



We are Passionate about Carbon Black

Paving our path forward to a sustainable future



2018
Sustainability Report

Our Vision

We are the premium supplier of Carbon Black. We generate long-term benefits for stakeholders while remaining committed to responsible business practices with focus on team culture, reliability, and sustainability.

Our Sustainability Cornerstones

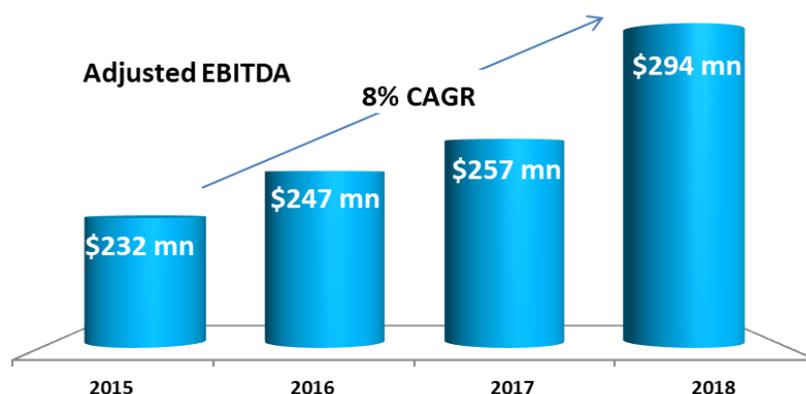
- **Sustainable growth** (growing our business sustainably; and contributing to sustainability through our products)
- Being **compliant** in our day to day operations;
- **Living our values** by implementing relevant social agenda within Orion;
- **Driving sustainability** along our value chain

Financial Snapshot of Orion (year ending on December 31)

Sales Volume	1.06 million metric tons (2018); 1.04 million metric tons (2017)
Revenue	\$1,578 million (2018); \$1,328 million (2017)
Dividend per Share	\$0.80 (2018); \$0.77 (2017)
Adjusted Earnings per Share	\$2.21 (2018); \$1.56 (2017)

OUR COMPANY

Orion is a worldwide supplier of Carbon Black. Orion operates a global supply chain network comprised of 14 global production sites (including one joint venture) and employs approximately 1,450 people. Orion produces a broad range of Carbon Blacks that include high-performance Specialty Gas Blacks, Acetylene Blacks, Furnace Blacks, Lamp Blacks, Thermal Blacks, and other Carbon Blacks. These products tint, colorize, and enhance the performance of polymers, plastics, paints and coatings, inks and toners, textile fibers, adhesives and sealants, tires, and mechanical rubber goods such as automotive belts and hoses.



About this report

This is our first Sustainability Report. It highlights the sustainability topics that are relevant to Orion. We have endeavored to apply the reporting standards set out by the Global Reporting Initiative (GRI) and to include subject matters covered in the United Nations Sustainable Development Goals (SDGs). We intend to report against the GRI reporting standards and to use our future sustainability reports to communicate the commitments and progress we are making in support of the SDGs relevant to Orion. Our current plan is to publish a full report biennially and update the ESG Fact Sheet annually.

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Forward-looking Statements

The content in this Sustainability Report, including documents or reports incorporated herein by reference, is accurate as of December 31, 2018. This report should be read in conjunction with Orion's Annual Report for the year ended December 31, 2018, which contains additional information about our company. This report contains certain forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements of future expectations that are based on current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. You should not place undue reliance on forward-looking statements. Each forward-looking statement speaks only as of the date of the particular statement. New risk factors and uncertainties emerge from time to time and it is not possible to predict all risk factors and uncertainties, nor can we assess the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. We undertake no obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information, other than as required by applicable law.



Letter from the CEO to Stakeholders

Dear Stakeholders,

Thank you for your interest in Orion Engineered Carbons and sustainability. In 2019, we have taken six concrete steps forward in sustainability:

- We added sustainability to the Board of Directors' Nominating and Governance Committee now called the Nominating, Sustainability and Governance Committee;
- We formed a separate Sustainability Committee comprised of employees from around the world to make sure we achieve our sustainability goals;
- We set our first sustainability-related goals;
- We updated several policies including our non-discrimination policy, and expanded our charitable giving profile;
- We started the journey to become an active supporter of the U.N. Sustainable Development Goals (SDGs) that are relevant and material to us;
- We produced our first Sustainability Report, this document.

Our sustainability initiatives are built around four basic themes, which we refer to as the cornerstones of our sustainability strategy:

- Sustainable growth (growing our business sustainably; and contributing to sustainability through our products);
- Being compliant in our day to day operations;
- Living our values; and
- Driving sustainability along our value chain.

Orion Engineered Carbons was formed in July 2011 when the carbon black business was carved out from Evonik Industries. Our carbon black business dates back to 1862 under A. Wegelin AG, a predecessor company. We, in the collective sense, have been in the carbon black business for over 150 years. To ensure our business for the next 150 years, getting sustainability right is a critical strategic and operational imperative.

Sustainable growth

Our business model is intrinsically aligned with the sustainability agenda. We recover carbon from hydrocarbon-based byproducts. The better we are at extracting carbon from these feedstocks, the less carbon dioxide (CO₂) is emitted. Hence our carbon recovery rate (yield) and CO₂ emissions per ton of carbon black are key metrics for us; and advancing these are a “win-win” for our business and the environment.

The better we are at extracting carbon from these feedstocks, the less carbon dioxide (CO₂) is emitted.

Approximately 45% of all capital investments approved since 2011 have some measure of positive environmental impact, including yield improvements. In addition to reducing carbon emissions, we are taking action to reduce sulfur dioxide (SO₂), nitrogen oxide (NO_x) and particulate matter (PM). In the U.S. alone, we plan to invest some \$190 million over a 5-year period to reduce emissions of SO₂, NO_x and PM. We have made and will continue to make similar types of investments in China, Korea, and Italy.

Our products also support our customers in their efforts to improve the performance of their products that have positive impact on the environment. For instance, our Technical Rubber Grade products make tires more fuel efficient and last longer. In one estimate, based on laboratory test results, our advanced carbon blacks are expected to reduce tire rolling resistance by 15 to 17% that would lead to as much as 5% fuel savings. In late

2018, we enhanced our line of conductive carbon blacks with the goal of supporting lithium ion batteries for the electric car industry.

Additionally, we supply energy to many of our host communities and contribute to reduction of CO₂ by reducing their fuel consumption. For example, in Cologne, Germany, we are part of the district heating system that replaces coal. In Yeosu, South Korea, we provide high pressure steam to industrial customers that would otherwise have used fossil fuel.

Compliance

We are acutely aware of our social responsibility to the environment, as well as to all those who work at our sites and to others across the value chain. Accordingly, compliance to us is about being responsible at every moment in every process at all of our locations to the highest applicable standards whether they be pursuant to the local laws and regulations, or to Orion's global operating standards, particularly in the areas of safety, environment, health and quality.

Living our values

As a global business, we manufacture in 10 countries with a global supply chain network comprised of 14 production sites, including one joint venture. This allows us to draw on talents from multiple locations and presents us with the opportunity and challenge of developing people across multiple locations. Accountability and meritocracy are key tenets to how we recruit, grow and promote our people across all regions. We believe that diversity in nationality, race, gender, sexual orientation, gender identification, and age, to name a few, is and will be a source of competitive advantage.

Value chain participation

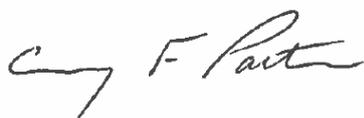
We do not outsource any of our risks, including sustainability risks, to our suppliers. From this perspective, it is our belief that one of the key tests to any operation's commitment to sustainability is the extent to which sustainability drives its procurement decisions. In 2019, we are renewing our commitment to sustainable procurement by requiring all procurement managers to take ongoing training to become more effective in driving sustainable procurement and to focus on minimizing our sustainability risks.

United Nations Sustainable Development Goals

As a corporate citizen, Orion is aligned with the stated goals of, and values embedded in, many of the SDGs. Whether it is through our own business practices in the host communities, or our leadership across the value chain, we plan to support various SDGs in the years to come.

