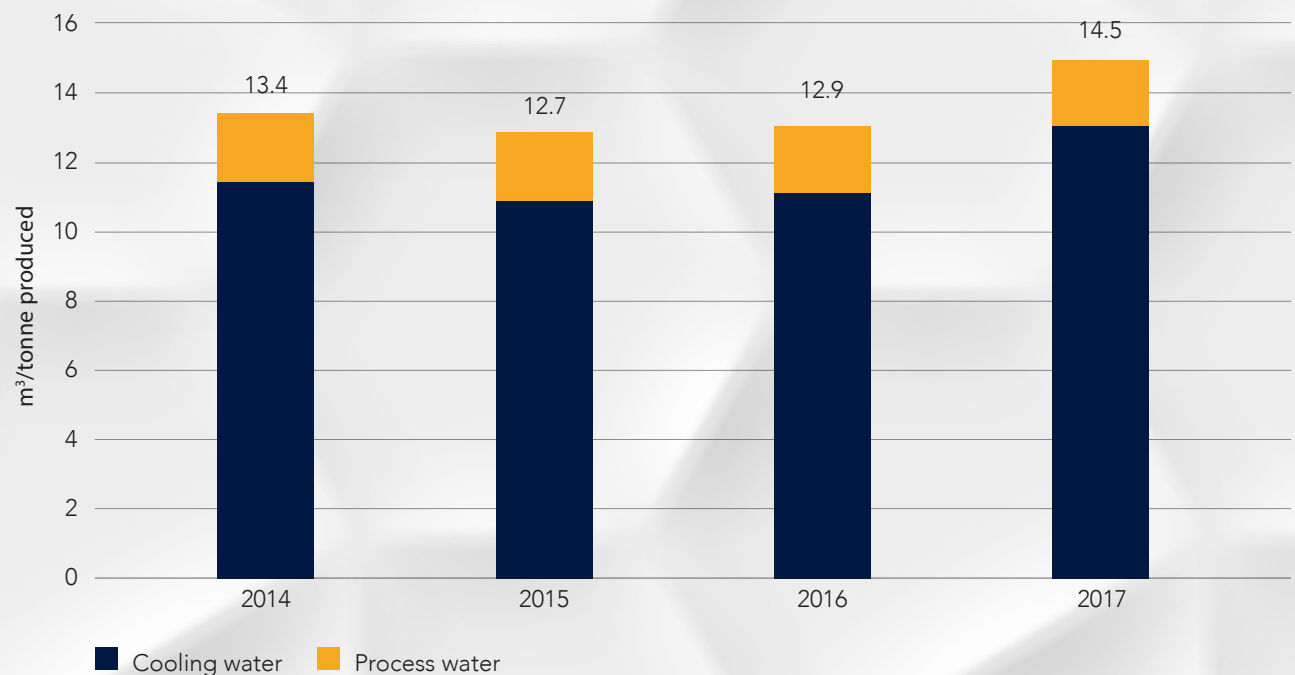
no further impact on waste water treatment.

The graph below indicates the breakdown of data on our total water use in cooling water as well as process water.

**Discussion of results**

Compared to 2016, specific water use including cooling water increased by 13%. Cooling water use increased by 16%, while process water use reduced by 3.8%. There is a huge difference in the amount and type of cooling water used throughout the different regions EMEA, Americas and Asia-Pacific.

**SPECIFIC WATER USE INCLUDING COOLING ✓**



In our main EMEA sites, semi-open primary cooling water systems are used that often extract water from nearby surface water bodies, such as the Rhine and Scheldt rivers. After use in cooling processes, this water is partially routed back to the river by dedicated discharge points, separated from waste water. The cooling water demand of the semi-open systems is more dependent on the temperature of the water source and can be quite high during the warm summer periods.

In our Antwerp plants, the flow in the cooling water circuit was increased during the summer months to provide sufficient cooling capacity, therefore, a higher amount of cooling water was used.

In Asia-Pacific and in Americas, the cooling water is discharged together with process waste water, leading to relative higher volumes of discharged waste water. Closed cooling water loops are being installed wherever possible during turnarounds or other installation replacements.

In styrene monomer sites in the Americas, evaporative cooling systems are used in which cooling water ends up as water vapour. In addition to technical differences, the systems require significantly higher cooling water amounts during the warmer summer months.

Nevertheless, the use and discharge of cooling water are monitored for quantity and quality. Deficiencies are reported and addressed by good maintenance practices. These repairs might take until a next shutdown due to the type of work involved, which explains temporary increases in cooling water use.

The decrease in specific process water use by 3.6% is almost completely due to a significant reduction of 550,000 m<sup>3</sup> of process water in Altamira, Mexico. This is due to an improved methodology, which includes better monitoring as well as refined scope of net consumption.

**Discussion of results**

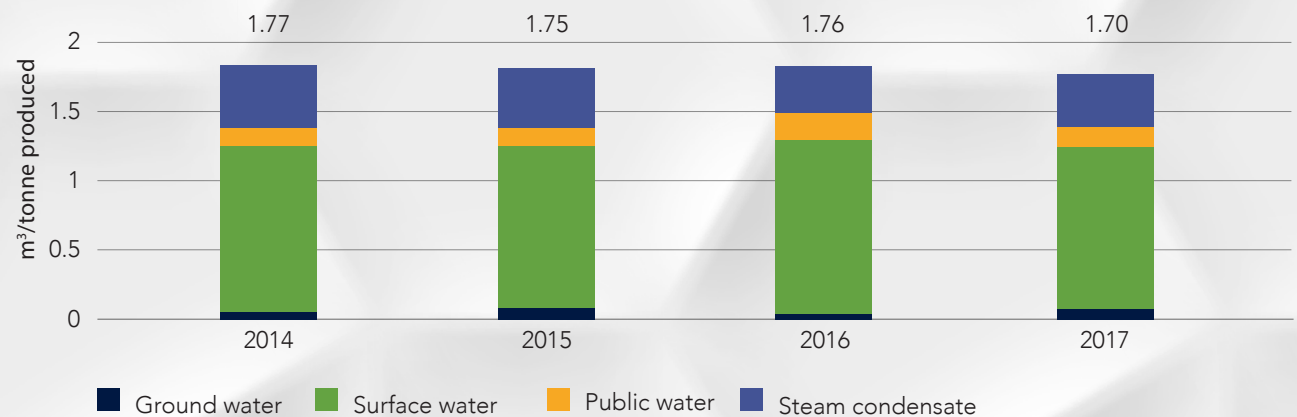
Process water use fluctuates much less due to meteorological circumstances. It is rather linked to stable and reliable operations. Our initiatives to reduce water use are also in line with our set target focus on process water.

Water used for production purposes is drawn from different sources, such as surface water and wells. It can also be imported from neighbouring sites, which clearly has a different environmental impact. Groundwater is the less favoured source.

Reporting the total volume of water use subdivided by source contributes to our understanding of its overall impact and evolution. Compared to 2016, surface water – our main source of water use – decreased by 7% and the use of public water decreased by 10%. Groundwater use increased by 18% due to a leak in the underground fire system at our Channahon production site in the U.S. The water imported by steam condensate increased by 10%. This stream is variable at sites where there is significant import and export of steam and condensate.

In 2017, we documented an increase in water use at several of our production sites. Besides some technical failures, for example with a heat exchanger in Texas City, the main explanations for this fluctuation are in housekeeping, increased cleaning and limited measurement and monitoring. This will be subject to further follow-up and improvement in 2018 and beyond.

**SPECIFIC WATER USE BY SOURCE (excluding cooling) ✓**



**Discussion of results**

In general, polymer production sites use more process water than monomer production sites. Compared to 2016, water use by monomer production stayed stable, whereas our polymer production plants decreased their water use by 6%. This led to an overall reduction in water use of 3.8%. We achieved a reduction in process water use of 4.1% between 2014 and 2017. This is already in line with our 2014 to 2018 target of 3%.

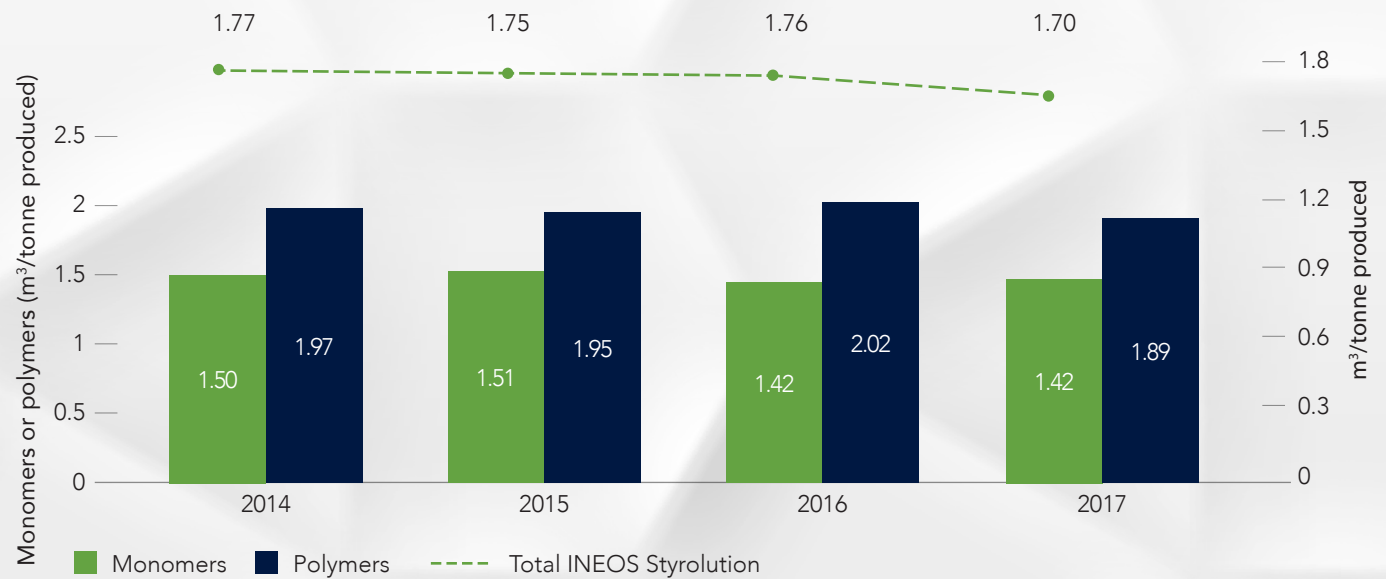
**WASTE WATER**

The amount and quality of water discharged by our sites is directly linked to both ecological impact and operational costs. Good treatment of emissions and reduction of waste water discharge mitigates our impact on rivers and local habitats. We are committed to further reducing our environmental impact by progressively improving the quality of discharged water and by reducing volumes.

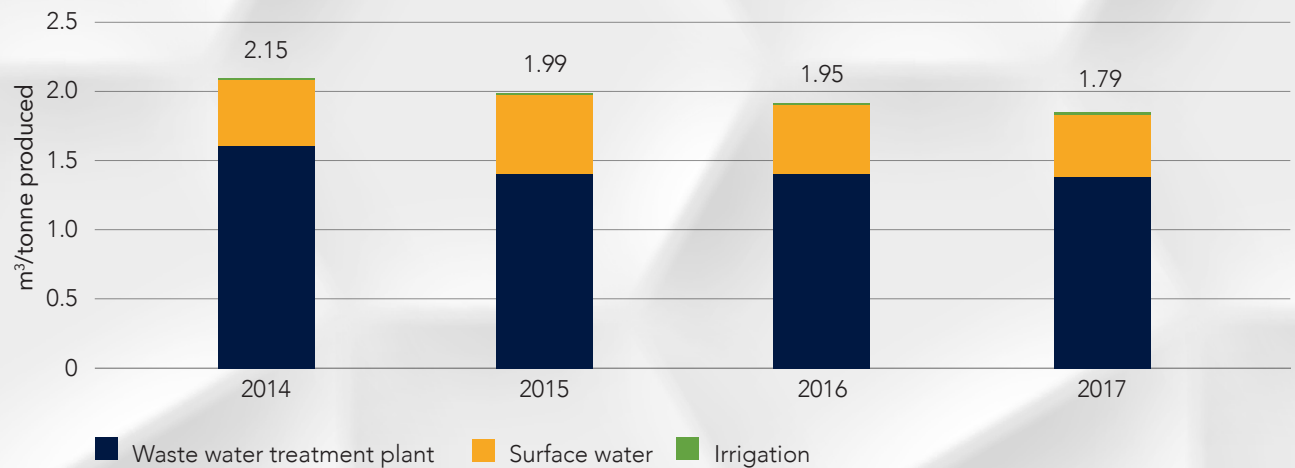
All of our production sites have waste water treatment plants at site or send their waste water to an external waste water treatment facility. Several measures, such as closed-loop water systems to reuse the water for cleaning purposes or as cooling water, are in place or in progress to avoid waste water discharge. Our process sedimentation basins, filters as well as flotation units contribute significantly to preventing solids from entering waste water treatment facilities.

Reduction of waste water is explained by the reduction of process water and cooling water used for cleaning purposes. Several sites have established procedures to reuse their process water or condensate at neighbouring production plants. This has helped to significantly reduce the waste water at certain sites over the last years.

**SPECIFIC WATER USE (excluding cooling) ✓**



**SPECIFIC WASTE WATER DISCHARGE BY DESTINATION ✓**





“Sustainability projects are an integral part of our global operations management, maintenance and capital expenditure programme.

Continuous improvements are made based on an active experience exchange between sites and expert advice from the global technology department.”

**Walter de Vet**  
 Director Global Technology  
 INEOS Styrolution

Waste water is a key indicator and part of local and national reporting at each of our production facilities. Compliance to all local requirements is actively monitored and anticipated, led by our SHE managers onsite as well as our regional SHE managers.

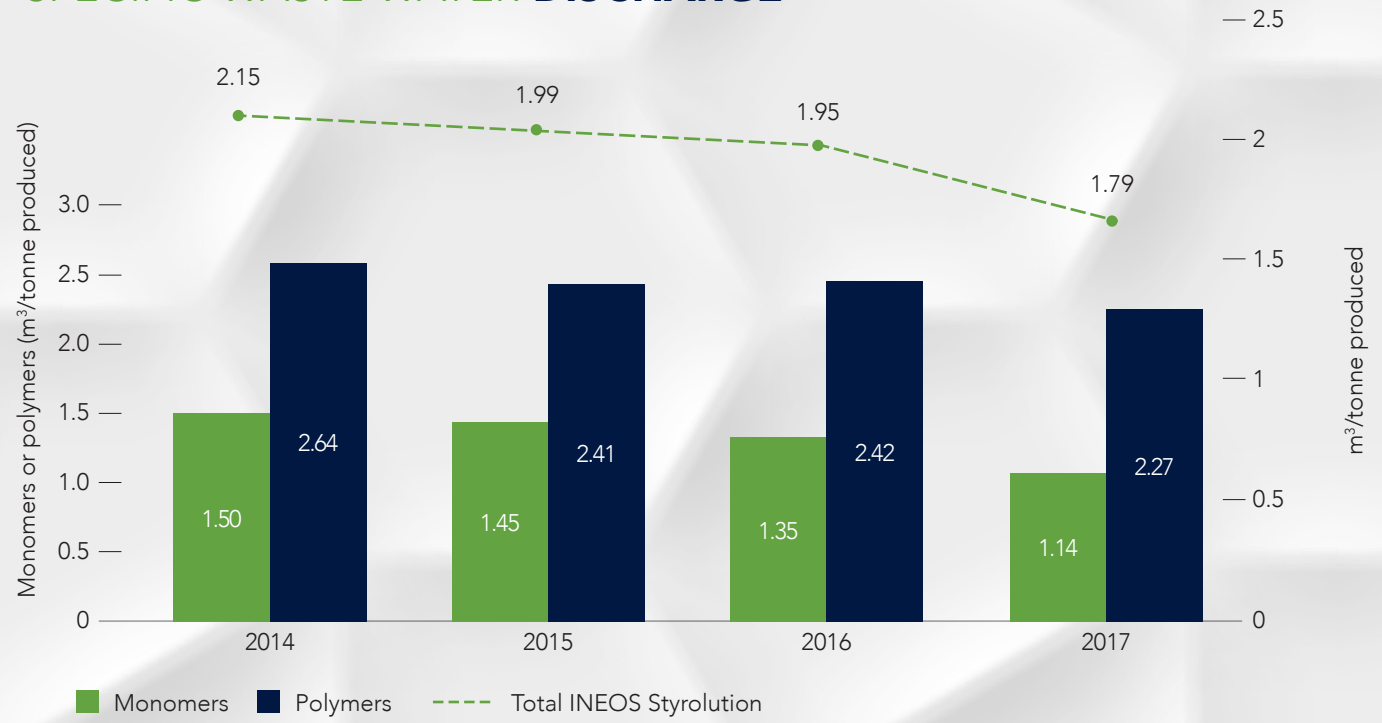
**Discussion of results**

Waste water refers to all water discharged on site, which is always done in accordance with local legislation. It consists of all process waste water including contaminated cooling water. This can be direct discharge to surface water after internal water treatment, or discharge to external waste water

treatment plants. In India, because of water scarcity, effluents from the waste water treatment is used for irrigation on site.

Compared to 2016, we were able to reduce the amount of specific waste water by another 8%. At our production site in Antwerp, the overflow of cooling water during summer months – due to infrastructure anomalies at the chempark – ended up in our waste water and therefore almost doubled the amount of waste water at the site. The reduction in waste water sent to surface water after internal treatment can be fully explained by refined calculation methodologies and the refined scope

**SPECIFIC WASTE WATER DISCHARGE** ✓



of net discharged waste water for our production sites in Altamira, Mexico and Bayport, Texas, USA.

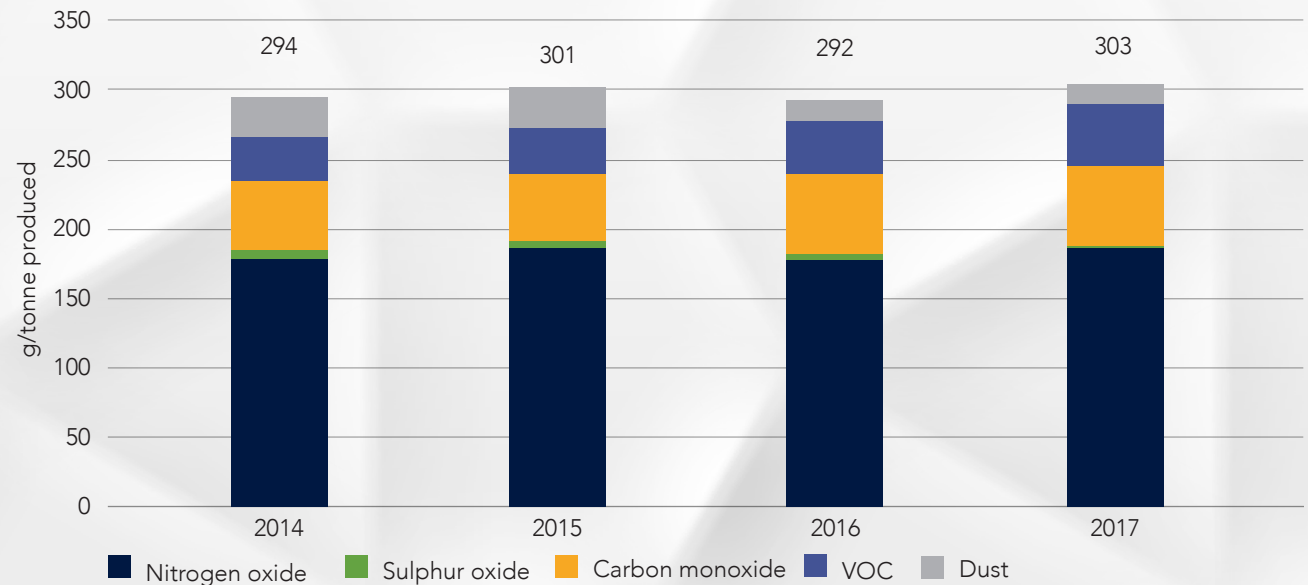
In general, polymer production sites discharge more waste water than monomer production sites. Compared to 2016, waste water discharge by monomer production sites decreased by 15%, whereas polymer production sites discharged 7% less. This led to an overall reduction in waste water discharge of 8%. During 2014 to 2017, we achieved a reduction in waste water discharge of 20%. This is in line with our 2014 to 2018 reduction target of 7%.

### AIR EMISSIONS

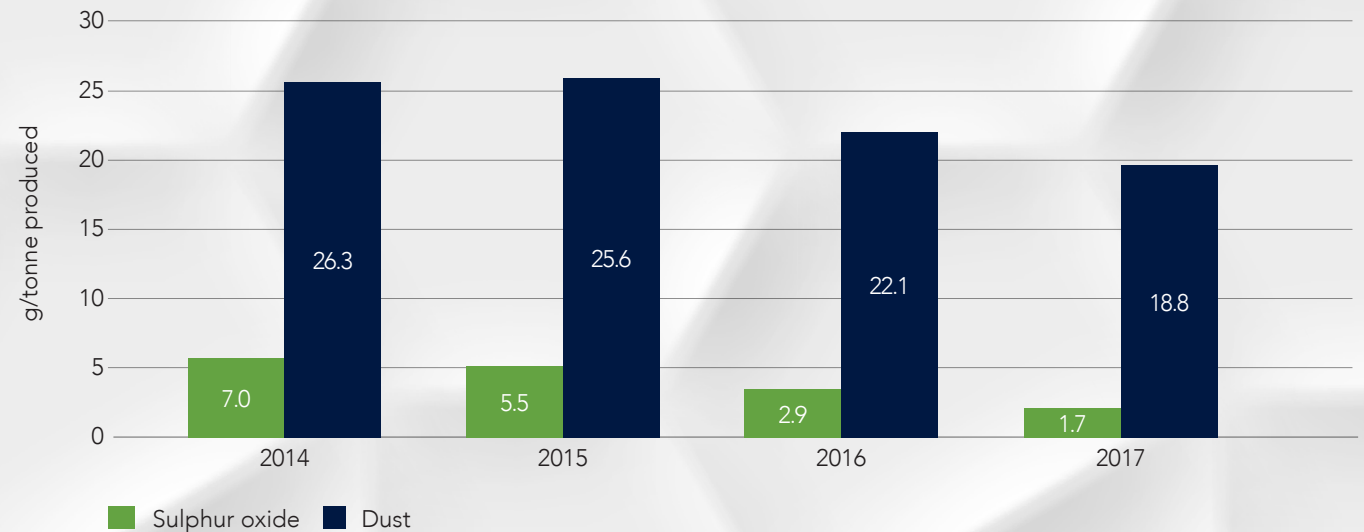
Air emission management is of high significance to our industry's environmental management. It ensures that the air quality in the neighbourhood remains suitable and that the impact on nearby habitats or our atmosphere is limited. Air emissions are therefore highly regulated and part of the technical handling, advanced monitoring and reporting, and are subject to continuous improvement.

Air emissions from manufacturing and combustion gases are monitored at each site. We treat our air emissions from our production sites with methods such as condensation, filtration, absorption or incineration, in line with national and local legislation requirements. The results are reviewed and evaluated for further optimisation. Diffuse air emissions in operations are monitored via leak detection and repair procedures. Air management is an integral part of the environmental management of our sites. Our performance is audited internally by our management board and by external auditors. We have also defined a respective reduction target.

### AIR EMISSIONS BY SOURCE ✓



### SO<sub>x</sub> AND DUST AIR EMISSIONS ✓



**Discussion of results**

For 2017, we expanded the scope of the reported air emissions indicator. Last year, we reported on NO<sub>x</sub> and VOC air emissions. From this year on, we will also include the combustion gases SO<sub>x</sub>, CO and dust in the reported air emissions data.

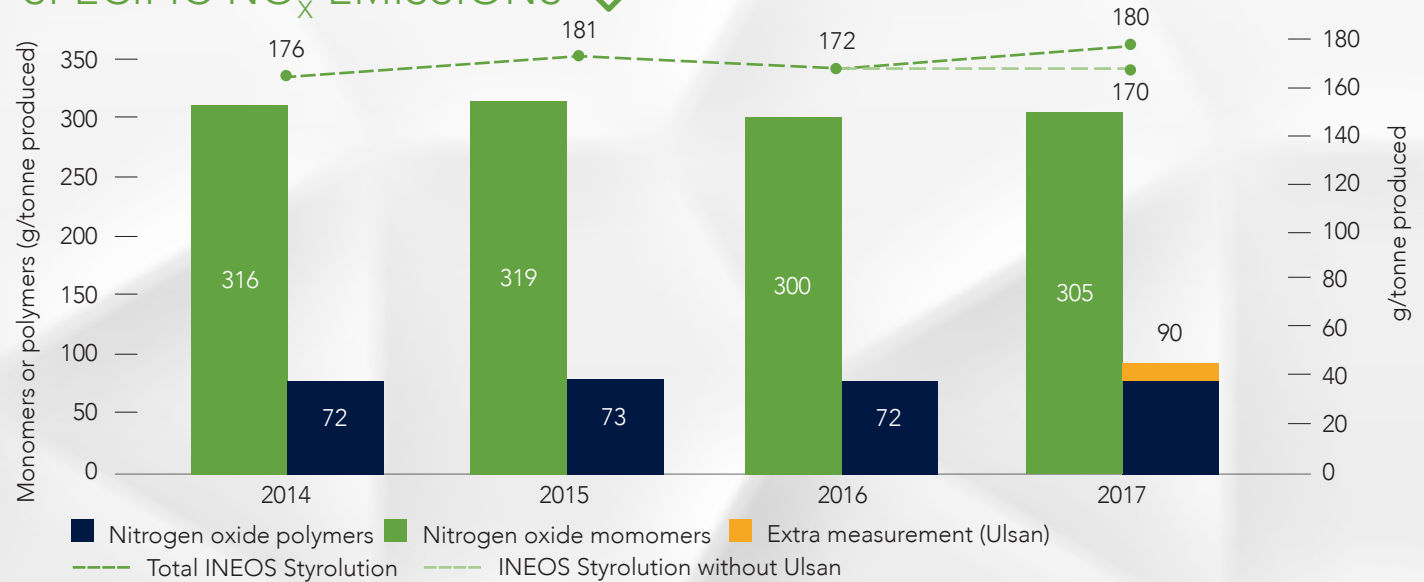
Compared to 2016, we report a 3.5% increase in global specific air emissions, mainly due to additional legal monitoring of NO<sub>x</sub> in Ulsan, South Korea, and higher specific emissions of VOC in our new plant in Yeosu.

NO<sub>x</sub> increased by 5%, CO by 2.5% and VOC by 12%, while SO<sub>x</sub> decreased by 42% and dust by 14%.

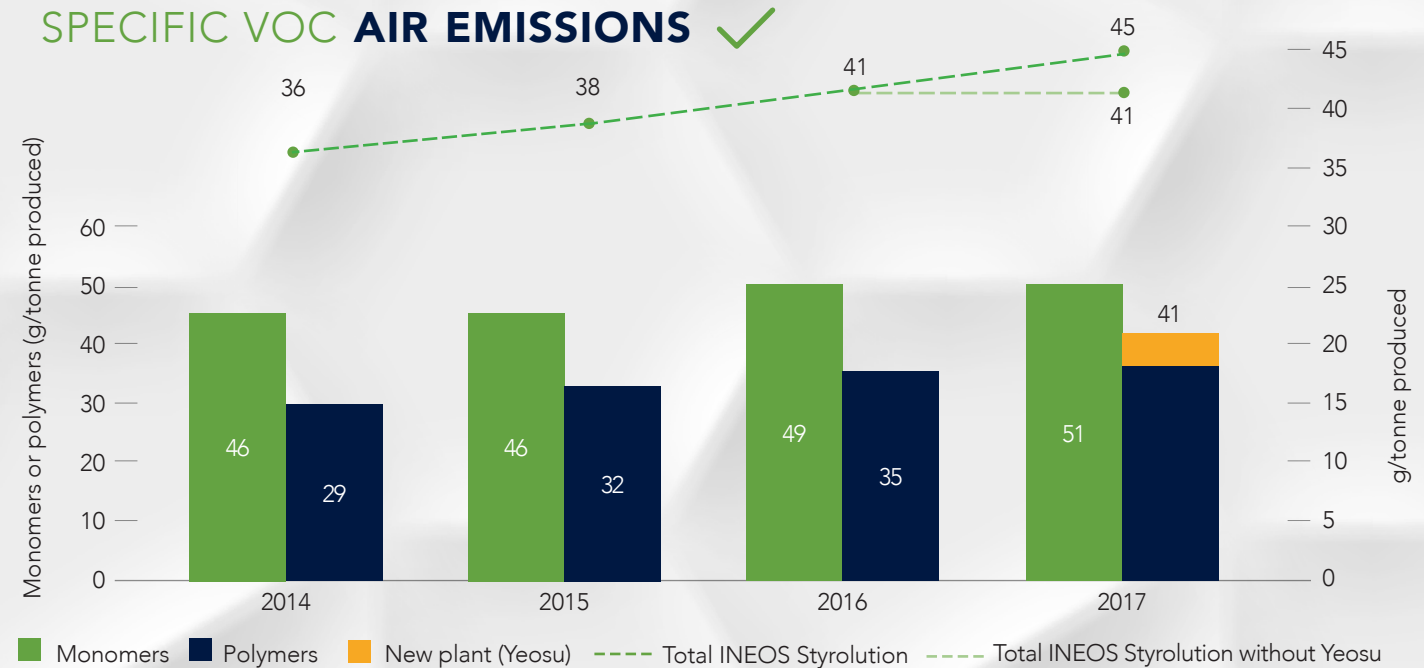
The air emissions of NO<sub>x</sub>, CO, SO<sub>2</sub> and dust are related to the combustion of fossil fuel and waste. The large reduction in SO<sub>x</sub> is due to improvements in our thermal oxidizer (RTO) operation in Map Ta Phut, Thailand, and due to the use of more environment-friendly fuels in Vadodara, India. Over the period 2014 to 2017, SO<sub>x</sub> emissions decreased by 76% and dust emissions decreased by 29%. Further reductions in NO<sub>x</sub> were achieved in Dahej, India due to some fine-tuning of our burner air and fuel ratio, and in Sarnia, Canada because of the switch to a cleaner fuel.

In Ulsan, new emission points were monitored due to additional legal monitoring of NO<sub>x</sub>. This resulted in an overall NO<sub>x</sub> increase of 5% from 2016 to 2017. Without the additional measurements in Ulsan, our NO<sub>x</sub> emissions would have been further slightly reduced. Nevertheless, these additional measurements help to improve our baseline and give us a broader scope for future improvements.

**SPECIFIC NO<sub>x</sub> EMISSIONS** ✓



**SPECIFIC VOC AIR EMISSIONS** ✓



## OVERVIEW 2014-2017

### VERSUS TARGETS ✓

Aspect	Evolution 2014-2017	Target 2014-2018
Energy	-0.3%	
GHG emissions	-6.5%	
Waste (excluding projects)	-0.3%	-10%
Landfill waste	-32%	
Water	-4.1%	-3%
Waste water	-20%	-7%
NO <sub>x</sub>	3%	
VOC*	From 2015: 19%	-7%
SO <sub>x</sub>	-76%	
Dust	-29%	
ISO 50001 and EMS coverage	41%	
ISO 14001 coverage	61%	100%

\* VOC target 2015-2019

More precise and reliable measurements revealed significant higher VOC air emissions in Sarnia, Canada. Additional leak detection and repair programmes as well as other advanced monitoring improved our baseline for this site.

In Bayport, USA, VOC emissions reduced by 21% due to improved air emissions management. In Antwerp, Belgium, increased emissions in VOC were detected between 2015 and 2016 due to an operational change. This has been further investigated and corrective measures have been introduced to bring our emissions back to our former levels.

However, due to the high VOC emissions from the newly acquired Yeosu plant, an overall increase of VOC of 12% was recorded. Without these additional emissions, our global emissions would have remained stable.

The improvement of air emission monitoring and further reduction measures remains an ongoing process. The internal floating roofs on hydrocarbon tanks for the solvent vessels in Sarnia, Canada, are under implementation at the moment. This is expected to lead to a further significant decline in emissions.

In the Texas Gulf Coast, a stringent and mature emissions cap-and-trade programme exists for NO<sub>x</sub> and VOC to address localised ozone pollution. This cap-and-trade programme has been operating since the early 2000s and has proven to be very effective at controlling emissions in the region.

## 2.2.8 ENVIRONMENTAL FOOTPRINT HIGHLIGHT: AMERICAS

The following section highlights examples of operational achievements at our six manufacturing sites in the USA, Canada and Mexico. We have three styrene monomer production sites in Sarnia, Canada, as well as Texas City and Bayport, USA. The three other sites in Altamira, Mexico, as well as Channahon and Decatur, USA, produce polymers including general purpose and high-impact polystyrene, acrylonitrile butadiene styrene polymers (ABS) and a range of specialty styrenics.

Results reported in this chapter apply only to our manufacturing plants in these countries, some of them operating within large manufacturing complexes that are shared by multiple chemical companies.