I would like to thank our employees for their dedication and hard work towards this worthy cause. Thank you also to our readers for your interest in Orion. We look forward to engaging with you on the topics presented in this report and welcome your feedback.

Very truly yours,



Corning F. Painter
Chief Executive Officer



Our carbon black production facility in Yeosu, South Korea

Who We Are

Our principal business is carbon black, which is a commercial form of elemental carbon that is manufactured in highly controlled processes to produce specifically engineered aggregates of carbon particles that vary in, among others, particle size, aggregate size, shape, porosity and surface chemistry. We operate a global supply chain network comprised of 14 production sites (including a joint venture in Dortmund, Germany) in 10 countries with the principal R&D center in Cologne (Germany). In addition to the principal executive office in Houston (US), we have offices in Luxembourg, Frankfurt (Germany), Cologne (Germany), Shanghai (China), Seoul (Korea), Tokyo (Japan) and other locations. See Attachment 3 for our location map.

What differentiates us from competition is our ability to engineer differences in carbon black properties to meet the specific requirements of our customers.

Carbon blacks are used in diverse industries as a material that enhances the physical, electrical and optical properties of their products. For instance, in rubber products such as **tires** and **mechanical rubber goods (MRG)** which are the largest carbon black consuming industries, carbon black extends the tire life, and improves performance, mechanical and dynamical toughness, tear-strength, conductivity and other physical properties. In volumetric terms, the largest demand source for carbon black comes from the tire industry where carbon black accounts for approximately 30% of tire loading by weight.

What differentiates us from competition is our ability to engineer differences in carbon black properties to meet the specific requirements of our customers. This competitive advantage has enabled us to become the leading producer of specialized carbon blacks, including those for high-performance tires and MRG applications.

In addition to our process engineering capability, we also have the broadest range of technologies for carbon black production, including furnace blacks, gas blacks, lamp blacks, thermal blacks, and acetylene blacks. By combining our engineering knowhow and the technology choices, we are able to offer a wide range of customized carbon blacks for various specialized applications such as coatings, polymers, printing, and batteries. (Visit our website, <https://orioncarbons.com>, for detailed information about our product offering).

We have the broadest range of technologies for carbon black production... By combining our engineering knowhow and the technology choices, we are able to offer a wide range of customized blacks.

Highlights of our Differentiated Products:

- In the **polymer** industry, our products are used to absorb detrimental ultra violet (UV) light thereby making polymers, such as polypropylene and polyethylene, more resistant to degradation by UV radiation from sunlight and longer lasting.
- In the **battery** industry, highly specialized carbon blacks are used as conductive agents. Today we supply to lead and advanced lead acid battery manufacturers for vehicles and energy storage. Our goal is to support the electric vehicle revolution with carbon-based conductive materials for the production of lithium ion batteries.
- In the **coating** industry, our proprietary oxidized fine particle carbon black is used as a key ingredient to produce deep jet-black paints. For instance, the automotive industry relies on our engineered carbon blacks to meet their requirement for dispersion and jetness of black coatings with bluish undertone.
- In the **printing** industry, our products are used not only as a black pigmentation agent, but also to achieve the required dispersion and viscosity for optimum print quality. For example, we provide ultra-clean materials for food labeling.



Our carbon black extends the life of the tires, improves performance, increases fuel efficiency

Did you know that tire rolling resistance plays an important role in passenger comfort and vehicle gas mileage? As the vehicle moves, tires are deformed by its weight and motion, and this deformation leads to energy loss. However, this deformation adds comfort to the passenger. A tire perfectly suited for highest energy efficiency would be made of steel like on a railroad. But imagine what that would do to your back? This is where our R&D comes into play – to engineer the carbon black that helps our tire customers to strike the most optimal balance between passenger comfort and energy conservation.

In our estimate, based on laboratory and field tests, tires that use our differentiated carbon blacks are projected to improve rolling resistance by 15 to 17%, which translates to up to 5% fuel savings. We help to conserve not only the use of energy, but also reduce the end-customer's cost of ownership.

We manage our carbon black business through two product lines: Rubber and Specialty.

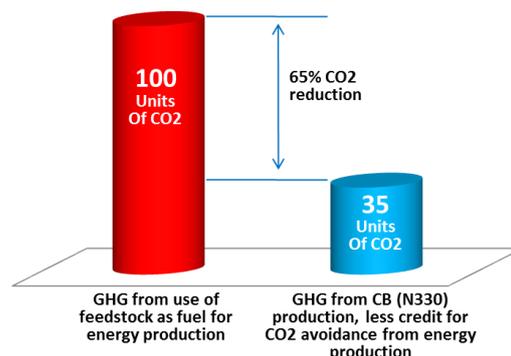
- **Rubber** focuses on providing the tire and MRG customers with carbon blacks that are specifically designed to enhance the performance of their end-products. See the illustration above for how our products specifically designed for tire application can help our customers to improve vehicle fuel efficiency without sacrificing passenger comfort.
- **Specialty** focuses on customizing our products for specialized applications, such as, polymers, batteries, coatings, printing, and others

We also generate electric power and steam with tail gas, a byproduct from our carbon black production process.

At our Cologne plant in Germany, the largest in our production network, we are in an agreement with the city of Hürth to supply steam (produced with residual, post-production, gas which is called “tail gas”) to cover its heat demand. This supports the city to entirely replace its reliance on heat generated from brown coal. Our carbon black plant in Yeosu in South Korea uses tail gas to produce high pressure steam for neighboring refinery and petrochemical plants co-located in the same industrial zone. They would otherwise use fossil fuel to generate the steam they purchase from us. Our Yeosu site’s energy recovery rate in 2018 was over 79%. The margins generated from our energy activities are reported through our two business lines, Rubber and Specialty.

Carbon black production cycle generates approximately 65% lower emissions than its alternative usage

Did you know that the use of fossil fuel as feedstock for carbon production generates lower GHG emissions than its alternative usage as fuel for energy production? Firstly, carbon black production strips out carbon from the feedstock. Less carbon content in the remaining tail gas means less CO₂ generation and lower GHG emission. Secondly, the use of tail gas to produce energy leads to reduction in fossil fuel usage in the overall energy chain – i.e., GHG avoidance. GHG emission from carbon black production, less credit for GHG avoided by use of tail gas for energy production, is about 35% of GHG emission from just energy production.

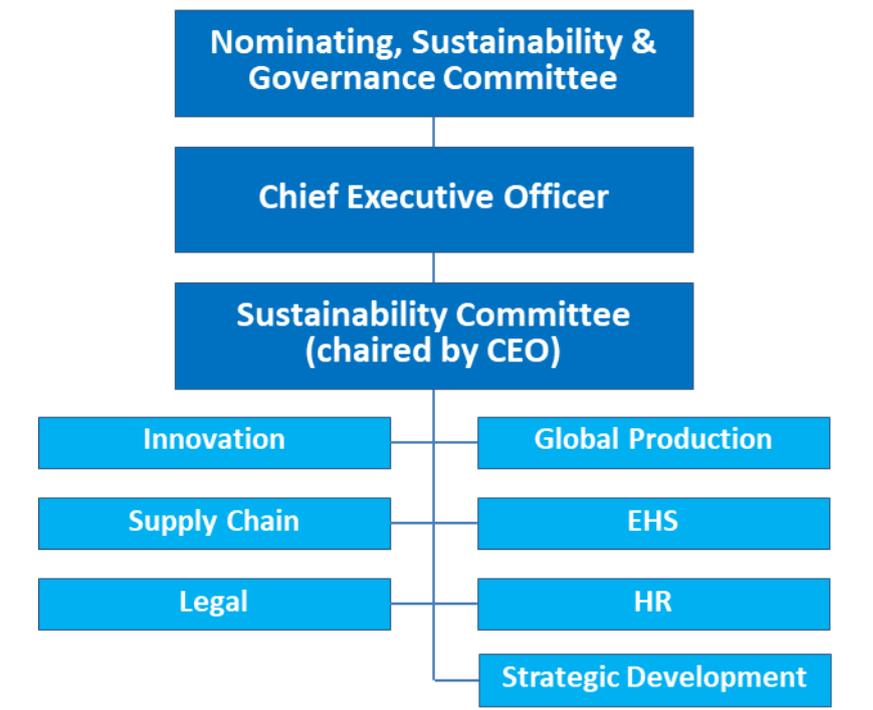


Our history as a carbon black producer goes back to 1862 when we existed as A. Wegelin AG in Germany. In 1930 we became part of Degussa; and then in 2011 Orion Engineered Carbons GmbH. In 2014, we became Orion Engineered Carbons S.A., a New York Stock Exchange listed company.