### SITE-WIDE INITIATIVES

Our production sites in the Americas are integrated facilities where energy, utilities, by-products, intermediate product streams, vent gases and waste can be exchanged to maximise the plants' overall efficiency. For example, steam or heat produced by one process can be captured and utilized in a downstream process. This integration not only drives greater efficiency, it helps us improve our environmental performance in areas, such as emissions, water, waste and energy use. Through cooperation with neighbouring companies, our facilities are able to further minimise their environmental impact by reusing and upgrading by-products and utilities when possible. Additional integration occurs on a regional level where fuels and by-products produced at one plant can be

transferred to another for beneficial reuse or fuel use, resulting in increased energy efficiency and waste reduction.

Our production facilities represent a diverse portfolio of products ranging from styrene monomers to plastics. Styrene monomer is a basic building block for the production of dispersions, foams and polymers, and it is the backbone of the company's portfolio of styrenic polymers. The styrene monomer process is an energy-intensive process and has long been a focus for energy efficiency improvements. In addition to specific projects that are highlighted in the following sections, our styrene monomer sites are able to capture additional energy efficiencies by implementing the following measures:

- Reducing the steam-to-product ratio
- Optimising the raw material mix
- Fine-tuning internal process parameters and product specifications
- Improving combustion control of the industrial furnaces that provide the heat needed for styrene monomer production

Operation Clean Sweep® (OCS), an international programme designed to prevent resin pellets and other plastics materials from entering the marine environment, is a key focus in these plants. In support of OCS, the Americas region has implemented housekeeping improvements as part of our global Asset Care programme and other technical improvements related to overflow prevention, containment, pellet/ fines reduction, and waste water drain management.

We have also recently implemented an energy management system designed to systematically and continuously improve energy performance and processes.

## SUSTAINABILITY ACHIEVEMENTS IN STYRENE MONOMER PRODUCTION

### Energy

Due to the energy intensity of the styrene monomer process, the focus of the styrene monomer sites is centred on energy efficiency improvements.

Our facility in Bayport is the largest single-train styrene monomer plant in the world. Two key projects recently implemented at the site resulted in a combined annual energy reduction of over 178 GWh. One energy project involved the replacement of a key heat exchanger in its dehydrogenation section. Installation and subsequent operation of the new exchanger resulted in the facility's ability to lower steam to hydrocarbon ratios and reduce steam consumption, thereby reducing energy use.

The second Bayport energy reduction effort involved an innovative approach to a maintenance/ turnaround activity, which was conducted while the facility was in operation. To correct high stack temperatures in the convection section of a process superheater, online cleaning of the convection tubes was performed, which allowed increased thermal efficiency, reduced temperature profiles and reduced safety risk resulting from shutdown.

Our Texas City styrene monomer plant implemented a distillation improvement project during the turnaround in 2017, resulting in 9 GWh of improved energy efficiency.

Our styrene monomer plant in Sarnia recently implemented several optimisation projects that have resulted in improved energy efficiency. One such optimisation project involved adjustment of the steam pressure in an overhead column condenser that allowed for less pre-heat requirement, resulting in natural gas savings of 7.4 GWh. A second project involved adjustment in a distillation column reflux purity, resulting in less hot oil requirement, thereby reducing natural gas consumption by 6 GWh.

### **Emissions**

Our Sarnia site operates in the Sarnia valley of Ontario, Canada, amongst various refineries and chemical plants. This styrene monomer plant operates as the “benzene consumer” in the valley in that the facility takes the by-product/intermediate benzene materials produced by other neighbouring facilities and utilises it as feedstock for its production. Alternatively, this material would be disposed as waste or be transported/ exported to other areas for further refinement. This plant continuously works to decrease hydrocarbon emissions, specifically benzene. Recent benzene abatement activities implemented at the plant have resulted in a reduction in hydrocarbon air emissions. Enhanced Leak Detection and Repair (LDAR) work practices to detect and repair hydrocarbon fugitive leaks and improved waste water operation and maintenance management practices, such as improved oil skimming, sampling techniques and sewer cleaning, have resulted in reduced hydrocarbon air emissions from equipment leaks and sewer/waste water systems. Additionally, the site will complete installation of internal floating roofs on two hydrocarbon tanks in 2018 that will result in a significant reduction in hydrocarbon emissions in the future.

### **Waste**

Catalysts removed from the reaction systems at both our Bayport and Texas City styrene monomer plants have historically been considered as non-hazardous waste and have been disposed in a landfill. Through work with external vendors and regulatory agencies, these sites performed necessary decontamination and sampling of the removed catalyst to beneficially reuse the material in road base material and asphalt applications. This reuse of material resulted in a combined waste reduction of 956 tonnes.

## **SUSTAINABILITY ACHIEVEMENTS IN POLYSTYRENE AND SPECIALTIES PRODUCTION**

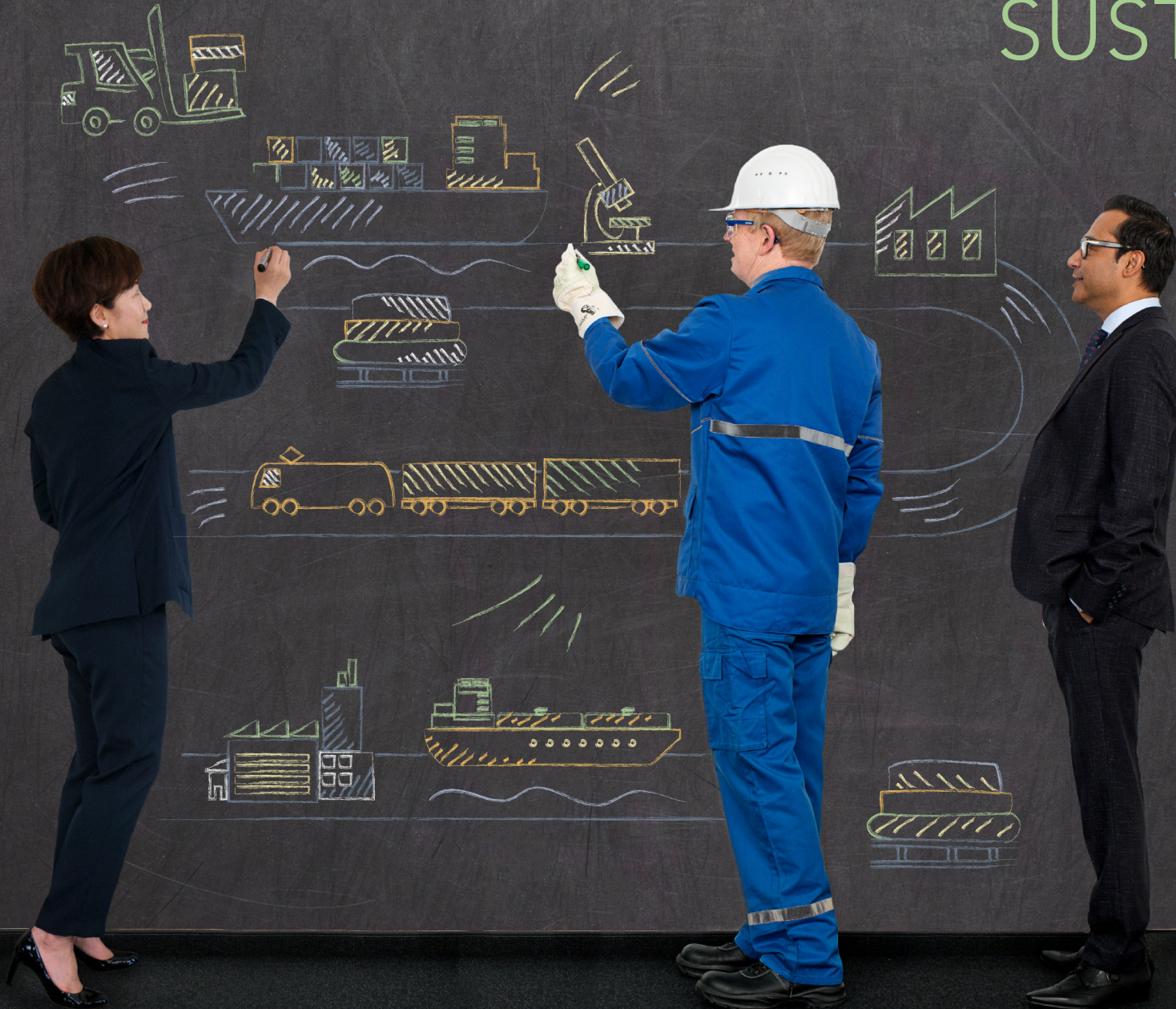
### **Energy and CO<sub>2</sub> emissions**

The Altamira site in Mexico operates a gas turbine for its electric power and steam production, which was recently replaced as part of an equipment end-of-life project. This replacement cogeneration unit is more energy-efficient and produces less CO<sub>2</sub> and NO<sub>x</sub> emissions per MWh energy produced. Energy savings for the new gas turbine are estimated at 6.2 MWh and reduction in CO<sub>2</sub> emissions of more than 1 MM/ kg.

Our Polystyrene plant in Decatur, USA, implemented a water conservation project in 2017, which will result in reduced water usage in the future. Routine fouling and leaks have affected a plate-and-frame exchanger used to cool the strand bath water. The site is now equipped with new and spare exchangers for both polystyrene production lines. This will allow recirculation of cooling water to cool the strand baths rather than fresh water, thereby minimising total water usage.

## 2.3 RELIABLE PARTNER TO SUPPLIERS

# DRIVING SUSTAINABILITY ALONG THE VALUE CHAIN



- 2.3.1 Our approach
- 2.3.2 Our performance

Our efforts to monitor and enhance our sustainability performance are grounded in the activities of our own business. We believe, however, that our overall responsibility is not limited to our own manufacturing sites. We, therefore, assess sustainability performance along the entire styrenics supply chain to ensure that our suppliers meet high sustainability standards.

### 2.3.1 OUR APPROACH ✓

Sustainable procurement practices are increasingly driving companies' purchasing decisions, policies and reputation. We work with over 10,000 suppliers worldwide that provide us with raw materials, equipment as well as services, such as logistics, utilities and IT. As a company with a global reach, we have the ability to influence the sustainability practices in our supply base and are committed to forming strategic partnerships with our top suppliers that have the most impact on our business from a risk and spend perspective.

#### MATERIALITY ASSESSMENT

To ensure we prioritise the most important issues for our stakeholders and for our business, we periodically conduct a formal materiality assessment. In our materiality assessment undertaken in 2017, sustainable procurement was assessed as being of significance to our stakeholders and of strategic importance to our business. Therefore, together with our various supply chain partners, we continue to ensure efficient and effective production planning and execution as well as filling and storing of

finished and intermediate material, based on customer demand and requirements. By engaging our stakeholders on sustainability performance, we limit the risk of delivering products to the marketplace that are not in line with our values or the stated intent of our sustainability programme.

#### OUR SUPPLIER CODE OF CONDUCT

The cornerstone of our supply chain management is our Supplier Code of Conduct. It defines our minimum expectations and requirements in supplier standards, including labour practices and human rights, health and safety, environmental protection, ethics and fair business practices.

We expect all our suppliers – at a minimum – to comply with INEOS Styrolution's Supplier Code of Conduct, which provides additional details of our expectations from suppliers. Our global purchasing department is responsible for ensuring that suppliers receive and agree by the terms of our Supplier Code of Conduct. We also monitor and review their performance through our own internal assessments as well as through third-party assessors.

"We are conscious of our contribution to the sustainability performance of our customer's solutions. However, successfully advancing this topic requires collaborative effort throughout the complete value chain. This is why we do not only place great importance on corporate responsibility but especially on the implementation of strong, long-term partnerships, such as with INEOS Styrolution, to jointly advance sustainability leadership and business success."

**Florian Böss**  
 Security & Responsibility, Environment,  
 Safety, Health and Quality  
 Evonik Performance Materials GmbH

### RESPONSIBLE BUSINESS PRACTICES ✓

#### ACROSS OUR SUPPLY CHAIN



RESPONSIBLE PROCUREMENT  
 OF OUR RAW MATERIALS  
 & SUPPLY CHAIN



ENERGY- & RESOURCE-EFFICIENT  
 PRODUCTION OF GRANULES IN OUR PLANTS



SAFE & RELIABLE TRANSPORTATION OF OUR  
 GRANULES TO OUR CUSTOMER'S SITE

Since 2015, compliance with the Supplier Code of Conduct has been included in INEOS Styrolution's general terms and conditions of purchase and is expected of all external business partners. By agreeing to work for or with INEOS Styrolution, we require each supplier to commit to the document's principles, which then also apply to the partner's subsidiaries and affiliates, their subcontractors and other business partners along their supply chain.

We strongly believe that adherence to our Supplier Code of Conduct helps us control risks related to sustainability in our supply chain. In order to further highlight the importance of our Supplier Code of Conduct, we have been referencing this on every purchase order since January 2016.

## 2.3.2 OUR PERFORMANCE

### KEY HIGHLIGHTS 2017 ✓

In 2017, 72% of our global supplier spend was third-party assessed on environmental and social criteria. In addition, 100% of our buyers were trained on sustainability through a combination of in-person and web-based training.

We have developed a preliminary concept for Supplier Excellence and are systematically integrating sustainability as a key component in our Supplier Excellence programme, such as including additional sustainability criteria to evaluate supplier performance.

### OUR SUSTAINABILITY TARGETS ✓

We have defined global sustainability targets for seven focus areas of our business including procurement. These targets are aligned with our material topics and underscore our commitment to continuous improvement.

We continue to target 80% of total supplier spend to be third-party assessed by 2020 and also ensure continuous training of all buyers on our sustainability initiatives.

### EMBRACING SUSTAINABILITY ✓ IN PROCUREMENT

In order to create shared knowledge and understanding of the fundamental principles of our sustainability programme, we conduct a global sustainability training for all our buyers. Conducting sustainability training enables us to create a common vision shared by all INEOS Styrolution colleagues in all sites and offices globally. It also gives guidance to our buyers when communicating our sustainability requirements to our suppliers. In 2018, we will provide a refresher training for existing buyers as well as a training for new buyers as part of their on-boarding.

### ENVIRONMENTAL AND SOCIAL ✓ RESPONSIBILITY IN OUR SUPPLY CHAIN

Our top suppliers, comprising companies with long-standing sustainability programmes, account for about 80% of spend-volume. In 2016, INEOS Styrolution began assessing the sustainability performance of our suppliers. These suppliers were required to complete a third-party assessment documenting their performance in the area of environmental impact, safety and fair business practices. The assessment results in a verifiable scorecard, which will be updated periodically.

As part of our Procurement Excellence initiative, in 2017, we rolled out four new programmes across the company focused around Category Management, Process Excellence, Team Development and Supplier Excellence. Through the Supplier Excellence programme, we aim to enhance our management

processes, in which sustainability will be included as a key component for supplier selection, evaluation and performance management. The programme will incorporate all critical elements to drive sustainable supply (reliable, flexible and competitive) and sustainable performance (economic, environmental and social) of our supplier base.


## KEY HIGHLIGHTS 2017 ✓

**72%** of supplier spend 3<sup>rd</sup>  
PARTY ASSESSED

**100%** of buyers trained on  
SUSTAINABILITY

## SUSTAINABILITY TARGETS ✓

**80%** of total supplier spend to be 3<sup>rd</sup>  
party assessed by **END OF 2020**

**100%** of buyers  **ACHIEVED**  
trained on sustainability by **END OF 2017**

**SUSTAINABILITY** to be included as  
a key component in **SUPPLIER EXCELLENCE**  
**PROGRAMME** by 2020



**SUPPLIER EXCELLENCE FRAMEWORK**

Our Supplier Excellence framework is a systematic, life-cycle management process through which we identify, select and work with suppliers from identification through targeted development and evaluation or to phase-out, if necessary. Through this process, we ensure a systematic screening of relevant new suppliers for sustainability, consider sustainability items in the evaluation of suppliers and monitor our sustainability performance. The Supplier Code of Conduct is a minimal requirement for us. However, we encourage our suppliers to adopt higher sustainability standards.

To the best of our knowledge, through our third-party assessments, we can confirm that we did not find any negative environmental or social impacts in our supply chain in 2017.

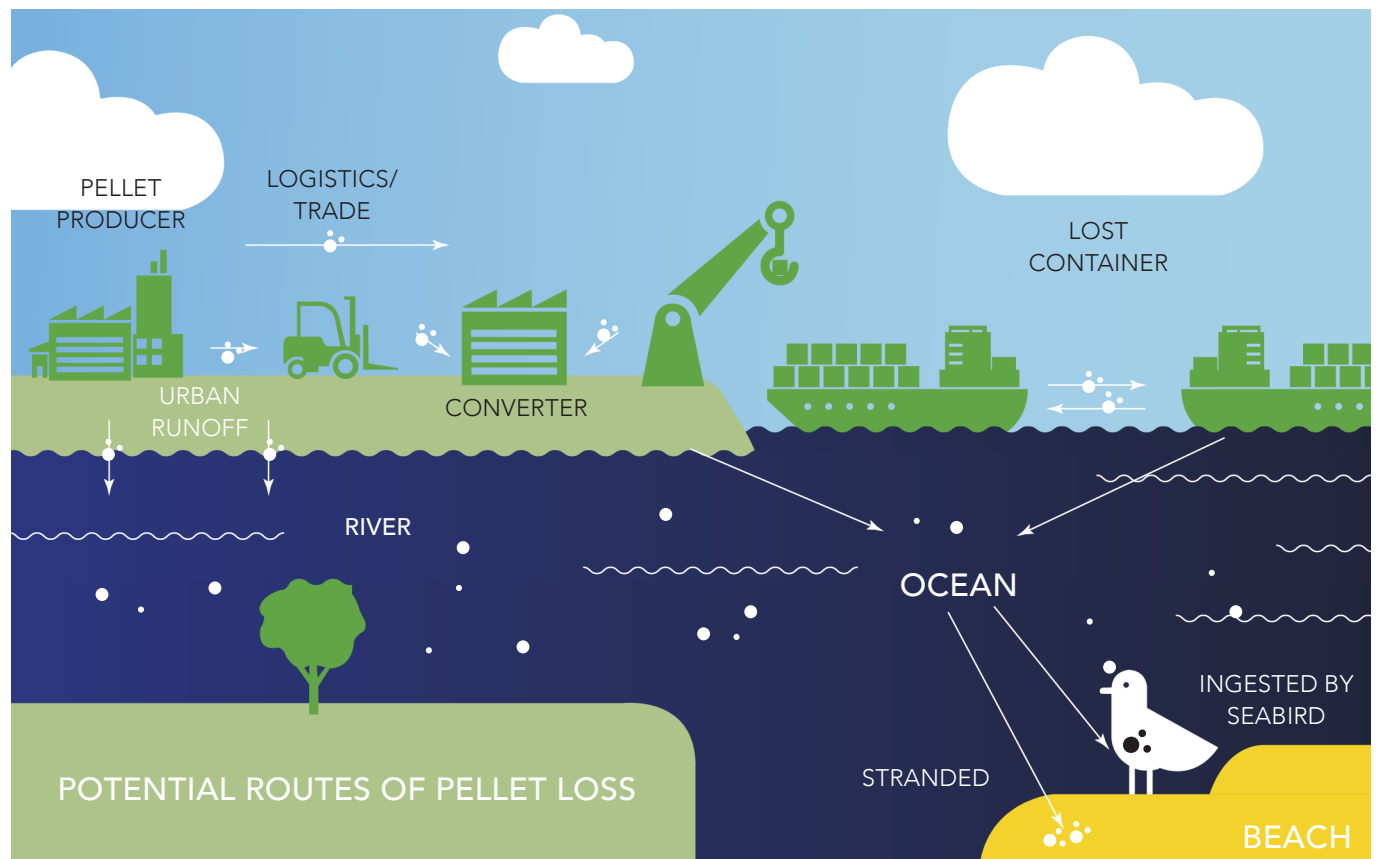
**TACKLING MARINE LITTER AND PELLET LOSS**

Marine litter and pellet loss is a topic that we recently identified as material and, therefore, we will continue to focus on this issue and improve on our performance. We are collaborating together with resin suppliers to promote an international stewardship programme called Operation Clean Sweep (OCS).

OCS is an international, industry-driven programme run by the American Chemistry Council's Plastics Division, PlasticsEurope

and the Society of the Plastics Industry and aims to combat the growing issue of marine litter by promoting proper pellet containment along the entire plastics value chain.

OCS expects not only that we have clean operations. We also have a joint responsibility to work with the value chain. Therefore, we have implemented OCS successfully in the Americas supply chain with the audit of 35 sites, and are now progressively implementing audits in the EMEA and Asia-



Pacific regions. OCS is currently being integrated in our contractual agreements in EMEA. In Asia-Pacific, a plan of action, training and implementation is currently underway.

Antwerp is the leading port in plastic pellet production, handling and distribution. Therefore, the city, led by the Port of Antwerp, and the entire plastics value chain, including the local chamber of commerce and logistics providers, formally joined forces in 2017 to monitor and clean up pellet loss in the harbour, share practices and jointly support OCS. Under the umbrella of the OCS programme, this initiative implements a common methodology of pellet containment at each step of the production and handling process, including transport and logistics operations. This unique approach of joint collaboration will be expanded in other EU ports in the coming years. We are an active member of this initiative and jointly take action to contain pellet loss.

More information on our OCS actions can be found in the chapter  [“Responsible operations”](#).

## TRANSPORT AND DISTRIBUTION

### Environmental footprint

Transport and distribution is integrated into our supply chain management. INEOS Styrolution relies on an intermodal distribution model of trains, ships and trucks to find the most efficient route for the worldwide distribution of our products. As we have production sites worldwide, we are able to serve our customers from closer locations, which helps minimise intercontinental transport.

In order to lower our environmental impact, we favour the use of rail and sea transport, rather than road-based transport. We

aim to ship our products directly to our customers without the use of intermediaries and use off-site warehouses for temporary or overflow storage only. Since bulk shipments have a lower environmental impact, we encourage our customers to order in bulk when possible.

We select our service providers according to a set of quality standards, such as safety, environmental friendliness, as well as adherence to social, ethical standards and technical standards of the chemical industry and the INEOS Styrolution Supplier Code of Conduct. Euro 6/ VI is the latest and most comprehensive EU standard on the reduction of exhaust emissions from passenger and commercial vehicles. We encourage our logistics providers to always be in the highest norm (Euro 6/ VI), with tendering being undertaken regularly. Measuring our safety and environmental impact helps us optimise our performance and monitor improvements.

Therefore, we collaborate with environmentally friendly logistics partners to set and measure our environmental and safety performance, such as miles travelled, fuel consumed, greenhouse gas emissions, loss of containment as well as transport accidents and collaborate with them on reducing their carbon footprint.

### Transport safety

INEOS Styrolution has internal reporting criteria for distribution incidents that require detailed follow-up and reporting to our management board. This means that all transport incidents have a very high visibility and priority in the company and learnings from all transport incidents are shared within the organisation.



“As part of the Procurement Performance Management (PPM) team, we collaborate closely with our global community of buyers to assess the sustainability

performance of our suppliers and encourage them to adopt high sustainability standards. Through this we hope to ensure mutual long-term well-being – for our business, for our suppliers, as well as for the environment.”

**Avinash Kumar**  
Regional Procurement  
Performance Coordinator Asia-Pacific  
INEOS Styrolution

We also use the European Chemical Industry Council (CEFIC)'s Safety & Quality Assessment System (SQAS) to evaluate the performance of our logistics service providers and chemical distributors, and thereby assure carrier competence and reduce the likelihood of incidents. SQAS assessments cover quality, safety, security, environment and CSR.

In EMEA, we are increasing the rigour of the application of the SQAS, and in Asia-Pacific, we are in the process of implementing SQAS and performing our own assessments of our logistics service providers. In the Americas, we recently rolled out a logistics service provider assessment where we monitor U.S. motor carrier safety and performance data published by the Federal Motor Carrier Safety Administration via their Safety Management System (SMS) tool. The SMS is a huge database, which contains all incidents, audits and assessment data relative to our contracted carrier fleet. It helps us spot trends and develop interventions in areas, such as driver fitness, vehicle maintenance, and unsafe driving.

For sea terminals, we are rolling out a programme to assess management systems against Oil Companies International Marine Forum (OCIMF)'s International Safety Guide for Oil Tankers and Terminals (ISGOTT) management standards. OCIMF is a voluntary association of oil companies with an interest in the shipment and terminalling of crude oil, oil products, petrochemicals and gas. ISGOTT contains management standards for equipment, security, emergency response, risk assessment, tanker/ terminal interface and personal safety. It is intended to reduce the likelihood of injury to people as well as to reduce both the likelihood and severity of environmental incidents.

All our sea terminals will conduct a self-assessment against these standards, which we will follow up with a validation inspection with the INEOS Marine Assurance Group.

"As part of the Deutsche Post DHL Group, DHL Freight is committed to the Group's goal of reducing all logistics-related emissions to zero by the year 2050. The climate protection goal of zero-emission logistics up to 2050 addresses both our own activities as well as that of our transport partners.

Our mission of zero emissions logistics is supported by partial targets to be achieved by 2025 in the framework of our group-wide GoGreen environmental protection programme. At a global level, Deutsche Post DHL Group will improve the CO<sub>2</sub> efficiency of its own activities and that of its transport partners by 50 percent, as compared to the base year 2007. And at a local level, we aim to improve people's quality of life through clean transport solutions. To achieve this, we will provide clean solutions for 70 percent of our own pickup and delivery, for instance by switching to electric vehicles."

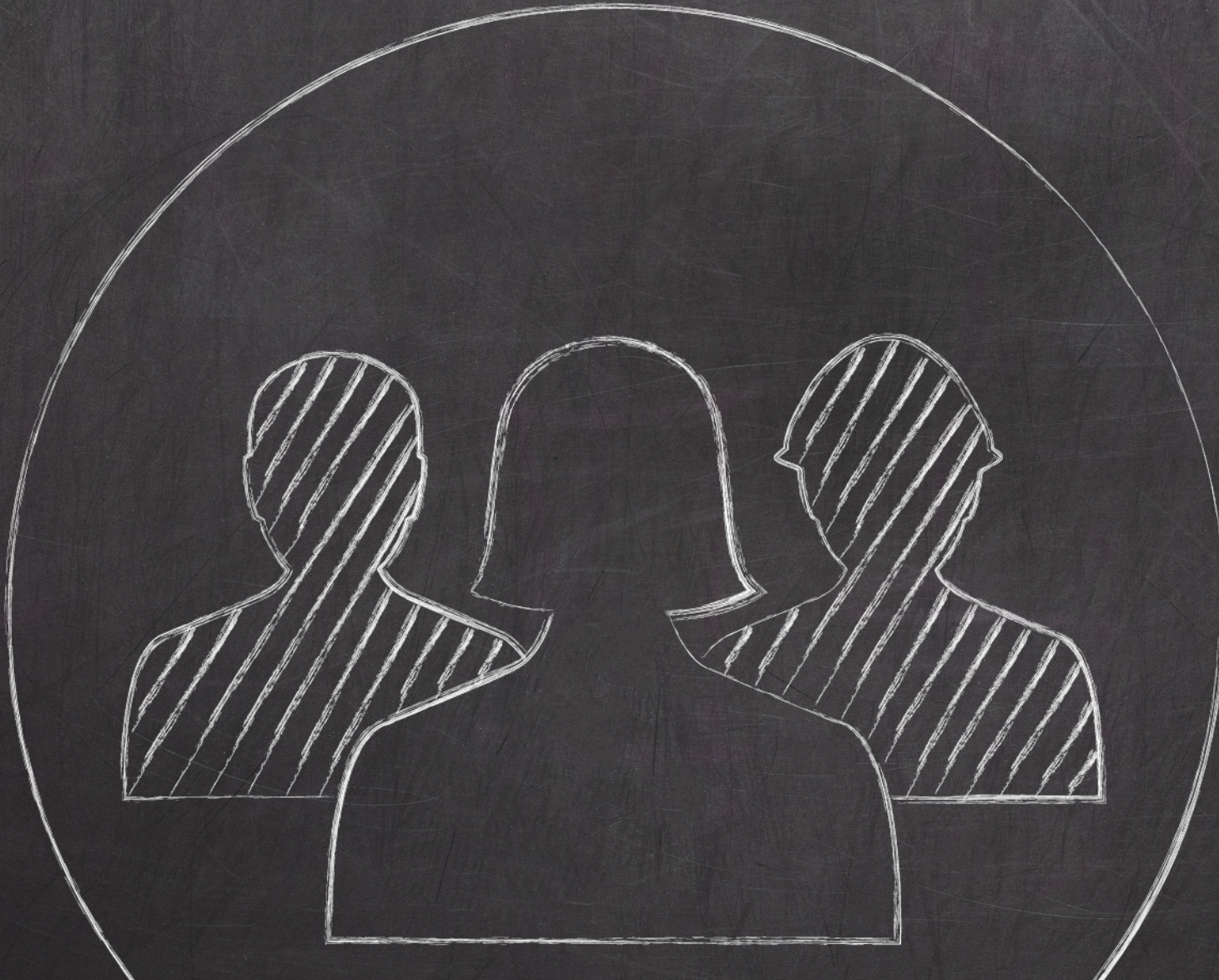
**Christoph Schönwandt**  
Head of GoGreen & Corporate Projects  
DHL Freight

# 3

## OUR PEOPLE

RELIABLE EMPLOYER 3.1  
RESPONSIBLE NEIGHBOUR 3.2

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# 3.1 INEOS STYROLUTION AS A RELIABLE EMPLOYER

# ENGAGING AND DEVELOPING OUR EMPLOYEES

- 3.1.1 Our approach
- 3.1.2 Our performance



Our people are INEOS Styrolution’s most important asset. Their creativity, diversity, knowledge, passion and expertise help us achieve a competitive advantage and drive business success.

### 3.1.1 OUR APPROACH ✓

One of our core guiding principles is “valuing and respecting people” and we aim to maintain positive relations with our employees and develop a healthy working environment where our workforce can develop and maximise their potential.

With 18 manufacturing sites in nine countries and 24 sales offices around the world, our employees are accustomed to working with people of diverse cultural backgrounds. We truly believe in diversity and equal employment opportunities regardless of gender, age, nationality, religion, race, or cultural background.

Market conditions and local legislation vary per country, and because of this, our employment strategy is mainly locally driven. Nevertheless, regardless of location, we are committed to offering employees an appealing work environment with competitive remuneration and benefits, as well as attractive opportunities to grow and develop professionally. Our remuneration policy is geared – through higher variable terms – toward an above-average remuneration of employees, and is oriented toward country-specific conditions within the chemical industry, in all countries in which the company is active. We do not deviate between part-time and full-time employees in terms of remuneration and apply

equal salary and remuneration development for new hires as well as employees.

In a competitive, global industry such as ours, success hinges on our ability to attract and retain the most qualified and committed employees in each of the markets we operate. We are always looking for people whose skills and aspirations are an optimal fit for the responsibilities they will undertake. We welcome the best candidates based on merit, and practice principles of equal opportunity for recruiting and advancement in order to access a broader talent pool and foster innovation.

### MATERIALITY ASSESSMENT ✓

In our materiality assessment undertaken in 2017, being a reliable employer as well as education and training were rated as being of high significance to our stakeholders and of strategic importance to our business.

### 3.1.2 OUR PERFORMANCE

#### KEY HIGHLIGHTS 2017 ✓

In 2017, we conducted our global employee survey, which received very active participation resulting in a very high response rate of 82%. This well above the industry benchmark of 60% for a first survey. The survey has revealed a high level of engagement and commitment towards the company, role and colleagues.

#### OUR SUSTAINABILITY TARGETS ✓

In alignment with our material assessment and to underscore our commitment to continuous improvements, we defined the

following global sustainability targets for being a reliable employer.

Our global employee survey received very active participation resulting in a very high response rate of 82%.

## KEY HIGHLIGHTS 2017 ✓

**EMPLOYEE SURVEY**  
for the **ENTIRE WORKFORCE**  
conducted in 2017

## SUSTAINABILITY TARGETS ✓

**80%** of exempt employees to have an **EMPLOYEE DEVELOPMENT INTERVIEW** by 2018

Implementation of **MANAGEMENT DEVELOPMENT PROGRAMMES**



in all regions in 2017

**EMPLOYEE SURVEY** for the entire workforce conducted in 2017



We implemented senior management development training in 2017 and all executives reporting to a board member will have attended this training by mid-2018.

In 2017, 54% of our exempt employees (EMEA 66%, Americas 70% and Asia-Pacific 14%) had employee development interviews undertaken jointly with their manager. We will continue to aim for 80% of our exempt employees to complete employee development interviews by the end of 2018.

### GLOBAL HR INFORMATION SYSTEM ✓

Since 2014, we have been tracking changes in our employee demographics by region and business unit based on gender and age. We do not track demographic data based on race because definitions of racial minorities differ from country to country, and collecting such data in some regions is a violation of privacy laws. We will continue to track demographics on age and gender.

In January 2018, we introduced a new, state-of-the-art all-in-one information system to connect all INEOS Styrolution employees and help align our Human Resources data, processes and work-flows for managers and employees globally.

We currently do not disclose employment data based on part-time and fulltime contracts or permanent and temporary positions. Such information is now being documented in our new information system and will thus enable us to be more transparent in our reporting as of 2019. Moreover, this will also help us to have a clearer view of the impacts of our recruitment and retention strategies.

### EMPLOYEE DEMOGRAPHICS ✓

In 2017, INEOS Styrolution's workforce averaged 3,202 employees with 85% male and 15% female employees. Higher gender diversity is evident in our three regional headquarters, where categories of professional function are broader.