Structure of our Newly Formed Sustainability Committee

The topic of sustainability is increasingly prioritized in leadership discussions at the Board and throughout the Company. To further reinforce the importance of sustainability and to place it within the governance structure and management framework, we have taken several actions. We added sustainability to the remit of the Board of Directors' Nominating and Governance Committee (which has been renamed as Nominating, Sustainability, and Governance Committee), included a sustainability target in our performance bonus structure, and formed a Sustainability Committee that is chaired by the CEO. Other members include the heads of Global Production, EHS, Innovation, Supply Chain, HR, Legal, and Strategic Development.

Structure of Sustainability Committee





Our Values

Orion is a carbon black specialist. We are a group of people who are simply passionate about carbon black. In our day to day activities, the passion we have for our business is guided by commitment to our values.

- **Safety and Sustainability**
- **Integrity**
- **Customer Focus**
- **Accountability** (we get things done)
- **Valuing people** (trust, respect, and development)
- **Innovation**

We are a group of people who are simply passionate about carbon black...and guided by commitment to our values.

These values are the result of our own internal discovery process. They are the values our employees have identified as being core to who we are, and to what we are committed to becoming. These values express our renewed commitment to excellence. They include commitment to compliance with applicable environmental, labor, trade, fair business practice and other laws and regulations, and with ethical business practices; to training and developing our employees; to fair dealings with our suppliers, but also working with those who share our values and commitment to sustainability; and to the development and production of carbon blacks that not only meet health standards, but also enable enhanced environmental performance across the value chain.



Orange (Texas) site leaders providing site tour

Our Stakeholders and Engagement Platforms

Investors and Lenders

SEC filings (including 20-F annual reports), quarterly earning calls, in-person meetings, conferences, and calls

In 2018, we held over 300 meetings with our investors, representing over 72% of shares outstanding as of December 31, 2018.

Customers

Direct engagement, joint development projects, site visits, site audits, surveys, and sustainability performance reviews

Employees

CEO monthly briefings to company leaders, management site visits and employee meetings, town halls, intranet communications, and trainings (class room, one-on-one, and electronic)

Communities

Community events, site visits, sponsorship programs, charitable giving, and staff volunteerism

Regulators

Site visits, inspections, filings, and other engagements through various official forums

Suppliers

Supplier site visits, inspections, audits (risk-based prioritization), meetings, and technical briefings

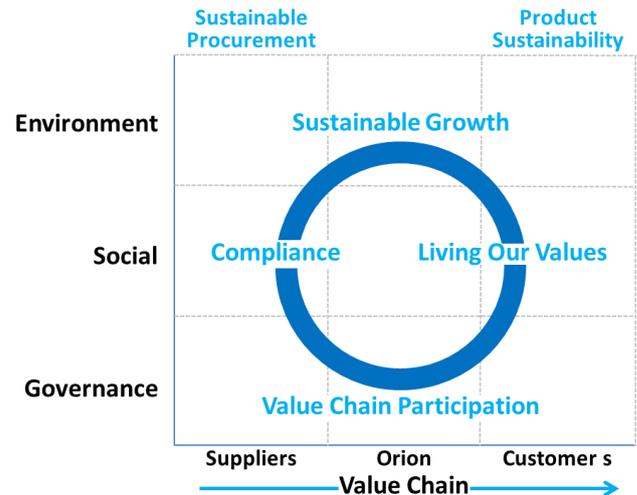


Sustainability Framework Overview

Environment impact, social issues and governance practices across the value chain of the carbon black industry provide the framework for our approach to sustainability. This framework is used to identify areas of risk and concern; it provides structure to help us form a holistic view and identify gaps that require our attention.

In this report, we have grouped the sustainability subject matters that are relevant to us under four themes:

1. Sustainable growth
2. Compliance
3. Living our values
4. Value chain participation



Sustainable Growth

We are committed to growing our business profitably with minimal environmental footprint to ensure sustainable returns to our stakeholders on an ongoing basis, including reductions in:

- Emissions and Energy (including avoided CO₂ through product sustainability)
- Water consumption
- Waste

Compliance

Compliance is about being responsible and applying without exception the operating standards set out in the applicable laws and regulations, and in our policies, including:

- Operational Safety
- Operational compliance
- Business compliance
- Code of Conduct
- Corporate Governance

Living Our Values

Living our values mean tackling difficult but important social agenda in line with our values. For instance, we believe in equal opportunity for all, encompassing gender, nationality, race, sexual orientation, etc.

- Diversity
- Local community engagement
- Contributions to local economies

Value Chain Engagement

We believe that our sustainability performance is only as good as the standards set by the weakest link in our value chain. We recognize that this is an area where further improvements may be identified, which we will undertake on an ongoing basis. Currently, we are focused on the following initiatives within our value chain:

- Sustainable Procurement
- Minimizing environmental footprints
- Enhancing our capabilities in training and data transparency

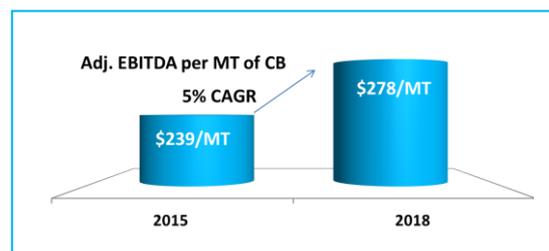


Sustainable Growth

As evidenced by the improvements in our unit EBITDA since 2015 (see chart below), we are a performance driven organization – it’s simply part of who we are, shaped by our recent history. Through preceding legal entities, we have been in the carbon black business for over 150 years; however, we became publicly listed only in 2014.



We became an independent business after 2011, we were able to rejuvenate legacy cultures and processes, and this allowed us to streamline our organization and processes to operate as efficiently as possible although with resource constraints not uncommon to start ups. This became the seeding ground for us to become relentlessly focused on improving our underlying performance in all aspects of our business: from product development, to channel management, to plant operations. At the same time, we retained the deep knowledge and a passion for carbon black engrained throughout our predecessor entities that had allowed us to be in the carbon black business for over 150 years. Our resilience through many tests over the decades speaks to our ability to adapt to changes in the market and evolve with it. Going forward, we are keenly aware of the importance of being part of the solution for addressing climate change to ensure continuation of our business over the longer term.



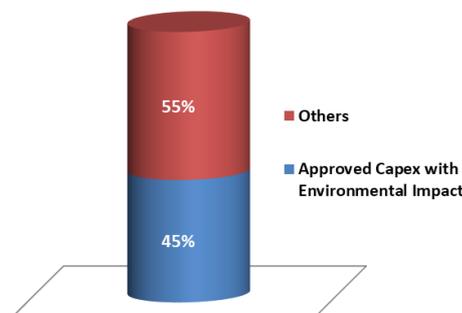
The historical improvements in our underlying financial performance are well documented in our annual reports and other releases. In this Sustainability Report, we will focus on improvements in environmental performance, including emissions, energy, water, and waste.

Emissions and Energy

In 2019, we set performance improvement targets for GHG intensity, SO₂ intensity, NO_x intensity, PM intensity and energy recovery rate against a 2014 baseline (the year we went public). GHG intensity target is set on a normalized basis.

Carbon black is produced by extracting elemental carbons from hydrocarbon-based feedstock, most commonly petroleum based (typical in the U.S. and Korea) or coal-based (typical in Europe and China). Our aim is to extract as much carbon from the feedstock as possible. The proportion we extract, the *yield*, determines our greenhouse gas (GHG) intensity, as measured in carbon dioxide equivalent (CO₂e). Higher yields also make us more competitive. We are economically motivated to minimize GHG emissions.