### GLOBAL EMPLOYEE TURNOVER ✓

INEOS Styrolution strives to provide a setting for rewarding, life-long careers. We track both voluntary exits (resignations) and involuntary exits (redundancies, retirements and terminations). In 2017, 190 employees left INEOS Styrolution, which translates to a global employee turnover of 5.9%. This is in line with the industry, and we will continue our efforts to retain talent.

In order to reduce our voluntary departures, we are working to get a better understanding of the motivations of those who resign. We have implemented processes to make exit interviews consistent across all regions and include more job levels. In addition to this new globally structured process, we expanded our management development program to include the Americas and Asia-Pacific.

### IMPROVING EMPLOYEE ENGAGEMENT ✓

In 2017, we conducted our first-ever global employee survey, which received very active participation resulting in a very high response rate of 82%. The main topics covered in the survey were leadership and management, working conditions, work-life balance, recognition and remuneration, communication as well as professional development.

The survey revealed very positive points as well as areas for further improvement. The findings were then reviewed by the

global and regional functional leadership, resulting in follow-up actions by location, regional, functional and global levels.

**DEVELOPING OUR PEOPLE** ✓

Training is provided to all employees where required with a focus on future development. We follow local legislation with regard to renewing technical certificates for employees both at our offices as well as at our manufacturing sites.

To further drive generational balance, we focus on tailor-made training and succession planning for all employees globally.

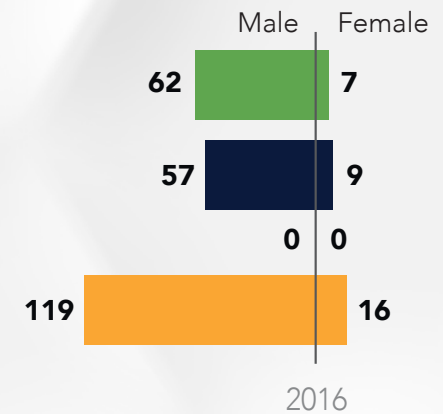
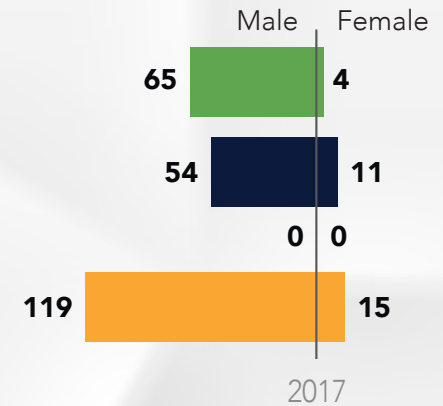
We will further run this programme in 2018 and 2019 for other executive management. For exempt employees a management development programme has been imple-

mented in each region. Employees from EMEA and Asia-Pacific regions completed their MDP training in 2017, while employees from the Americas completed their MDP training in early 2018. By end of 2017, a total of 114 employees attended either the global senior or the regional management development programme. We expect around 250 employees to be trained by end of 2018. These programmes will continue to run with new candidates every year.

INEOS Styrolution's performance management process is designed to provide the company and its employees with a consistent and fair process for aligning objectives and performance expectations.

**BREAKDOWN OF SENIOR MANAGEMENT BY AGE**

INEOS Styrolution has 134 employees with senior management positions, out of which 89% are male and 11% are female.



- Over 50
- 30 - 50
- Under 30
- Total



## EMPLOYEE TURNOVER ✓

	Headcount 2017	Percent	Headcount 2016	Percent	Headcount 2015	Percent
Resignations	98	3.1%	73	2.3%	69	2.2%
Terminations	35	1.1%	30	0.9%	47	1.5%
Redundancies	6	0.2%	5	0.2%	64	2.0%
Retirements	43	1.3%	41	1.3%	37	1.2%
Others*	8	0.2%	12	0.4%	14	0.4%
Total	190	5.9%	161	5.1%	231	7.4%

\* deceased, disabled, probation period failure

## BREAKDOWN OF EMPLOYEE TURNOVER BY SEGMENT ✓

Operating segment	Turnover, 2017 average	Percentage of total turnover	Turnover, 2016 average	Percentage of total turnover
Polymers EMEA	79	6.7%	62	5.2%
Polymers Americas	19	3.4%	21	3.9%
Polymers Asia-Pacific	67	7%	46	4.8%
Global Styrene Monomer	14	4.4%	17	5.3%
Global functions	11	5.9%	15	9.0%
Total	190	5.9%	161	5.1%

We strive to have every employee take advantage of meeting with their supervisor for a review of performance at least annually. In order to improve the performance of all employees, every exempt employee and their direct manager agree on main objectives for the next year. Feedback is formalised in an appraisal at the end of the year, where competencies, overall performance in the role and objectives are reviewed. To help set the stage for the annual review, feedback is gathered and calibration meetings are undertaken to help make the appraisal process meaningful across the wide diversity of global jobs. An employee development interview process, which was introduced for exempt employees in Europe in 2014, is now being rolled out for exempt employees worldwide. The employee and his or her manager discuss skills needed to perform their work, skills that might be needed to fulfil future requirements and aspirations, and professional development steps that can be taken to enable the acquisition of those skills.


95% of employees report having an annual performance review with their supervisor. While geographic transfers, temporary leaves, recent hires, and job changes within INEOS Styrolution prevent achieving 100% participation in these processes, the expectation of the company is that all employees participate in objective setting, appraisals, and employee development interviews. In 2017, 54% of employees had an employee development interview with their supervisor. Employee development interviews will be held on a regular basis, at least once in every 24 months. As part of its commitment to age, diversity, succession planning, and providing for life-long careers, INEOS Styrolution is implementing management development plans, senior management development plans, and executive development plans.



“Throughout my career, I have enjoyed the opportunity to build and work with very diverse teams within the manufacturing environment. The diversity

of thought and different perspectives really help to challenge the group, ultimately creating high performance teams that deliver outstanding results. I am really excited to see so many women joining INEOS Styrolution in engineering and technical roles in our manufacturing plants. It reflects a big shift from my own experience as a young engineer many years ago.”

**Cathy Culpepper**  
 Vice President Manufacturing Americas  
 INEOS Styrolution

Exempt employees 	Percent
Exempt employees who report having an annual performance review with their manager	95%* estimated
Exempt employees who report having an employee development interview	54%*

\*equally distributed among men and women

### OPERATIONAL CHANGE AND COLLECTIVE BARGAINING

INEOS Styrolution makes every effort to give a reasonable notice period to employees impacted by significant change. We respect and apply legal notice periods in compliance with local legislation regarding advanced notification of operational change. Our employees have the freedom to organize and collectively bargain. We do not intend to impair the rights of any employees included in any collective bargaining agreement, or prohibit the lawful exercise of any rights guaranteed by any applicable legislation. In 2017, 67% of INEOS Styrolution’s workforce was covered by collective bargaining agreements.

## 3.2 RESPONSIBLE NEIGHBOUR

# SUPPORTING THE COMMUNITIES IN WHICH WE LIVE AND WORK

- 3.2.1 Our approach
- 3.2.2 Our performance



Our responsibility does not end at our company gates. On the contrary, we want to be an active and supportive member of the communities we operate in.

### 3.2.1 OUR APPROACH

At INEOS Styrolution, we have a particular responsibility towards our production sites' and headquarters' neighbours. Therefore, we are committed to fostering mutually beneficial and long-term relationships by supporting our communities with initiatives that enhance their well-being.

#### KEY HIGHLIGHTS 2017

17 out of 18  
**production sites & 3 out of 4  
headquarters & 3 sales offices\***  
completed their **CSR PROJECTS**

\* the three largest sales offices out of our 24 offices

#### SUSTAINABILITY TARGETS

**ALL SITES, OFFICES\* &  
HEADQUARTERS** to have  
at least one **CSR PROJECT**

\* the three largest sales offices out of our 24 offices

Different communities have different needs and priorities, which is why we believe that community engagement is best led locally. We respond to the most pressing needs of the communities we operate in by active volunteering or by providing financial assistance to give back to society in the best way we can.

Besides that, we concentrate our community relations efforts on future generations to support the health and well-being of young and disadvantaged children. Therefore, we support local kids' charities, sports and education programmes, other children-related initiatives, as well as other areas determined by local community needs.

#### MATERIALITY ASSESSMENT

In our materiality assessment undertaken in 2017, community involvement was rated as being of significance to our stakeholders and of importance to our business.

### 3.2.2 OUR PERFORMANCE

#### KEY HIGHLIGHTS 2017

17 out of 18 production sites, three out of four headquarters and all three of our company's largest sales offices supported their local communities and undertook corporate social responsibility (CSR) projects in 2017.

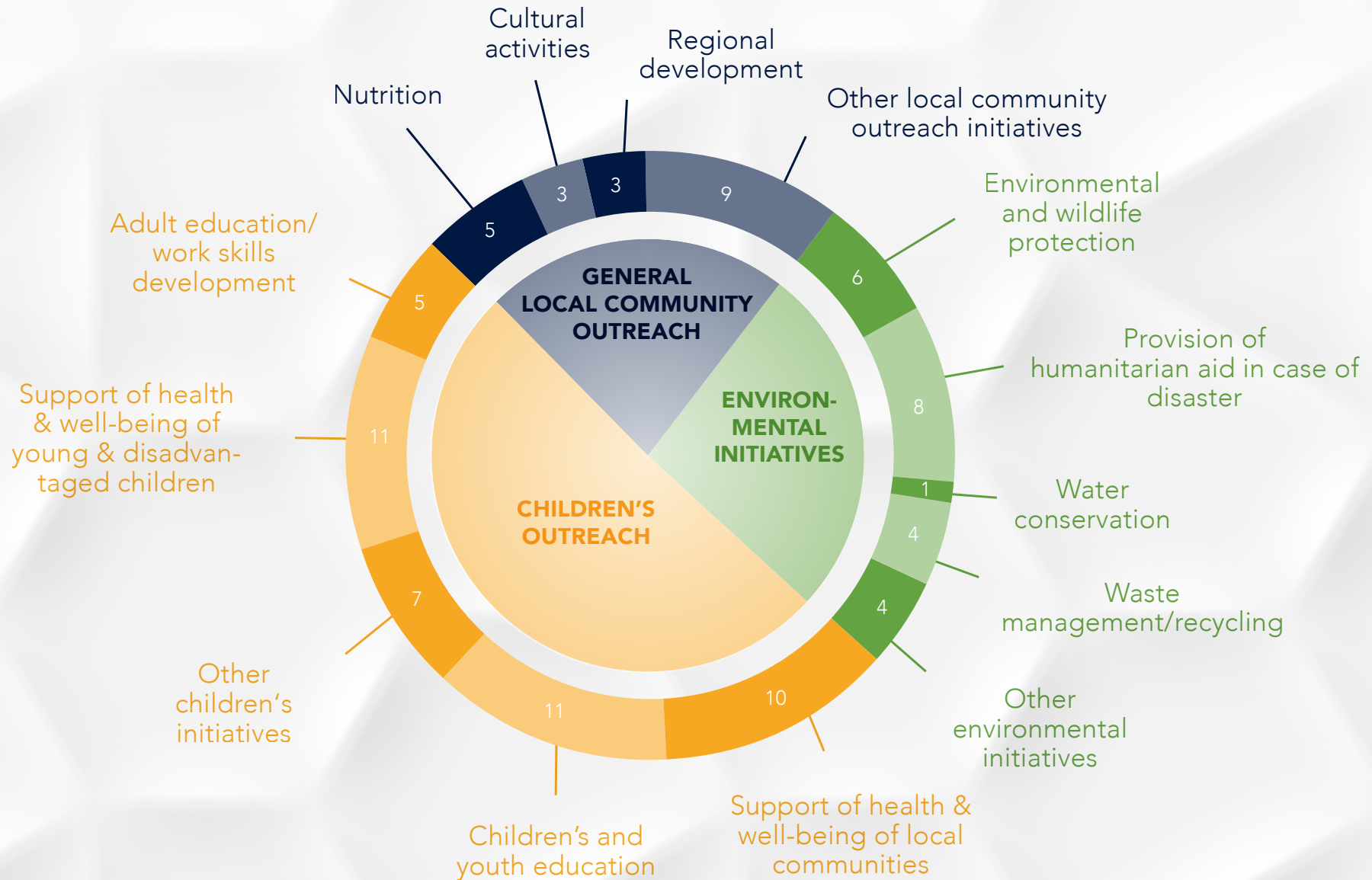
#### OUR SUSTAINABILITY TARGETS

All INEOS Styrolution sites and headquarters as well as three of our company's largest sales offices commit to at least one meaningful CSR project per year. On an annual basis, we conduct a global internal community relations survey to report on our CSR performance around the globe.

"INEOS Styrolution has been one of our most dedicated supporters for years. INEOS Styrolution's CSR contributions in India have allowed us to bring smiles to many deserving students and their families. We greatly value this cooperation and hope to further strengthen it in order to support more and more beneficiaries."

**BC Jain**  
Chairman  
Mahavir Foundation Trust

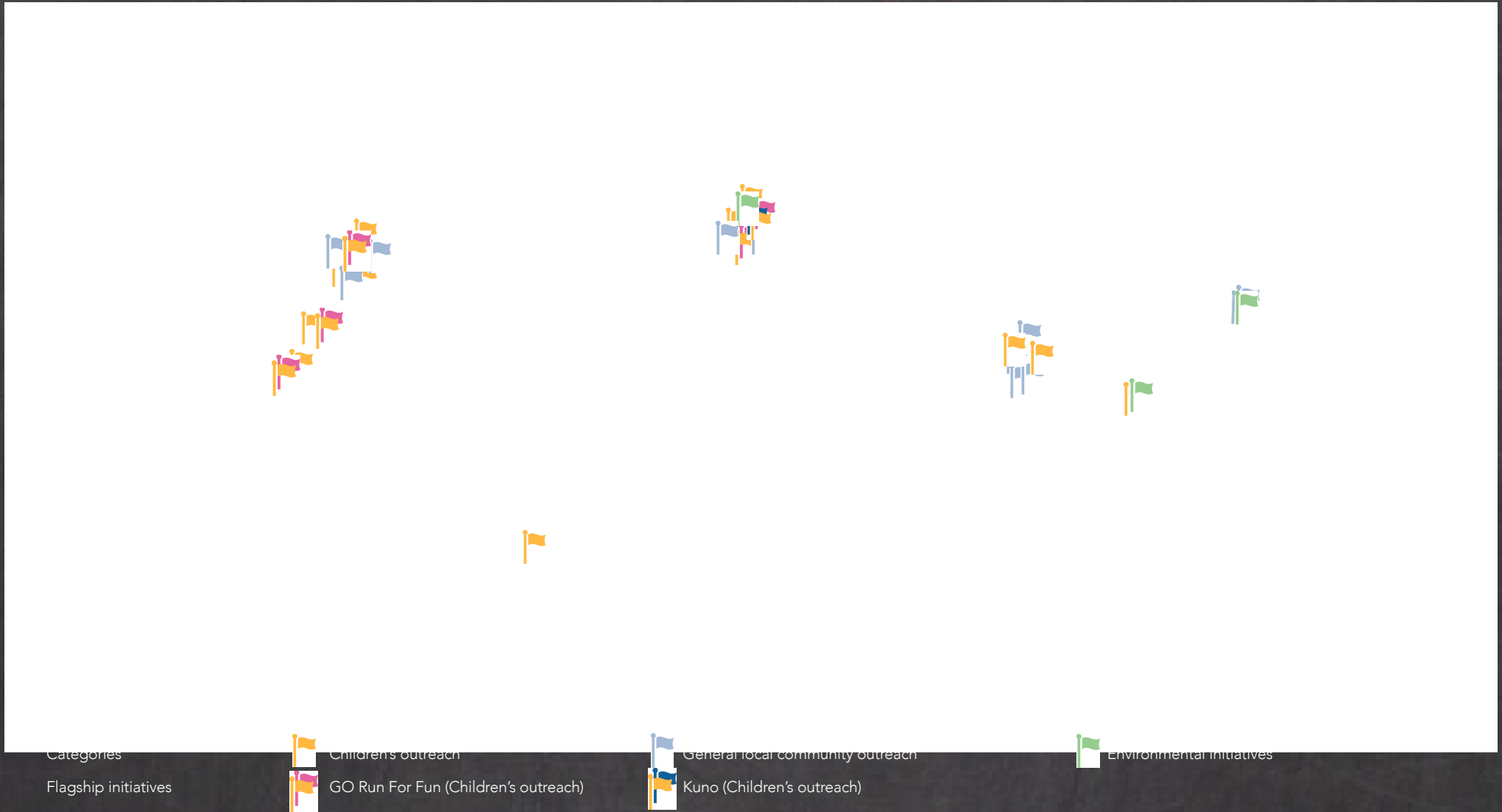
## COMMUNITY INVOLVEMENT: FOCUS AREAS 2017



### COMMUNITY INVOLVEMENT PROJECTS AROUND THE GLOBE

Click on the world map to get an overview about our CSR activities at our various production sites, headquarters and sales offices.