Approved investment projects since 2011



In addition to CO₂e (GHG) intensity, levels of sulfur dioxide (SO₂), nitrogen oxides (NO_x), and particulate matter (PM) are also important indicators of our environmental performance. In 2019, we set targets and will report progress for these four performance indicators, as outlined below. Since we became an independent business, approximately 45% of all of the approved capital investments have been for projects with some measure of impact on our environmental performance. Going forward, we plan to invest about \$190 million over a 5-year period in emissions reduction projects at our U.S. operating sites.

Since GHG intensity essentially covers energy intensity, setting a reduction target for energy intensity would be redundant. We are setting a separate reduction target for energy based on **energy recovery rate**, which is defined as carbon black and other forms of energy recovered from the production process divided by the total energy input into the production process, including feedstock and any other forms of procured energy, such as electric power. Our target is to improve the overall energy recovery rate by 2% versus the baseline in 2014 by 2029. Due to competitive reasons, we are unable to disclose our baseline. However, it is our plan to report our progress on the basis of the data reviewed and validated by a third-party.

	GHG Intensity CO ₂ e tons / Production tons	SO₂ Intensity SO ₂ kg / Production tons	NO_x Intensity NO _x kg / Production tons	PM Intensity PM kg / Production tons	Energy Recovery Useful energy / Energy input
targets	5%↓ By 2029	50%↓ By 2029	25%↓ By 2029	15%↓ By 2029	2%↑ By 2029
	Baseline: 2014 normalized	Baseline: 2014 actual	Baseline: 2014 actual	Baseline: 2014 actual	Baseline: 2014 actual

While we will report and set our reduction targets against the actual data for SO₂, NO_x, and PM, we have set reduction targets for CO₂ intensity on a normalized basis that neutralizes the artificial effects of feedstock type and product mix on CO₂ intensity. CO₂ intensity will also be reported on an actual basis. Normalized data will be used solely to set reduction targets and track target achievements. See Attachment 1 for the why's and how's on normalization.

We are enhancing environmental performance of our value chain by improving end customer product performance

As a simple example, if we were to produce only generic tire grades with coal-based feedstock, we are likely to show much lower CO₂ and energy intensities. However, we would be making no contribution to the performance enhancement of our customers' tires to improve vehicle fuel mileage and extend tire replacement periods, both of which would have far greater impact on the environment than our own intensity levels. In comparison, by producing specifically engineered grades for tire application to improve rolling

resistance, and tire wear and tear, we would be showing higher CO₂ and energy intensities. However, we believe that the positive contributions we are making to minimize the overall environmental footprint with our products far outweighs any apparent deterioration in our own environmental performance.

The table below illustrates our environmental performance over the last two years as well as our 2029 targets:

GHG Intensity CO ₂ e tons / CB tons	2017	2018	Target*
Actual GHG Intensity	2.66	2.55	
Variance % vs 2014	3.9% ↑	-0.3% ↓	
Normalized GHG Intensity	2.29	2.27	5%
Variance % vs 2014	-6.9% ↓	-7.4% ↓	Reduction

*Target 5% reduction against 2014 normalized baseline in 10 years by 2029

Note: GHG intensity is based on scope 1 emissions due to incomplete data. Scopes 2 and 3 will be added in future reports.

SO₂ Intensity SO ₂ kg / CB tons	2017	2018	Target*
Actual SO ₂ Intensity	18.37	18.43	50%
Variance % vs 2014	-13.7% ↓	-13.5% ↓	Reduction

* Target 50% reduction against 2014 actual baseline in 10 years by 2029

NOx Intensity NOx kg / CB tons	2017	2018	Target*
Actual NOx Intensity	5.39	5.20	25%
Variance % vs 2014	-2.8% ↓	-6.2% ↓	reduction

* Target 25% reduction against 2014 actual baseline in 10 years by 2029

PM Intensity PM kg / CB tons	2017	2018	Target*
Actual PM Intensity	0.54	0.60	15%
Variance % vs 2014	-9.4% ↓	-0.2% ↓	reduction

* Target 15% reduction against 2014 actual baseline in 10 years by 2029

Proactive Engagement with the Community to Adopt Best Practices in Environmental Performance Management

Our plant in Ravenna, Italy, has joined forces with 16 other chemical companies located at the Ravenna Chemical District to secure the Eco-Management and Audit Scheme (EMAS) Certification at the District level. This is the first project of its kind in Italy.

EMAS is a premium management instrument developed by the European Commission for businesses and other organizations to evaluate report and improve environmental performance. EMAS principles are:

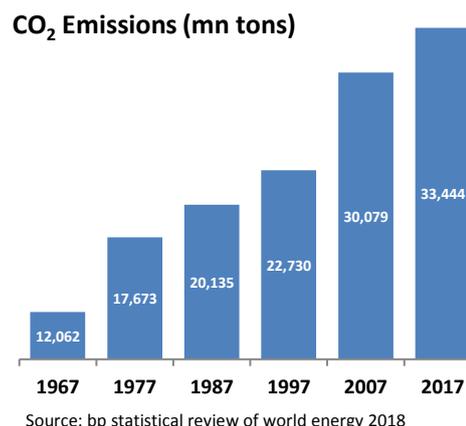
- Enhancing environmental performance;
- Credibility through third party verification; and
- Transparency through public disclosure of performance data



CO₂ Strategy to Minimize Risk

Global CO₂ Emissions are on the rise. Pricing of CO₂ emissions poses potential risk to our business. We have adopted an effective mitigation strategy to ensure the long-term profitability of our business.

According to the BP Statistical Review of World Energy (2018), CO₂ emissions grew by 2.1% CAGR (cumulative annual growth rate) over a 50-year period from 1967 to 2017; and have thus more than doubled. While the recent 10 years (2007 to 2017) shows lower CAGR of 1%, coal and oil consumption remain at similar growth pattern, indicating that we should expect to see CO₂ emissions continue to grow unless action is taken.



In response, an increasing number of jurisdictions are implementing or experimenting with CO₂ pricing schemes to motivate reduced emissions. In the jurisdictions where we have manufacturing plants, CO₂ is priced in the European Union and South Korea through cap and trade regimes. South Africa has recently enacted a CO₂ tax; and China has announced its intent to introduce a cap and trade regime in 2020.

Increasingly, the cost of CO₂ is a risk to our financial performance. These developments require us to have an effective mitigation strategy to ensure long term profitability of our business, as outlined below.

Our CO₂ strategy is built on four major pillars:

- Yield improvement:** As we extract larger amount of carbon from feedstock, there will be a proportional reduction in CO₂ emissions. Accordingly, continuous improvement in yield – whether through underlying performance enhancements, or investments in high efficiency equipment – is an integral part of our business strategy.
- Energy recovery:** Energy consumption in the carbon black production can be reduced (and thus reduction in CO₂ emissions) through the use of high-performance heat exchangers to maximize exhaust heat recovery to increase the temperature of inlet air and inlet oil. Where supported by markets, we have invested in cogeneration facilities and use tail gas as fuel to produce electric power and steam for internal consumption and external sale. Such uses of tail gas reduce our own scope 2 emissions and contribute to CO₂ emissions avoidance by utilities and our energy customers. In addition to electric power and steam, our energy production includes supply of heat (in the form of steam) for district heating.

Illustration of Energy Recovery: Reducing Scope 2 Emissions at our Productions Sites

Did you know that we produce energy at our carbon black production sites? The residual gas (or tail gas) – has sufficient energy content that can be converted into other energy forms, such as electric power and steam. This requires an investment in equipment such as boilers or cogeneration facilities, which requires favorable commercial and regulatory environments that support such investments, which may not be available in all markets in which we operate.

Our facilities in Cologne (Germany) and Yeosu (South Korea) are prime examples of how residual tail gas is used for energy production. For instance, our Cologne facility produces energy for site and external consumptions. In the case of our Yeosu facility, close to 80% of total energy input is recovered in the form of carbon black and energy.

- Trading Capability:** In the EU and South Korea, cap and trade is the preferred scheme to price CO₂. The trading rules and practices are similar to the energy market, which allows hedging CO₂ risks, as well as turning CO₂ credits as sources of trading income. Developing trading capability through market participation in the EU and South Korea is an important component of our risk mitigation.

- Avoided CO₂ through our enabling products:** Our customized blacks are designed to enhance the performance our customers’ products. In the case of tires, they help to improve vehicle fuel economy and tire durability. In polymer applications, we have enhanced our products’ ability to block ultra violet rays to extend their useful life. Another example is our easy to disperse products, which enable our customers to realize energy savings in their production process. Our ability to produce enabling products not only contributes to avoidance of CO₂ along the value chain, but also supports value selling for differentiated performance.

Water Consumption

We will apply the principles of continuous improvement in water management to be a good steward of this vital resource and closely track availability risk in locations where we operate.



Water ponds at our Borger Plant (Tx). All of our plants in the U.S. and Brazil have water ponds to collect rain water.

Perhaps one of the most vivid images of the devastating impact climate change can have on our day to day lives come from the two extreme effects of climate change on water – flood and drought. The risk of water becoming a scarce commodity is increasing. We acknowledge the importance of being a good water steward.

Our water intake volume in 2018 declined by 1.9% compared against 2016, but moderately increased by 0.3% versus 2017. Residual water from the process is collected for either recycling within the site or discharged directly from the site after due treatment, or sent to water treatment facilities, all in accordance with the applicable laws, permits, and regulations.

The table below illustrates our water profile over the last three years:

	2016	2017	2018
Water Supply (mn m³)	11.08	10.87	10.90
		-1.9%↓	0.3%↑
Water Discharged (mn m³)	2.44	2.45	2.22
to on-site collection pond	51%	48%	50%
to municipality	34%	38%	38%
to natural body of water	10%	10%	7%
to sanitary sewer	5%	5%	6%



Recoverable water used in production process is collected in waste ponds such as the one shown here. They are reused mostly in the production process.

We conserve water and energy for certain grades where dry beading is possible

One of the uses of water in the carbon black production is making beads of carbon black. Since our customers require low moisture content, water is removed after beading by subjecting the blacks through a drying process (with heat). Both water and energy are consumed in this process. For certain grades, we have developed a beading process that does not use water. This dry beading process not only conserves water, but also saves energy (by eliminating the drying process).

Waste

We apply the principles of reduce, recycle, reuse and recover in managing waste.

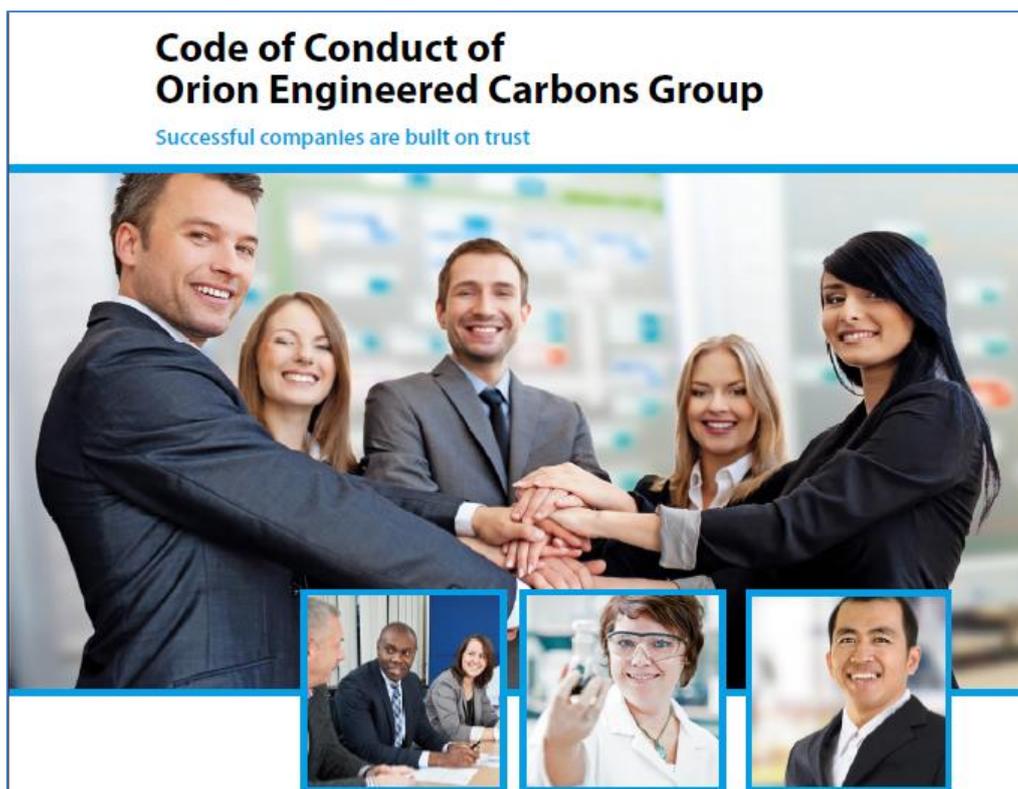
We realize that the best way to reduce waste is to avoid producing it in the first place. We have a company-wide standard for waste management that seeks to capture best practices to ensure consistency across all our operating sites.

However, we experience periodic spikes in waste generation for various operational reasons such as when feedstock storage tanks need to be cleaned for inspection. This requires disposal of the accumulated bottom oil (heavy slurry residues that cannot be used as feedstock) which are recorded as waste. Other sources of spikes include major site overhauls. As we seek to reduce SO₂ emissions, it is expected that the volume of deSO_x sludge would increase.

The following tables illustrate our waste profile over the last 2 years:

	2017	2018
Total Waste (MT)	23,026	19,341
General Trash	17%	10%
Non-Hazardous Industrial	59%	72%
Hazardous Industrial	25%	18%
Waste Intensity (kg/MT)	22.46	19.04

	2017	2018
Total Waste (MT)	23,026	19,341
Waste to Landfill	51%	57%
Recycled, reused, recovered	43%	38%
Incinerated	6%	5%



Orion's Code of Conduct is published into 10 languages, which represent all the languages spoken by our people at Orion. They include Chinese, English, French, German, Italian, Japanese, Korean, Polish, Portuguese and Swedish.

Compliance

Operational Compliance

Compliance is multi-dimensional. We comply with applicable laws and regulations, as well as with the boundaries set in the permits and licenses in effect. Operational compliance also requires active monitoring of changes in laws, regulations, policies, guidelines, and court decisions and developments in standard changes, which we carry out through our subject matter experts with the support of external consultants. For critical areas, we have established Orion standards that reflect best practices. These standards apply to all of our operating sites.

Business Compliance and Code of Conduct

In addition, we are bound by laws, regulations and policies governing how we conduct our business. While respecting cultural differences, we have elected to adopt best practices that may go beyond mere legal compliance and have codified them in our Code of Conduct. Our Code of Conduct is applicable to all Orion legal entities (i.e., all Orion production sites, laboratories, and administration office locations). It is mandatory to all Orion employees worldwide and to all associated persons – i.e., those who provide services for or on behalf of Orion, including agents.

Compliance with the Code of Conduct is verified through a periodic certification process with local compliance officers. At the core of our Code of Conduct is the belief that trust – the founding cornerstone of our relationships with our investors, lenders, business partners, regulators, and others – is nurtured by transparency. Our General Counsel is also the Chief Compliance Officer. Compliance with the Code is reviewed by the Nominating, Sustainability, and Governance Committee of the Board of Directors at least once a year.

We conduct mandatory compliance trainings for all our employees on a regular basis, including web-based and class-room trainings. Such compliance trainings are conducted by Orion's Legal Department, in some instances with the support of local legal counsel, under the supervision of the Chief Compliance Officer. The compliance training is designed to familiarize our staff with not only the broad range of subject matters covered under the

Code of Conduct, but also with our Compliance Management System. They are designed to enhance their awareness of potential risks.