Through the interactive map on our website, you can find out more about our CSR projects, donations and volunteer activities.





A team of volunteers from INEOS Melamines, INEOS Paraform and INEOS Styrolution supported the 2017 event in Frankfurt am Main.

## OUR FLAGSHIP INITIATIVES

### READY, SET, GO RUN FOR FUN: INEOS AND INEOS STYROLUTION STAGE RUNNING EVENTS FOR KIDS

We aim to motivate young kids to get involved in sports and enjoy a healthy, active lifestyle on into adulthood. This is why we support our parent company INEOS with their global GO Run For Fun (GRFF) campaign. With more than 263,200 children participating since its inception in 2013, the GRFF is the world's largest running series for children, encouraging young people's participation in sports.

In response to the very positive resonance, we further expanded our GRFF series in the course of 2017 and staged five events with over 2,000 enthusiastic elementary school students aged between 5 and 11. These events took place in Frankfurt am Main, Germany, close to our global headquarters, in the Chicago area near our Channahon production site,

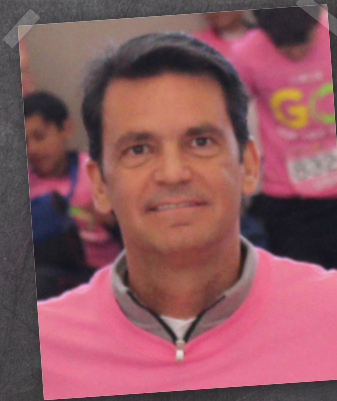


GRFF ambassador and Paralympian Felix Streng spends some quality time with the kids before the start of the race in Frankfurt am Main.

and for the very first time in Mexico City, where we operate one of our largest sales offices. Volunteers from our European and American offices and production sites volunteered as track marshals to ensure the kids' safety or as helpers, handing out starter packages, fruit and beverages, water bottles, certificates and medals to reward the athletes after the race.

### INSPIRING KIDS IN SCIENCE AT PRIMARY SCHOOL AGE

With future generations in mind, we are committed to promoting educational projects. As the leading global styrenics supplier, we want to inspire interest in polymer science among young students at an early age. Through a series of child-oriented scientific experiments, we introduce primary school kids playfully to the world of chemistry and plastics and help them explore the wide variety of properties and applications of plastics. In cooperation with PlasticsEurope Germany e.V. and the teacher training centre Ifbz Chemie University Frankfurt, we provide free teacher train-



"With our first GO Run For Fun (GRFF) sports event that took place in Mexico City as part of the company's community involvement programme, we wanted to show our contribution and make a difference in the healthy habits of the local kids. GRFF is a very good activity because it inspires children to be more active through fun running exercise. It has been a phenomenal success and we are looking forward to next year's GRFF event."

**Roger Gonzalez**  
Sales & Country Director Mexico  
INEOS Styrolution

ings as well as "Kunos coole Kunststoff-Kiste", an experimental kit for child-oriented scientific experiments, to various interested primary schools in Germany.

Beyond our efforts in primary schools, we support several programmes that encourage university students with scholarships to pursue these sciences and explore its career possibilities.

**CLEANING UP MARINE LITTER IN THAILAND**

In an effort to help protect the local marine wildlife and habitat, 110 INEOS Styrolution volunteers and their families together with around 2,853 volunteers from 28 companies located in Map Ta Phut participated in a coastal clean-up. This initiative, led by Ocean Conservancy, is the world's largest volunteer effort to clean up the ocean, waterways and coastlines from plastic. At the 2017 cleanup, a total of 49,475 pieces of marine trash, which adds up to 6,598 kilogrammes, was collected from Rayong's Mae Ramphueng Beach, Banchang's Nam Rin Beach and Pa Yoon Beach, Thailand.

In addition, INEOS Styrolution, which supports this global initiative for over eleven years now, provided €2,100 to support ocean conservation and help protect its wildlife for future generations.



With Kuno's child-oriented scientific experiments, our volunteers help educate younger generations about the important role plastics play in our everyday life.



Cleaning for a good cause: INEOS Styrolution employees in Thailand help with the annual coastal cleanup.



4 OUR BUSINESS

FOUNDATION OF OUR BUSINESS SUCCESS 4.1  
RESPONSIBLE BUSINESS MANAGEMENT 4.2

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4.1

FOUNDATION OF OUR  
BUSINESS SUCCESS

# COMPLIANCE— DOING THE RIGHT THING



- 4.1.1 Our approach
- 4.1.2 Our performance

Compliance stands for conforming to applicable rules and doing the right thing. We operate with a fundamental respect for the rights of the individual, our employees as well as business partners. We are firmly opposed to all forms of human rights violations or deficient labour conditions, and expect this across our value chain. At INEOS Styrolution, compliance is a non-negotiable foundation of how we do our business. We do not compromise on compliance and seek to ensure that our commitment to lawful, responsible and ethical conduct is practiced every day, everywhere.

### 4.1.1 OUR APPROACH

INEOS Styrolution, with the strong support of its senior management, is dedicated to maintaining a high standard of corporate governance and regularly articulates the company's policies on business integrity and human rights. We believe that high standards on business integrity and human rights are critical to deliver our strategy, create long-term value and maintain our social licence to operate.

We are committed to complying with all relevant local, national and international laws, as manifested in our own values and guiding principles. Our globally defined policies and standards to some extent even exceed the requirements of local laws. We believe that the way we conduct business is as important as what we produce. Therefore, we strive to live up to the highest

standards of business practice regarding ethics, integrity and transparency and will not compromise our safety, health or environmental standards for any reason, including profit or production. We continue to refine our policies, increase awareness and understanding of these among employees and business partners, and enforce compliance in accordance with the policies' intent.

#### MATERIALITY ASSESSMENT ✓

To ensure we prioritise the most important issues for our stakeholders and for our business, we periodically conduct a formal materiality assessment. In our materiality assessment undertaken in 2017, human rights and business integrity were rated as being of high significance to our stakeholders and of strategic importance to our business.

#### OUR GLOBAL COMPLIANCE PROGRAMME ✓

We have in place a Compliance programme with an organisational framework on global, regional and country levels, to assure that INEOS Styrolution always and everywhere operates as a responsible corporate citizen. The Compliance programme is strongly supported by the [Risk & Control programme](#) established within INEOS Styrolution. This Risk & Control programme combines risk assessments (in various subjects including compliance), defines mitigation measures for identified risks, and regularly tests the effectiveness of design as well as the operational performance of such measures.

The cornerstone of our global Compliance programme is the INEOS Styrolution Code of Conduct, which was revised in 2016. It defines and summarises, in one framework, what we expect of our businesses and employees regardless of location or background. The Code of Conduct provides guidance in key

areas and, where needed, indicates where more detailed standards, policies, instructions and processes are available or will be issued. Acting in accordance with this Code of Conduct is a prerequisite expectation for each of our employees. To ensure that all employees fully understand our policies, the Code has been translated into selected relevant languages and is posted on our intranet, which is accessible to all employees. In addition, our entire active employee base is trained on the content of the Code of Conduct at a minimum every two years.

To keep employees focused on the Code and other relevant policies, a quarterly publication, summarising possible updates

## THE GUIDING PRINCIPLES OF OUR COMPANY

Everything we do and every choice we make is guided by our values.



and information about ongoing compliance events, is provided by the company's CEO and emailed to employees. In addition, an internal newsletter on compliance topics is regularly issued, which highlights the policies, explains any new updates, and provides concrete examples of compliant and non-compliant behaviour.

An essential part of the INEOS Styrolution Compliance programme are the global and the regional Compliance teams. For the global Compliance team, the Chief Compliance Officer of the company, reporting directly to the CEO, chairs the team.

## GLOBAL AND REGIONAL COMPLIANCE TEAMS

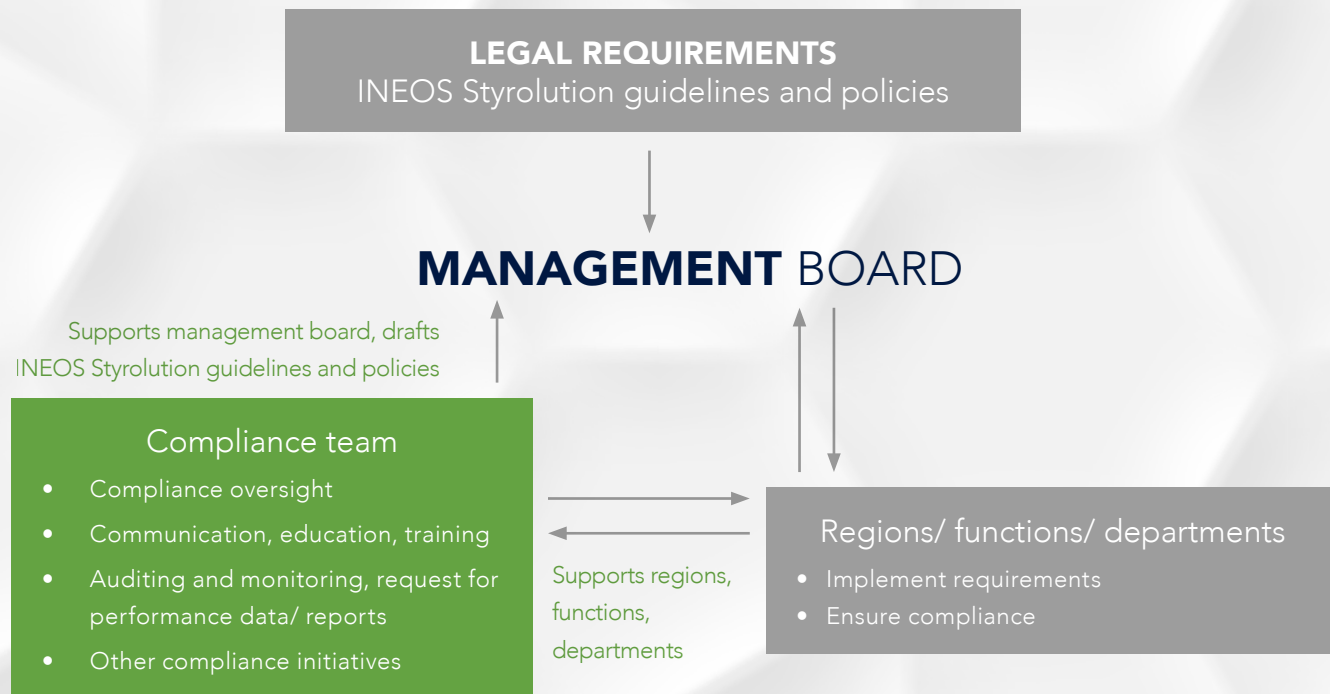
INEOS Styrolution maintains four Compliance teams: One team for each of our three regions and one global team.

Each of these four teams is made up of a representative from Legal (chair), Business, Human Resources (HR), Safety, Health & Environment (SHE) and Finance.

Members of other departments and functions participate occasionally as members of the extended team. These can include Technology and Operations, Strategy and Procurement, Sales, Communications, and Tax.



## COMPLIANCE TEAM ROLES AND RESPONSIBILITIES



The Chief Compliance Officer oversees and manages regulatory compliance issues, ensuring that the company complies with both its internal policies and its outside regulatory requirements. As a result, the Chief Compliance Officer – in the interest of the management board – introduces and revises global policies (such as the company's delegation of authority, which defines who can commit and approve expenditures on behalf of INEOS Styrolution as well as legally represent the company). In addition, training is offered and provided as needed in all relevant areas, which are then cascaded down in the organisation as required, through and with the support of the regional Compliance teams.

## 4.1.2 OUR PERFORMANCE

### KEY HIGHLIGHTS 2017

All relevant employees undertook a comprehensive online training course on anti-bribery and anti-corruption. An online Code of Conduct training was provided to the entire active employee base in EMEA and the Americas. Our management board decided on a biennial training cycle on the Code of Conduct. While geographic transfers, temporary leaves, recent hires, and job changes within the company prevented achieving 100% participation in this training, the expectation of the company continues to be that all active employees complete the training and be held accountable for the content of the Code of Conduct.

### KEY HIGHLIGHTS 2017



Training on Code of Conduct is part of the on-boarding programme for all new joiners.

An awareness campaign as well as on-site training against email phishing and social engineering attacks was also provided to all relevant employees globally.

We revised our delegation of authority and we updated our international trade policy. Finally, we also introduced a checklist on "Know your contract partner" to highlight the importance of performing and documenting due diligence with respect to contract partners.

To the best of our knowledge, in 2017, no INEOS Styrolution operations were subject to allegations of human rights abuse, child or forced labour, corruption, or incidents in anti-competitive behaviour. We can also confirm that to the best of our knowledge we did not incur any valid cases of employee discrimination in 2017.

### OUR SUSTAINABILITY TARGETS

We have defined global sustainability targets for seven focus areas of our business including compliance. These targets are aligned with our material topics and underscore our commitment to continuous improvement.

The newly adopted European General Data Protection Regulation (GDPR) will come into effect in 2018. To meet the demands of this reform, we will introduce a new data protection policy and – together with our Data Protection Officer – document relevant processes to support our data protection strategy. We aim to provide a web-based training on data protection to the relevant employee base in 2018.

## SUSTAINABILITY TARGETS

### ALL RELEVANT EMPLOYEES

trained on ANTI-BRIBERY & ANTI-CORRUPTION



**BIENNIAL TRAINING** of entire active employee base on CODE OF CONDUCT

**NEW POLICY** on DATA PROTECTION introduced in 2018

**REFRESHER TRAINING** on ANTITRUST in 2018

For the awareness on the criticality of antitrust concerns, a refresher training will be offered in 2018. We will also continue our biennial training cycle on our Code of Conduct to our entire active employee base in 2019.

### HUMAN RIGHTS

We focus on identifying and managing human rights-related risks in all our activities. Thorough due diligence is performed to mitigate those risks, and we seek to remediate any possible adverse human rights impacts that we might have caused or to which we might have contributed. We set minimum mandatory requirements for all our suppliers and relevant contractors, including zero tolerance in relation to child labour, forced or

compulsory labour, modern slavery, freedom of association, non-discrimination and diversity, and treatment of employees.

Although the chemical and plastics industry is not usually prone to these human-rights related risks, INEOS Styrolution is vigilant to prevent it and has set clear criteria in both the 2016 revision to its Code of Conduct as well as its Supplier Code of Conduct of 2015.

### CHILD LABOUR

According to the company's Code of Conduct and Supplier Code of Conduct, only persons who are at least 15 years of age or the applicable minimum legal age, whichever is higher, may be engaged as employees. Legitimate workplace apprenticeship programmes for educational benefit may be provided that are consistent with Article 6 or 7 of ILO's Minimum Age Convention No. 138.

Employees are free to terminate their employment upon reasonable notice. We ensure that there are no unreasonable restrictions imposed on movement within the workplace or upon entering or exiting company-provided facilities.

### FORCED OR COMPULSORY LABOUR AND MODERN SLAVERY

All work performed for INEOS Styrolution has to be voluntary. There is zero tolerance for trafficking of persons or the use of any form of forced, bonded, slave or prison labour. No employee or contractor can be required to surrender any government-issued identification, passports, work permits or travel documents as a condition of employment. Contracts and human resources policies clearly mention the conditions of employment in explicit language understood by our employees. All our operations are

assessed with a view to comply with our human rights policies, which are mirrored in our human resources policies.

We have published a respective statement as required under certain US legislation on our [website](#). In addition, a statement applicable for the INEOS group of companies has been posted on [the INEOS website](#).

### ANTI-BRIBERY, ANTI-CORRUPTION AND ANTI-MONEY LAUNDERING

Within the INEOS Styrolution Risk & Control programme, the initial assessment of all operations in 2014 as well as in the follow-up assessment in 2016 identified a low risk related to corruption. The topic of anti-corruption and anti-bribery is already included in the Code of Conduct and consequently brought to the awareness of INEOS Styrolution employees. However, further details and information on this topic have now been embedded in the newly issued anti-bribery and corruption policy (also covering the main areas and expectations of money laundering regulations). This policy specifically includes – as already contained in our Code of Conduct – a clear statement that no gifts or entertainment of any kind may be offered to any politician, political party or any politically exposed persons.

In addition, a compliance due diligence checklist has been issued clarifying the need for information, when dealing with identified high-risk countries (in line with the corruption perception index issued by Transparency International) and introducing certain requirements when identifying and selecting agents and other representatives of INEOS Styrolution. All relevant employees were trained on anti-bribery, corruption and money laundering in 2017.

### ANTI-COMPETITIVE BEHAVIOUR

All our employees are prohibited from entering into any discussions, formal or informal agreements or understandings with competitors that may restrict competition. Vigorous competition, free from collusion and unreasonable restraint, is the most effective mechanism to ensure that we provide high-quality and well-priced products and services. Failure to comply with competition, antitrust and other trade regulation laws in any jurisdiction in which we conduct business could result in serious consequences, for both our company and the offending individuals, including significant civil and criminal penalties.

Each employee is responsible for familiarising themselves and complying with the competition laws relevant to their role and their business. For employees whose job function puts them at risk of non-compliance, further guidance is provided through regularly repeated, mandatory training on policies related to compliance with antitrust and competition law.

A policy related to interaction with competitors was issued in 2016, defining certain reporting and filing requirements, and was followed by a training session for those with elevated exposure to potential contacts with competitors, for example at trade shows. In 2018, a global online training on antitrust will be provided to relevant employees including senior management, account managers and sales managers.

### INTERNATIONAL TRADE

Our international trade policy outlines the areas in which national and international laws and regulations can impact our business. The policy also introduces certain requirements on due diligence for interacting with third parties, such as customers, suppliers or agents, particularly if located in or transacting

into and out of certain listed countries. Selection of countries is based on issued and active trade restrictions, on the corruption perception index issued by Transparency International, as well as an IT screening tool that is rolled out globally to support such due diligence processes electronically. Should there be any doubt about the propriety of any transaction or course of conduct, the Code of Conduct instructs employees to contact the Legal department immediately for direction.

### INFORMATION AND CYBER SECURITY

We have implemented an information and cyber security programme to protect the data and IT environment of our company, as well as that of our customers and business partners, from any kind of security-related threats.

Information Security Management safeguards the availability, integrity, and confidentiality of the information handled within our IT processes. It is therefore crucial that we protect our own data and information, as well as the data of our business partners, customers and employees from unauthorised access or loss, in accordance with legal requirements and our policies. We have defined specific principles to which we adhere.

The IT department is part of the enterprise risk management and thus, we have established a process of risk awareness to identify, evaluate and manage IT risks within our organisation. Transparency of possible loopholes, security risks and threats is important to us. As part of this approach, we perform regular IT risk assessments and audits of our internal IT control system.

We have decided to follow the ISO standard ISO 27001 and the NIST framework for IT-security-related aspects and processes. One of our main goals is to be compliant with

applicable laws, regulations and contractual obligations, especially to the European General Data Protection Regulation (GDPR). We have the claim to provide and verify end-to-end security in all aspects of our IT environment, starting with client and server security up to vendor risk management and internal audits.

In 2017, we established our cyber security team to provide more in-depth IT security to our existing security landscape and to establish more sophisticated protection against external and internal threats. We launched a global IT security awareness training campaign last year, comprising internet and email attacks, especially phishing and social engineering. We also introduced a simpler and faster way to report and react to these kind of threats within our company, as part of our global IT security incident response management process. We also engage an external company to check our data security by trying to "hack" into our systems.

### DATA PROTECTION

Due to the adoption of the GDPR, a major reform designed to strengthen and unify data protection, we will be introducing a global data protection policy. In addition, we will also ensure that our current practices are re-assessed, documented and shared, in order to meet the requirements of the GDPR as it has come into effect in 2018. Standard employee statements related to data protection as well as the templates for "commissioned data processing" will be reviewed and updated based on the GDPR.

To strengthen the understanding of data protection within the organisation and inform about the meaning of the GDPR, we intend to provide training to all relevant employees in 2018.



"All significant strategic and operational processes are supported today by IT. It facilitates and accelerates our daily work, but it also carries risks.

Combining the efforts of our IT Governance, Risk, Compliance, Cyber Security teams and our Data Protection Officer, INEOS Styrolution fulfills the requirement to protect the company against threats and vulnerabilities, ensuring business continuity, and adhering to legal and regulatory requirements. We are continuously improving our security level by implementing new processes and security systems, as well as providing regular IT security awareness training to all employees."

**Thorsten Eidmann**  
Global Manager Information Security &  
Risk Management  
INEOS Styrolution



### MANAGING COMPLIANCE VIOLATIONS, INCLUDING GRIEVANCES

Every employee is encouraged to report any grievance or any confirmed or suspected violation of our Code of Conduct or any other company policy immediately to their manager, to their respective HR or Legal departments or to a member of our global or regional Compliance teams. In addition, we have contracted an external provider to operate a standardised compliance hotline accessible by phone, email or via the internet, which also offers response in various languages. This global grievance and reporting mechanism is available to all employees at all offices and sites. Employees may also choose to place a call anonymously they so prefer. The hotline is

available at all times (24 hours a day, 365 days a year) and is free of charge to the caller.

Each call received on the compliance hotline is categorised and tracked according to a variety of criteria, including:

- Labour practices, for example, health and safety, malpractice, allegations of ageism, animal welfare, assault, bullying/ victimisation, breaches of confidentiality, discrimination based on race, religion, gender, or any other cause, grievances with manager, gross misconduct, pay issues or privacy issues
- Business practices, for example, anti-competition, breach of company policy, bribery, conflict of interest, corruption, fa-

cilitation payments, fraud, giving or receiving of gifts, harassment, sexual harassment, intimidation, money laundering, issues related to partners and third parties, political activity, quality issues, racism, security issues, substance abuse, unfair dismissal, unprofessional behaviour, vandalism/ criminal damage or verbal abuse

- Human rights issues

In 2017, the compliance hotline received three reports, one related to labour practices, one on business practices and the last one was retracted by the caller. Consequently, none of the calls were related to impacts on society or human rights. All reports were fully investigated and resolved in 2017.

# 4.2

RESPONSIBLE BUSINESS  
MANAGEMENT

# MAKING SUSTAINABLE GROWTH A REALITY

- 4.2.1 Our approach
- 4.2.2 Our performance



We take an integrated approach to deliver a strong sustainability performance that benefits both our customers as well as society. We are convinced that truly sustainable business management is a prerequisite for accomplishing growth and long-term success – for our customers and ourselves.

### 4.2.1 OUR APPROACH

INEOS Styrolution looks at sustainability as a genuine driver of growth and value, which is firmly embedded in our Triple Shift growth strategy. We are determined to support the market success of our customers by leveraging sustainable business management as a competitive edge. In order to do so, we carefully listen to our customers' needs, continuously engage in collaborative innovation, and position sustainability as an

integral part of our business management activities. We are constantly optimising our economic, environmental and social performance to deliver safe, best-quality and high-performance products that eventually render our customers' businesses as well as end consumers' choices more sustainable.

Our Triple Shift strategy involves a shift in business focus in the following three areas:

#### A shift towards higher-growth customer industries

To increase our own potential for sustainable growth, we place a stronger focus on five higher-growth industries, namely automotive, electronics, healthcare, construction and household. Growth in these industries is supported by global megatrends, such as resource efficiency, need for mobility and demographic change.

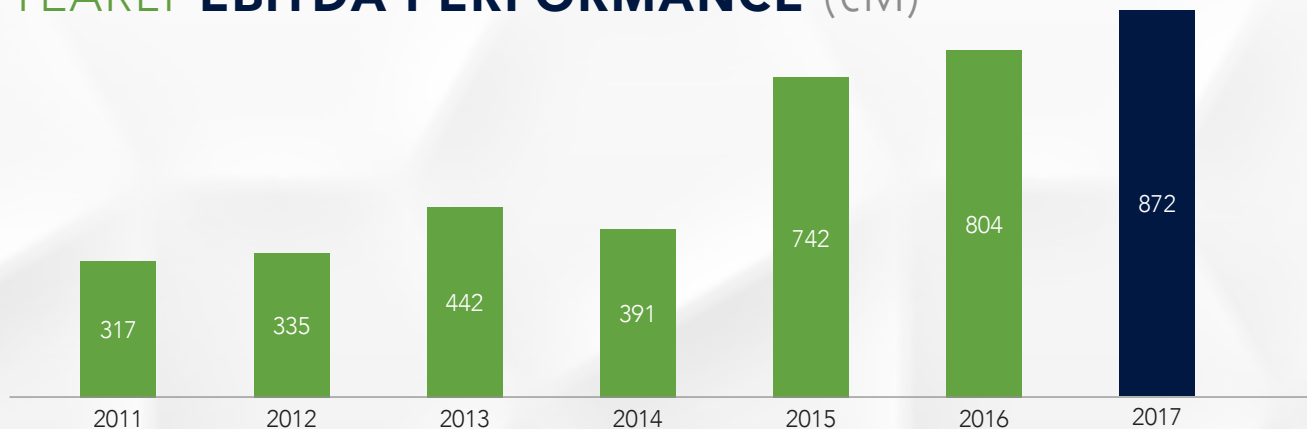
#### A shift in our portfolio towards higher value offerings

In order to meet the demands of these industries, the second shift refers to a stronger focus on higher-value specialties and ABS standard grades. This shift is driven by investment in production capacities and R&D, customisation and differentiation. It is reflected in our broad portfolio of more than 1,500 high-performance and value-added products, our large number of customised solutions, comprehensive service packages and our close relationships with key customers and external partners. Our specialties business is continuously growing and is the largest and most stable contributor to our EBITDA.

#### A shift towards high-growth regions

This shift includes strategically investing in growth markets by expanding our assets and sales footprint, particularly in Asia-Pacific and the Americas. In EMEA and North America, we will continue to pursue growth in our focus industries with our standard ABS and specialties products. We continuously strengthen further our global production and supply footprint. This enables local sourcing for our customers, provides them with greater supply security and has a beneficial impact on our environmental footprint.

## YEARLY EBITDA PERFORMANCE (€M)



### 4.2.2 OUR PERFORMANCE

By focusing on value creation for our customers, we are committed to driving profitable growth of our company. Since our foundation in 2011, we have significantly strengthened our competitiveness in many business areas and have continuously delivered a strong business performance. We believe that sustainable management and operations is the basis of our business success.

Today, we are the leading global styrenics supplier with access to customers in growth industries, such as automotive, electronics and healthcare. We are well-positioned in the higher-value ABS standard and specialties markets and have a strong asset footprint globally. We can rely on our broad product portfolio, considerable intellectual property and our world-scale commodity manufacturing platform with best-cost technology. We are leveraging these strengths to the benefit of our customers.

Our ambition is for the company to prosper as a resilient, less cyclical, more diversified, and more profitable business. This translates into the earnings target to grow our EBITDA margin beyond 10% by 2020. We have year-on-year over-delivered in this EBITDA margin target, thus reaffirming that Triple Shift is the right strategy for our company.

In 2017, we reviewed and refined this growth strategy, adapting it to trends and future market developments and outlining our business plan up to 2025.

### STRATEGIC IMPLEMENTATION OF OUR GROWTH STRATEGY

In 2017, we further implemented our Triple Shift growth strategy with significant investments in all three regions to meet growing customer demand and further improve our supply security for our customers.

We completed the acquisition and integration of the global K-Resin® SBC business and held several know-how transfer meetings with representatives from R&D, regional development centres, global technology and regional business teams to discuss current and future innovation projects in order to improve our market offerings. Through this newly acquired site

in Yeosu, South Korea, we are now able to offer the broadest SBC portfolio and related expertise in the industry from assets in all three regions. Moreover, locally producing SBC will enhance security of supply to our customers and, at the same time, reduce the need for transport of SBC products to other regions.

In Asia, we started a project to increase our compounding capacity by an additional 34 kilotonnes at our plant in Moxi, India, as well as upgrade the site's infrastructure. Expected for completion in 2019, this expansion will grow our compounding capacity to 100 kilotonnes per annum at the site. Additionally, we have sanctioned a detailed engineering study to evaluate doubling the overall production capacity for ABS in India over the next years.

In the Americas, we completed the expansion of our ABS and ASA specialties plant in Altamira, Mexico. The debottlenecked plant successfully started up in December. Further, we announced the construction of a new 100 kilotonne ASA plant in Bayport, Texas, USA. The basic engineering of this new plant is now moving into the next phase, and the new plant is expected to be fully operational by the end of 2020. This will also lead to a concurrent increase of our ABS capacity by an additional 70 kilo tonnes at our ABS/ ASA plant in Altamira, Mexico, through freeing up capacity currently used for ASA.

In Europe, we invested in an additional extruder for ASA production with start-up in 2018 and the modernisation and upgrading of our warehouse at our specialties plant in Ludwigshafen, Germany.

In order to further strengthen our global growth and to explore new business potentials, last year we introduced a new



"We believe that sustainability also includes the way we deliver our products to our customers. Producing our products close to our customers will

not only improve supply ability but also minimise resources needed for transportation. After the acquisition of K-Resin in 2017, we worked hard on expanding production to all regions, improving our services to customers in EMEA and the Americas. We will continue to regionalise production and also select most efficient and resource protecting means of transport. In addition, this acquisition underlines our commitment to our 'Triple Shift' growth strategy with a focus on styrenic specialties, a balanced split across focus industries and a global presence."

**Lars Koppelman**  
Vice President Supply Chain Management & Logistics Procurement EMEA,  
former Director M&A Asia  
INEOS Styrolution

strategic team – “Future Business and Innovation” – to drive innovation for long-term business. This team works hand in hand with R&D, business developers, product management and our focus industry teams on a global base to find innovative business opportunities for the company. We are confident that the continuous execution of our Triple Shift strategy translates into greater value for our customers in terms of the products and services we provide with even greater security of supply, while at the same time further strengthening our position as the global market leader in styrenics.

**CONTRIBUTING TO A CIRCULAR ECONOMY: A TRANSFORMATIVE OPPORTUNITY**

The concept of a circular economy is increasingly gaining traction and is now a key topic of our sustainability programme. Circular economy is also very prominent on the agenda of our stakeholders and is reflected in our recent materiality assessment undertaken in 2017.

Therefore, we embarked on a number of projects and initiatives last year focused on chemical recycling technologies, by engaging not only styrenics manufacturers but also stakeholders across our value chain, such as recyclers and brand owners. We believe that these strategic initiatives will provide us with opportunities to generate new, innovative and sustainable solutions.

You can find more information about our initiatives and actions to achieve circularity in the chapter

✕ [“Responsible products”](#).

**OUR RISK & CONTROL PROGRAMME: AN IN-GRAINED PART OF OUR CORPORATE PROCESSES**

INEOS Styrolution is exposed to various risks that could impact the achievement of its corporate objectives. In order to identify, assess, monitor, and mitigate these risks, a company-wide Risk & Control programme was established and is continuously developed further. The scope of our Risk & Control programme covers six pillars reflecting the company’s main business areas: Strategy & Business, Finance, Compliance, Operations (including SHE), Human Resources and IT.

This programme is embedded in a three lines of defence model as an integral component of our governance, management and operations.

**THE SIX PILLARS OF OUR RISK & CONTROL PROGRAMME**



**RISK MANAGEMENT PROCESS**



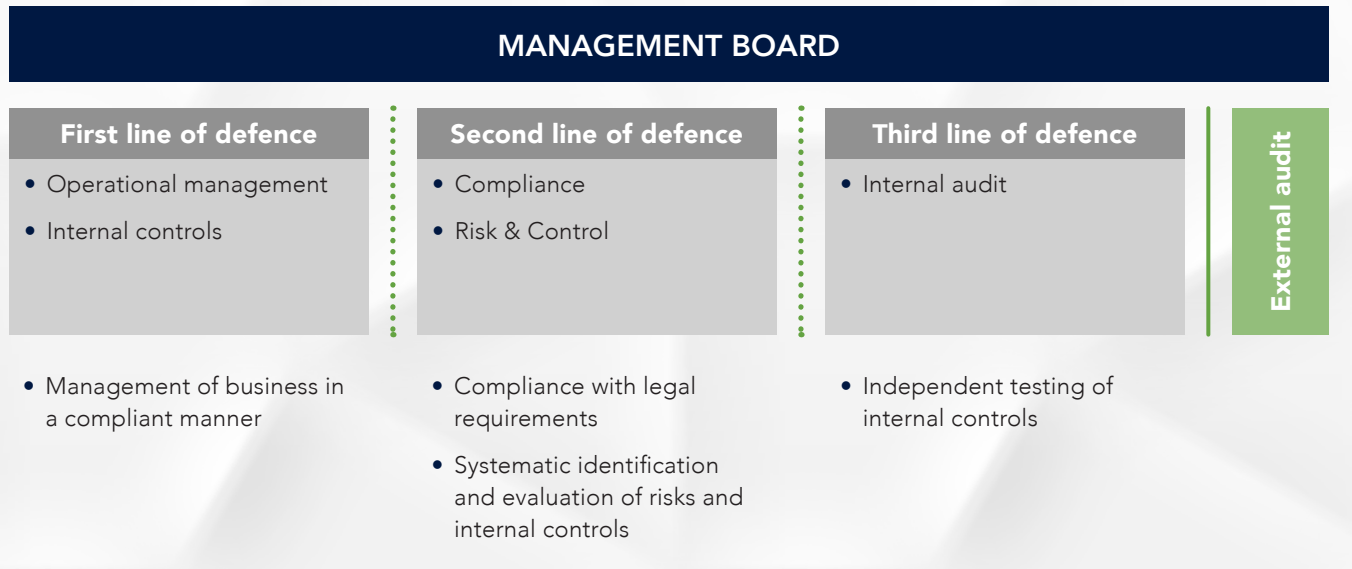
**First line of defence**

The first line of defence is undertaken by pillar heads, who are responsible for implementing and maintaining effective internal controls for their respective area of responsibility and for executing Risk & Control processes on a daily basis. The pillar heads are also responsible for implementing corrective actions to address control deficiencies.