Our Code of Conduct covers:

Business Conduct

- Observance of all laws and regulations
- Preventive legal counsel
- Basic law rights
- Anti-corruption
- Requesting and accepting advantages
- Offering and granting advantages
- Use of company property and resources
- Integrity in reporting
- External communications

Business Relations

- Equal treatment and fair practices
- Business incentives
- Payments

Practical Implementation of Compliance Rules

- Responsibilities
 - supervisor’s responsibility to ensure compliance
 - every employee’s responsibility to report violations
- Sanctions and consequences
- Commitment to all employees
- Training
- Compliance at OEC group companies

Avoiding Conflicts of Interest

- Secondary employment
- Substantial financial interest in competitors, customers, and suppliers
- Contracts/business transactions with relatives
- Insider trading
- Maintaining the confidentiality of internal information/trade and business secrets
- Political involvement and contributions
- Human rights, equal treatment, and fair practice
- Competition and antitrust law
- Foreign trade and export control
- Tax laws
- Environment protection, health, and safety
- Data protection
- IT security



Operational Safety

Our goal is zero safety incident at all of our sites, period.

We have a simple goal when it comes to operational safety: everyone who enters our premise is expected to leave in exactly the same condition as she or he entered the premise. This means our targets for recordable incident rate, lost time rate, and process incidents are all zero.

We operate in 10 countries with different cultural and behavioral norms regarding safety. Inside an Orion facility, however, there is one standard worldwide. Safety standards are set at the group level to embed common safety standards across all of our sites and to elevate the safety awareness of our employees, contractors, and visitors (towards achievement of our aspiration of zero incident day after day). We encourage everyone who enters our premises, even if they are not our employees, to be open about safety risks or incidents they witness or experience and to report them, however insignificant.



By refocusing on safety, we have made improvements in our journey towards zero incidents since 2014.

The table below illustrates our Operational Safety profile over the last three years:

Operational Safety	2014	2017	2018
Total Recordable Incident Rates	0.53	0.17	0.30
Lost Time Rates	0.30	0.06	0.12



As part of the process for consolidating at Yeosu our two South Korean production plants, Yeosu site completed 154 days of site upgrade/refurbishment work involving 870 workers without any recordable safety incident



Fire drill at our Paulinia plant in Brazil

Corporate Governance

Orion Engineered Carbons is committed to maintaining effective, transparent, and accountable corporate governance practices. The company's Corporate Governance Guidelines were approved by the Company's Board of Directors as a set of guiding principles by which the affairs of the Company will be governed.

Our Governance Structure

The highest governing body of Orion is the Board of Directors, consisting of eight members. Orion's management is supervised by an independent Board – five directors have no present or past Orion management experience.

The Board has three regular Committees, including the recently expanded Nominating, Sustainability, and Governance Committee. Inclusion of sustainability under previously Nominating and Governance Committee reflects the Board's, and by extension Orion management's, commitment to embed sustainability in Orion's day to day operation.

All of the Board committees are chaired and operated by non-executive, independent directors.

Accountability to comply with the Code of Conduct also means responsibility to report violations

Our Code of Conduct plainly states that “[a]ll employees must inform the Legal Department or their supervisor or promptly contact the whistle-blower system if they become aware of any violations of [the] Code of Conduct...” An independent portal is provided to report violations (http://www.orioncarbons.com/reporting_violations). It is also our policy to prevent retaliation against reporting in good faith acts of misconduct or potential violations.

The image displays two screenshots of the Orion Engineered Carbons reporting portal. The left screenshot shows the main page with navigation tabs (ABOUT US, PRODUCTS, ESHO, INVESTORS, LEGAL, NEWS, CONTACTS) and a 'We Depend on Your Cooperation: Please Report Violations!' section. The right screenshot shows a reporting form with fields for 'Submit report' and 'Login', and a section titled 'Unlawful behavior in our company has an impact on all of us!'.

http://www.orioncarbons.com/reporting_violations provides link to the actual portal for reporting acts of violation (<https://www.bkms-system.net/bkwebanon/report/clientInfo?cin=15orion4&language=eng>)



Living Our Values

People

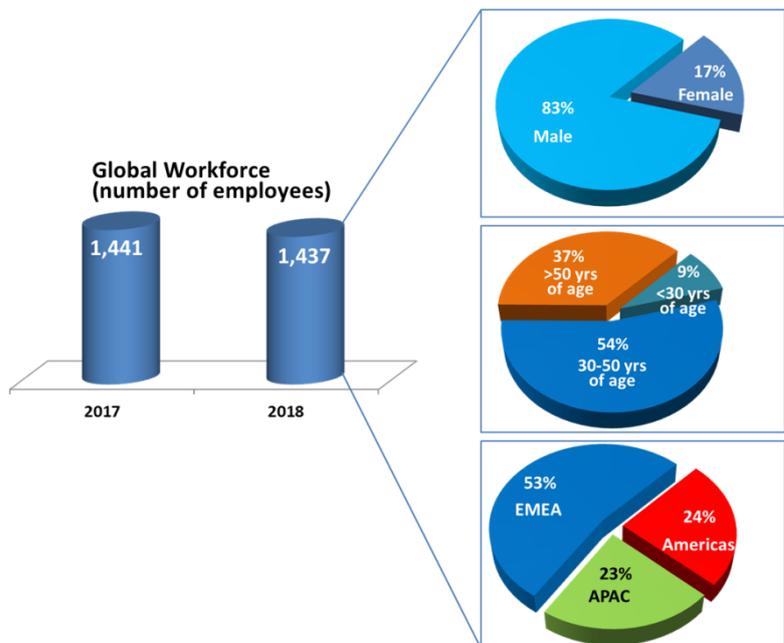
What truly differentiates Orion from the competition is our people who share a common passion: carbon black. We recognize our success is predicated on recruiting and developing a diverse global workforce. Orion’s aspirational goal is to be the employer of choice and to become the model of inclusion and diversity for our industry. We believe that openness to diversity widens our access to the best talent and inclusion allows us to fully engage that talent. Our intention is to be known for the way we welcome and develop all people, and continually strive for an environment where all our employees have an opportunity to achieve their highest potential.

Orion’s aspirational goal is to be the employer of choice and to become the model of inclusion and diversity for our industry.

With this in mind, we are planning a review of existing talent management programs in 2019 and 2020 with an aim to further align them with our aspirational goals and corporate strategy. As part of this review, we pledge to introduce, update and expand existing programs, objectives, and priorities to build upon our current baseline, with particular emphasis on (1) inclusion and diversity and (2) talent management and development. We will report our progress in our next Sustainability Report.

Inclusion and Diversity

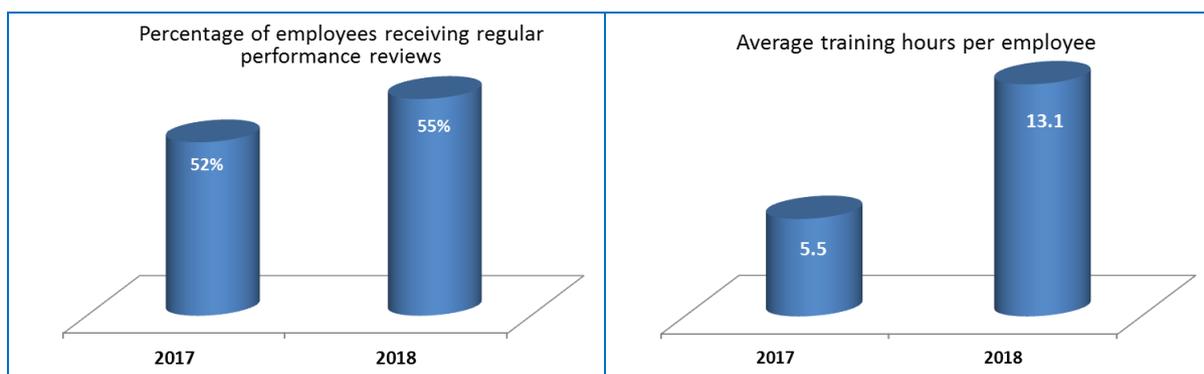
Inclusion and diversity in nationality, race, gender, sexual orientation, gender identification, and age, among others, are essential to Orion's success. By recognizing, valuing, and leveraging the differences in our perspectives and backgrounds, we build both a more welcoming environment and a stronger business model. It is our aspiration to provide our employees with an environment that promotes innovation and open communication.



Talent Management and Development

The talent management and development of our diverse workforce will be essential for our continued growth. The collective talent and engagement of our people serves as our greatest differentiator. For us, talent management and development means hiring people with the right skills and aligning employee career development goals with our corporate strategy. As we continue to compete with our peers for a shrinking number of skilled workers in the developed economies, we are renewing our talent management and development programs in 2019 and 2020 to focus on several key areas:

- **Attraction:** We will leverage our global resources to provide a superior experience to our candidates and employees to ensure that we are hiring top talent.
- **Engagement:** We will identify ways to make work more motivational, engaging, and meaningful for our employees, so they can be productive, innovative, and satisfied.
- **Learning and Development:** We will increase our investment in our employees through career development and advancement opportunities.
- **Retention:** Our work in engagement and development are key to retention, including inclusion and diversity, career management, and work-life balance.



Employee Representation

Employee representation continues to play a key role in our success; and we value the exchange of views with the local unions and works councils. We strive to partner with our employee representatives (who represent 50% of our employees) to regularly exchange information on how to best ensure success for both our employees and the Company.

Local Community Engagement

In 2019, we updated our policy on local community engagement and charitable giving. Within the strict bounds of our Code of Conduct, our objective is to build stronger relationships with our host communities and with local governmental entities, such as first responders, who are critical to operations, through volunteerism and charitable giving.

It is also our intent to share with those in need in the communities that host our operations. In South Africa, for example, we support schools in disadvantaged communities. Our volunteers visit select schools with meals to support school children who would otherwise skip lunch and encourage them to remain in school for a better future. We also participate in development programs to support individuals (including those who are handicapped) to learn new skills through apprenticeships and other programs.

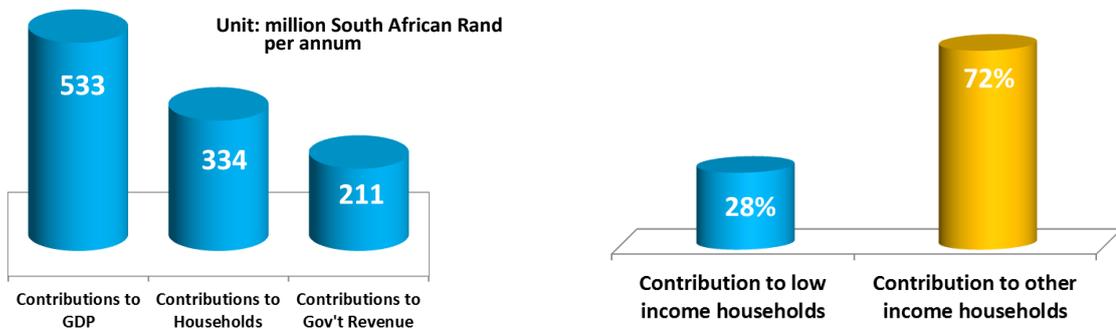
We have structured our policy to give our own site leaders the authority to set their community agendas and a forum through an internal Committee for Charitable Giving to exchange ideas and share best practices. The Committee for Charitable Giving also acts as an internal advisory board to the CEO.

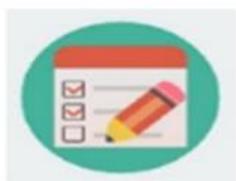
We are a substantial contributor to South Africa’s economy, especially to poverty alleviation

We commissioned a study with an international accounting firm to estimate the contributions we are making directly and indirectly to the economy of South Africa through our production facility in Port Elizabeth (PLZ). Using the well-established macroeconomic modeling for economic impact assessment, the study estimates that our PLZ facility’s operational and capital expenditures over a 3-year period from 2016 to 2018 contributed ZAR 1.6 billion (\$114 million) to South Africa’s gross domestic product. On an annual basis, this amounts to an average of ZAR 533 million (approximately \$38mn) per annum.

Contributions to household income over the same period were estimated to be over ZAR 1 billion (\$71 million), or on average ZAR 334 million (\$15 million) per annum. We were particularly pleased to learn that 28% of the contributions were flowing to low income households, a clear indication that we were having a meaningful impact on poverty alleviation in South Africa.

We were also found to be contributing to tax revenues in the order of ZAR 632 million (\$45 million), or ZAR 211 million (\$15 million) per annum.





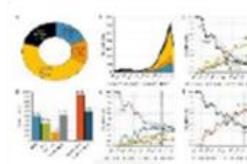
Sustainable Procurement Policies



Buyer & Supplier engagement and capacity building



Organization & resources



Internal and External Reporting Transparency

Value Chain Engagement

We have built our sustainability efforts in procurement around four pillars:

Sustainable Procurement Policy

Our procurement strategy is founded on quality, cost, delivery, and compliance. Our commitment to sustainability, in particular to ethical business conduct, extends across the value chain, including our suppliers and subcontractors (collectively “suppliers”). It begins with our vetting process. We implemented a global program to assure that all raw material suppliers are meeting our Code of Conduct and Environmental Health & Safety Guidelines. Since 2017, we have been working with Avetta for supplier prequalification and regulatory compliance validation. Those selected as our suppliers are required to sign up to our sustainability standards, including their agreement to adhere to our Code of Conduct (unless they have their own code of conduct that is of similar standards and is well established).

We also assess their compliance assurance basis. For suppliers with less robust foundations, we help them to establish a compliance assurance baseline at an acceptable level. Their performance is monitored periodically. This process enables us to work with suppliers from developing economies where our engagement not offers quality employment opportunities to the local economies, but also for our suppliers to adopt and incorporate the values reflected in our Code of Conduct into their business and management practices.

To date, over 90% of our suppliers (by value) have agreed to comply with our Code of Conduct (the remaining 10% of suppliers are those providing one time or infrequent services such as a floral shop near the office). Our goal is to achieve 100%, without exception. On-site audits and ESG questionnaires further deepen our level of understanding and confidence in our suppliers’ compliance with our standards. In cases of non-compliance in critical areas such as child labor and employee safety, it is our policy to promptly suspend business with such suppliers.

Minimizing Environmental Footprint

Our efforts to minimize our environmental footprint include supporting our supply chain partners. We have implemented various packaging solutions to minimize waste and increase loading efficiency. We are also collaborating with partners who ensure the usage of sustainable and even biodegradable materials. These efforts require full value chain participation, including our customers. Across the world, we are engaging our customers to join our efforts in collecting packaging wastes for reuse.

Enhancing Our Capability

Our people are the greatest asset when it comes to translating our strategy into action. We have completed induction training of our procurement managers to equip them with the skills to identify and assess sustainable procurement risks, and to apply our standards in the evaluation of potential and existing suppliers. The next phase of our journey is to enhance their sustainability acumen through additional training and sharing of best practices.

Ensuring Data Transparency and Accuracy

To ensure data transparency and accuracy, we have implemented a global platform which not only ensures a consistent and integrated flow of supplier spend data but also serves as universal access point to review other

supplier information. Data includes supplier audit information (including findings and follow up actions taken), supplier vetting data as well as relevant supplier certifications and contracts in place. This enables us to apply the same standards across all regions.

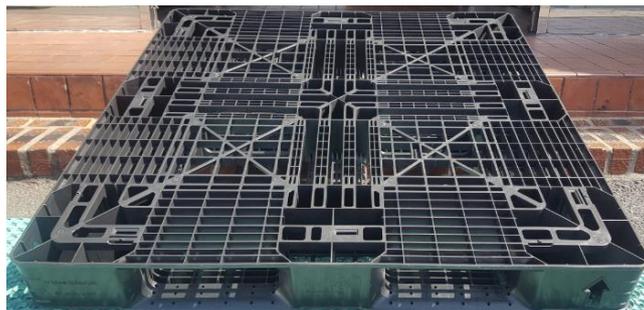
We are on a journey to continuously reduce waste and improve our CO₂ footprint across the value chain. Our objective by the end of 2029 is to establish firm commitments with our suppliers with respect to:

- Eliminate waste from the packaging of our products
- Maximize the usage of biodegradable inputs

We are also working with our logistics service providers to reduce our CO₂ footprint when transporting our goods or receiving our supplies

Sustainable Procurement Targets (all targets set for 2029, unless stated otherwise)

- 100% of suppliers signing up to our Code of Conduct
- For sites using plastic pallets, 100% of pallets to be made from recycled materials
- 75% of pallets used at all sites to be reused
- 95% of paper bags used all sites to be made from recycled paper
- 100% of packaging bags used at all sites to be reused or sent to recycling centers
- 30% reduction in our CO₂ emissions from freight
- Complete the next level sustainability training for procurement managers by end-2020



We use pallets made from recycled plastic (poly propylene) at many of our sites. In the case of our Yeosu site (South Korea), all of the pallets in use are made from recycled plastic.