**Second line of defence**

The second line of defence is undertaken by the Compliance team, the Risk & Control department and the Risk Management Committee. The latter acts as the reporting medium for this line

## THE THREE LINES OF DEFENCE ✓



of defence. Compliance monitors various specific risks, such as non-compliance with applicable laws and regulations.

The Risk & Control programme covers our company's key risks and controls per pillar. It facilitates the monitoring and oversight of effective risk management practices and assists the risk owners in assessing risk exposure and reporting. By this, we intend to ensure compliance with legal requirements at all times. To strengthen the company's governance structure, a Risk Management Committee has been established with representatives from each of the six pillars. This committee meets periodically to monitor the risk management process and drive continuous improvement within the programme. The Risk & Control department coordinates this on a daily basis.

Risks are identified and assessed by considering impact and

likelihood through risk workshops and risk assessments. Controls are then implemented to mitigate the identified risks. Annual control testing is performed within each pillar to determine if controls are well-designed and operating effectively. All controls are tested on a three-year-rotational basis. Results are reported to the CEO, CFO and Risk Management Committee members on a regular basis.

Our Risk & Control set-up covers sustainability risks, which are also reflected in our Risk & Control matrix. In addition, three sustainability topics addressed in our risk management process are ranked in the top ten risks of the company, given their increasing importance and potential impact. Controls have been set up to mitigate these risks and are part of the above-mentioned control testing on a three-year-rotational basis.

### Third line of defence

The third line of defence is undertaken by our Internal Audit department. Internal audits are performed on the basis of an annual audit plan, which is approved by the management board. The audit plan is based on a risk approach and covers all our entities and business functions. The scope of each audit is defined by the Internal Audit department in coordination with the management board. Audits cover control testing as well as sample-based testing. The Internal Audit function reports to the CEO.

### New Risk & Control and Internal Audit tools

In 2017, we decided to replace our existing Risk & Control tool with a new tool that is more powerful and provides higher flexibility. We also decided to adopt, for the first time, another new tool to support our Internal Audit function. Both tools will be on the same system landscape used in our company and will be connected to each other, thus strengthening the synergies between Risk & Control and Internal Audit.

The Risk & Control tool is also integrated with the company's Enterprise Resource Planning (ERP) and can monitor real-time data in ERP under the pre-defined rules set up by our six pillars and Risk & Control. These automated controls (called CCM or continuous control monitoring) allow real-time monitoring, and can detect any exception to controls when these occur, shortening issues identification and ultimately enhancing the internal control system. Both tools will be implemented in 2018.






## 5.1 ABOUT THIS REPORT

This report has been prepared in accordance with the Global Reporting Initiative's (GRI) Standards: core option. The collected data provides an overview of our sustainability efforts between January 1 and December 31, 2017, and covers the activities of all INEOS Styrolution legal entities worldwide, which fell within the scope of the company's consolidated financial statements as of December 31, 2017. For the avoidance of doubt, this includes the K-Resin® SBC business in Yeosu, South Korea, which we acquired in February 2017, but excludes activities of INEOS ABS, Addyston, USA.

The financial information presented in this report is consistent with the company's audited consolidated financial statement and management report for the year ending December 31, 2017, which was prepared in accordance with International Financial Reporting Standards (IFRS) and interpretations.

This report was published on July 31, 2018. The previous year's report was published on July 31, 2017. INEOS Styrolution has published sustainability reports since 2015, all of which can be downloaded from the company's website.

All internal stakeholders accountable for the company's sustainability programme and performance, including the management board, have validated the content of this GRI report.

Report content has been partially reviewed by the audit firm PricewaterhouseCoopers (PwC), Frankfurt am Main upon company request. The reviewed content has been marked with the ✓ symbol throughout the report. Please click  [here](#) to view their independent assurance statement.

For more information on this report, please contact Petra Inghelbrecht, Global Sustainability Manager  [INSTY.sustainability@ineos.com](mailto:INSTY.sustainability@ineos.com) or visit our website at  [www.ineos-styrolution.com](http://www.ineos-styrolution.com).

## 5.2 GRI INDEX

### GENERAL DISCLOSURES

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102-2	Activities, brands, products, and services	Approach to sustainability	7 – 8	
102-3	Location of headquarters	Approach to sustainability	7	
102-4	Location of operations	Approach to sustainability	7	
102-5	Ownership and legal form	Approach to sustainability	9	
102-6	Markets served	Approach to sustainability	7	
102-7	Scale of the organization	Approach to sustainability	7	
102-8	Information on employees and other workers	Reliable employer	67 – 71	
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102-11	Precautionary principle or approach	Responsible products	28	
102-12	External initiatives	Approach to sustainability Responsible products Responsible operations	12, 15, 23, 24, 39, 40	
102-13	Membership of associations	Approach to sustainability	18	
<b>STRATEGY</b>				
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102-15	Key impacts, risks, and opportunities	Approach to sustainability	11 – 12	

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GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>REPORTING PRACTICE</b>				
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102-46	Defining report content and topic boundaries	About this report	92	
102-47	List of material topics	Approach to sustainability Our material topics	14 101	
102-48	Restatements of information	Approach to sustainability		Number of sites restated from 16 to 18 for reasons of transparency
102-50	Reporting period	About this report	92	
102-51	Date of most recent report	About this report	92	
102-52	Reporting cycle	About this report	92	
102-53	Contact point for questions regarding the report	About this report	92	
102-54	Claims of reporting in accordance with the GRI Standards	About this report	92	
102-55	GRI content index	GRI index	93	
102-56	External assurance	External assurance	102 – 103	Scope includes the following chapters: Approach to sustainability, Responsible products, Responsible operations, Reliable supplier and Reliable employer

## MANAGEMENT APPROACH

GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>MANAGEMENT APPROACH</b>				
103-1	Explanation of the material topic and its boundary	Described in each chapter of report		
103-2	The management approach and its components	Described in each chapter of report		
103-3	Evaluation of the management approach	Described in each chapter of report		

## ECONOMIC

GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
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205-2	Communication and training about anti-corruption policies and procedures	Foundation of our business success	82 – 84	
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<b>ANTI-COMPETITIVE BEHAVIOUR</b>				
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Foundation of our business success	82 – 85	

## ENVIRONMENT

GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>MATERIALS</b>				
301-1	Materials used by weight or volume	Responsible operations	42	
<b>ENERGY</b>				
302-1	Energy consumption within the organization	Responsible operations	45 – 48	
302-2	Energy consumption outside of the organization	Responsible operations	45 – 48	
302-3	Energy intensity	Responsible operations	45 – 48	
<b>WATER</b>				
303-1	Water withdrawal by source	Responsible operations	50 – 51	
<b>EMISSIONS</b>				
305-1	Direct (Scope 1) GHG emissions	Responsible operations	48 – 51	
305-2	Energy indirect (Scope 2) GHG emissions	Responsible operations	48 – 51	
305-4	GHG emissions intensity	Responsible operations	48 – 51	
305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	Responsible operations	54 – 55	
<b>EFFLUENTS &amp; WASTE</b>				
306-1	Water discharge by quality and destination	Responsible operations	52 – 54	
306-2	Waste by type and disposal method	Responsible operations	52 – 54	
306-3	Significant spills	Responsible operations	36	

GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>ENVIRONMENTAL COMPLIANCE</b>				
307-1	Non-compliance with environmental laws and regulations	Foundation of our business success	80	
<b>SUPPLIER ENVIRONMENTAL ASSESSMENT</b>				
308-1	New suppliers that were screened using environmental criteria	Reliable supplier	61	We screen suppliers based on % of total spend
308-2	Negative environmental impacts in the supply chain and actions taken	Reliable supplier	62	
<b>SOCIAL</b>				
GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>EMPLOYMENT</b>				
401-1	New employee hires and employee turnover	Reliable employer	68 – 70	
<b>LABOUR &amp; MANAGEMENT RELATIONS</b>				
402-1	Minimum notice periods regarding operational changes	Reliable employer	71	Qualitative statement provided
<b>OCCUPATIONAL HEALTH &amp; SAFETY</b>				
403-1	Workers representation in formal joint management–worker health and safety committees	Responsible operations	35	
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Responsible operations	37	
<b>TRAINING &amp; EDUCATION</b>				
404-1	Average hours of training per year per employee	Responsible operations	34	
404-2	Programs for upgrading employee skills and transition assistance programs	Reliable employer	69	

GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>TRAINING &amp; EDUCATION</b>				
404-3	Percentage of employees receiving regular performance and career development reviews	Reliable employer	71	
<b>DIVERSITY &amp; EQUAL OPPORTUNITY</b>				
405-1	Diversity of governance bodies and employees	Reliable employer	69	
405-2	Ratio of basic salary and remuneration of women to men		67	Qualitative statement provided
<b>NON-DISCRIMINATION</b>				
406-1	Incidents of discrimination and corrective actions taken	Foundation of our business success	85	
<b>FREEDOM OF ASSOCIATION &amp; COLLECTIVE BARGAINING</b>				
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Reliable employer	71	
<b>CHILD LABOUR</b>				
408-1	Operations and suppliers at significant risk for incidents of child labor	Foundation of our business success	83	
<b>FORCED OR COMPULSORY LABOUR</b>				
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Foundation of our business success	83	
<b>HUMAN RIGHTS ASSESSMENT</b>				
412-1	Operations that have been subject to human rights reviews or impact assessments	Foundation of our business success	82	
412-2	Employee training on human rights policies or procedures	Foundation of our business success	82 – 84	

GRI STANDARD NUMBER	DISCLOSURE NUMBER	CHAPTER	PAGE	COMMENTS
<b>LOCAL COMMUNITIES</b>				
413-1	Operations with local community engagement, impact assessments, and development programs	Community involvement	73 – 74	
<b>SUPPLIER SOCIAL ASSESSMENT</b>				
414-1	New suppliers that were screened using social criteria	Reliable supplier	61	We screen suppliers based on % of total spend
414-2	Negative social impacts in the supply chain and actions taken	Reliable supplier	62	
<b>CUSTOMER HEALTH &amp; SAFETY</b>				
416-1	Assessment of the health and safety impacts of product and service categories	Reliable products	29 – 30	
<b>MARKETING &amp; LABELLING</b>				
417-1	Requirements for product and service information and labeling	Reliable products	29 – 30	
<b>SOCIO-ECONOMIC COMPLIANCE</b>				
412-1	Requirements for product and service information and labeling	Reliable products	30	

## 5.3 OUR MATERIAL TOPICS

MATERIALITY TOPIC	DEFINITION
Circular economy	Developing sustainable solutions in our products' life cycle from innovation through use phase to end of life to recover or reintroduce valuable resources back into the products' life cycle, and at the same time prevent the leakage of waste into the environment.
Low carbon economy	Reducing the greenhouse gas emissions of our operations (and value chain) – including use of CO <sub>2</sub> as a resource.
Marine litter and pellet loss	Addressing the global concern of marine litter, pellet loss and microplastics as well as the industry response to this through the initiative Operation Clean Sweep, to prevent pellet loss at our sites and downstream in the value chain.
Resource efficiency	Efficient use of resources at our sites by optimizing our raw material yield.
Energy	Efficient use of fossil fuels, electricity and other imported utilities (e.g. steam, etc.).
Water	Efficient use of drinking water, surface water and ground water for processing and cooling.
Emissions	Reducing air emissions, such as combustion gases, volatile organic compounds, dust and other regulated air emissions.
Waste water and waste	Reducing waste water and waste discharged at our sites.
Sustainable procurement	Providing procurement management that respects environmental and social criteria.
Product innovation	Adding value for customers by providing high-quality and innovative solutions aimed at lower environmental impact.
Product stewardship	Reducing/ eliminating environmental, health and safety impacts of our products.
Human rights and compliance	Ensuring compliance with local and international standards on business ethics and human rights (e.g. child labour, forced labour, etc.).
Health and safety	Ensuring safety and health of our employees and contractors and striving for zero incidents.
Reliable employer	Being an attractive employer, respecting diversity, equality of gender, nationality, religion and age.
Education and training	Providing training and professional development of employees.
Community involvement	Contributing to and supporting local communities on environmental and/ or social topics.

## 5.4 EXTERNAL ASSURANCE

### Independent practitioner's report on a limited assurance engagement on sustainability information

To INEOS Styrolution Group GmbH, Frankfurt

We have performed a limited assurance engagement on the disclosures denoted with "✓" in the sustainability report of INEOS Styrolution Group GmbH, Frankfurt (hereinafter: "the Company"), for the period from 01 January to 31 December 2017 (hereinafter: "Report").

### Responsibilities of the Executive Directors

The executive directors of the Company are responsible for the preparation of the Report in accordance with the principles stated in the Sustainability Reporting Standards of the Global Reporting Initiative (hereinafter: "GRI criteria") and for the selection of the disclosures to be evaluated.

This responsibility of Company's executive directors includes the selection and application of appropriate methods of sustainability reporting as well as making assumptions and estimates related to individual sustainability disclosures, which are reasonable in the circumstances. Furthermore, the executive directors are responsible for such internal control as they have considered necessary to enable the preparation of a Report that is free from material misstatement whether due to fraud or error.

### Independence and quality control of the audit firm

We have complied with the German professional provisions regarding independence as well as other ethical requirements.

Our audit firm applies the national legal requirements and professional standards – in particular the Professional Code for German Public Auditors and German Chartered Auditors ("Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer": "BS WP/vBP") as well as the Standard on Quality Control 1 published by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany; IDW): Requirements to quality control for audit firms (IDW Qualitätssicherungsstandard 1: Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis - IDW QS 1) – and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### Practitioner's responsibility

Our responsibility is to express a limited assurance conclusion on the disclosures denoted with "✓" in the Report based on the assurance engagement we have performed. Within the scope of our engagement we did not perform any procedures on external sources of information or expert opinions, referred to in the Report.

We conducted our assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the IAASB. This Standard requires that we plan and perform the assurance engagement to allow us to conclude with limited assurance that nothing has come to our attention that causes us to believe that the disclosures denoted with "(✓)" in the Company's Report for the period from 01 January to 31 December 2017 has not been prepared, in all material aspects, in

accordance with the GRI criteria. This does not mean that a separate conclusion is expressed on each disclosure so denoted.

In a limited assurance engagement the assurance procedures are less in extent than for a reasonable assurance engagement and therefore a substantially lower level of assurance is obtained. The assurance procedures selected depend on the practitioner's judgment.

Within the scope of our assurance engagement, we performed amongst others the following assurance procedures and further activities:

- Obtaining an understanding of the structure of the sustainability organization and of the stakeholder engagement
- Inquiries of personnel involved in the preparation of the Report regarding the preparation process, the internal control system relating to this process and selected disclosures in the Report
- Identification of the likely risks of material misstatement of the Report under consideration of the GRI-Criteria
- Analytical evaluation of selected disclosures in the Report
- Performance of site visits to review the implementation of data collection processes and requirements at the following subsidiaries:
  - INEOS Styrolution Group GmbH, Frankfurt
  - INEOS Styrolution America LLC, Pasadena, TX, USA
- Evaluation of the presentation of the selected disclosures regarding sustainability performance

**Assurance conclusion**

Based on the assurance procedures performed and assurance evidence obtained, nothing has come to our attention that causes us to believe that the disclosures denoted with “(✓)” in the Company’s Report for the period from 01 January to 31 December 2017 have not been prepared, in all material aspects, in accordance with the GRI criteria.

**Intended use of the assurance report**

We issue this report on the basis of the engagement agreed with the Company. The assurance engagement has been performed for purposes of the Company and the report is solely intended to inform the Company as to the results of the assurance engagement. The report is not intended to provide third parties with support in making (financial) decisions. Our responsibility lies solely toward the Company. We do not assume any responsibility towards third parties.

Frankfurt, 27 July 2018

PricewaterhouseCoopers GmbH  
Wirtschaftsprüfungsgesellschaft

Michael Conrad  
Wirtschaftsprüfer  
(German Public Auditor)

ppa. Axel Faupel



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# INEOS STYROLUTION

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