ESG Fact Sheet

Environmental Performance	2017	2018
Greenhouse Gas (GHG) Emissions (MT)		
Scope 1	2,727,716	2,593,577
Scope 2*		205,365
Normalized GHG Emissions (MT)		
NOx Emissions (MT)	18,834	18,725
SO ₂ Emissions (MT)	5,522	5,283
Particulate Matter Emissions	555	605
Waste Generation (MT)		
Hazardous Waste	5,655	3,533
Non-hazardous Waste	17,371	15,080

* Scope 2 emissions data is available from 2018. Scope 3 data will be provided in our next report. We will also consider setting reduction target for Scope 2 emissions.

Health and Safety Performance	2017	2018
Hours Worked	3,483,176	3,319,580
Work Ratio (% of Employee Hourly) Production Fixed	85%	83%
General Admin (G&A)	15%	17%
Employee DART Case Rate	0.06	0.12
Employee Total Incident Case Rate	0.17	0.30
Employee Fatalities	0	0
Contractor Fatalities	0	0

Workforce Statistics	2017	2018
Total Employees	1,441	1,437
Bargaining Unit Employees	649	719
as a percentage of total	45%	50%
Total Females	248	245
as a percentage of total	17%	17%
In management roles (%)	12%	12%
Total Employees by Region		
Americas	348 (24%)	349 (24%)
APAC	366 (25%)	328 (23%)
EMEA	727 (51%)	760 (53%)
Total Employees by Age		
<30 years of age	126 (9%)	127 (9%)
30-50 years of age	768 (53%)	779 (54%)
>50 years of age	547 (38%)	531 (37%)
Total Employees Receiving Regular Performance Reviews	747 (52%)	793 (55%)
Total Workforce Receiving Training	1,282	1,331
Average Training Hours per Employee	5.5	13.1
Voluntary Turnover Rate	3%	4%

Attachment 1 – Normalization

In addition to reporting the actual CO₂ intensity – defined as greenhouse gas in CO₂ equivalent emitted to produce one metric ton of carbon black – it is also reported on a normalized basis to neutralize the following two variables that materially affect CO₂ intensity: feedstock and product mix.

Generally, coal-based feedstocks, such as coal tars either in crude or distilled forms, yield higher amounts of carbon black under the same operating conditions than petroleum based feedstocks, such as slurry oil from refining process. The yield variances can be as large as 20%, purely on account of the feedstock quality. While our preference is to use coal-based feedstock when available, a number of factors come into play in our procurement decision, including availability, yield adjusted cost differences, quality of available feedstock and operational compatibility with the final products and environmental regulations.

Product mix is the other variable that materially impacts CO₂ intensity. Even within the family of standardized ASTM carbon black products, production of soft blacks typically yields higher amounts of carbon black than production of standardized hard blacks, thus generating lower CO₂ intensity. Non-ASTM proprietary Orion grades of carbon black are used for purposes like reducing tire hysteresis and boost vehicle fuel efficiency. Non-standardized products like these or others for specialty applications are typically harder to make, require longer residence times and have a slightly higher CO₂ intensity. We believe these materials are a net-positive for the environment considering their lifetime and value chain effects.

As we increase the share of specialty grades in our product mix and push the technology envelope to meet our customers' needs for highly advanced carbon blacks, there will be a corresponding deterioration in our CO₂ intensity.

Accordingly, in order to track and assess our underlying environmental performance, CO₂ intensity is also calculated in a normalized way to remove variances arising from the above 2 elements. Target for CO₂ emissions are set for the normalized data.

The baseline is 2014, and the effects of variances in feedstock and product mix are quantified and eliminated year-over-year. This allows us to observe yield changes resulting from changes in operational conditions and therefore informs us whether or not we are making underlying performance improvements at our production units.

Attachment 2 - OEC Global EHSQ Management System

Protection of humans and the environment, fair treatment of our partners, and a clear alignment to the needs of customers are the essential components of our activities. Therefore, we not only comply with all applicable laws but strive to continuously improve our performance and management systems. Our goal is to have world-class EHSQ programs and performance, and continuously strive for improvement in all of our operations.

The Orion Engineered Carbons (OEC) Global Integrated Management System Manual with the global standards/processes established, are grounded on the principles of the ISO 9001 Quality Management System, ISO 14001 Environmental Management Systems, OSHAS 18001 Safety Management System, and the US recognized Standard for Occupational Health & Safety Management Systems, ANSI Z-10 and OSHA VPP.

Orion's Integrated Global Management System:

- Establishes and outlines the management systems designed to eliminate or minimize risks to personnel, communities, the environment, and other interested parties who could be affected by Orion's activities;
- Implements and requires maintenance and continual improvement of our Environmental, Health, Safety, and Quality management system;
- Provides a reference document to assist Orion employees, and particularly new Orion Leaders and Environmental, Health, Safety & Quality professionals in understanding the individual components; Provides a consistent framework for facilitating certification of Orion's Global Management System, as evidenced by our Global Certifications.

The Global Management system describes the OEC processes and procedures practiced in relation to environmental protection, occupational and process safety, health protection, and quality management including sustainable compliance, social accountability, and product stewardship.

Significant Environmental and Safety Aspects and Goals

Using the OEC EHS as a foundation, we have identified our significant environmental, health, and safety aspects on a business-wide basis and have established qualitative objectives and quantitative targets for each.

These aspects include the following:

- Reduction of Injuries and Illnesses
- Reduction of Air Emissions
- Reduction of Chemical Spills and Releases
- Reduction of Fires and Process Safety Incidents

Sustainability – Protecting human health and preserving the environment is paramount to sound corporate governance, preservation of the value of our business, and satisfaction of our social responsibility and our duty to future generations. Accordingly, Orion is committed to conducting its operations safely and in compliance with all applicable environmental, health, and safety (“EHS”) requirements, and minimizing the environmental impact of our global operations. Our global Environmental, Health, Safety and Quality Policy (“EHSQ”) is central to the company's corporate governance and assures that all Leaders and Employees share Orion's commitment to ethical business practices. This policy guides us on how to put this commitment to work and sets the expectation that all employees adhere to the ethical standards and laws in all regions where we operate. Our EHSQ Policy, together with our Code of Conduct, and Prevention of Corruption Guidance, demonstrates our firm commitment to a sustainable business for our customers, shareowners, employees, neighbors, and business partners.

Environmental, Health and Safety Management - Our Global Management System (GMS) Standards and checklists are the foundation for our management system tool and assessment process designed to assure that all of our facilities have a strong safety (EHS) culture, clear procedures, and participation by the workforce. There are five strategic focus areas: **1 – Review and Mitigate Top Risks; 2- Global Management System Standards; 3- Sustainability and Continues Improvement; 4- IT Systems to Support Global EHSQ Infrastructure; 5- Global Product Stewardship.** Each of these focus areas are subdivided in

several program requirements, e.g. EHSQ Policy, Expectations and Appraisal, Hazard Analysis, Employee Engagement, Incident Management, Training, Inspections, Personal Protective Equipment, Contractor Management, Emergency Preparedness, Job Safety Analysis, Management of Change, Safe Work Permit, Risk Assessment Risk Management; Lock-Out/Tag-Out, etc. The implementation status of each focus area is measured periodically by a self-assessments and business level audits which is reported to business management.

Process Safety Management (PSM) - Our manufacturing sites are designed and operated to minimize potential adverse environmental, health and safety impact. We regularly analyze hazards to identify, manage and minimize potential risks, and routinely inspect and perform timely repairs on critical equipment. The Orion PSM covered systems include:

- a) CBO Supply Systems – Piping, pumps, tanks, containment
- b) Reactors – Refractory, Shells
- c) Air Preheaters, Oil Preheaters, Waste heat boilers – Bundles, Shells
- d) Smoke Headers – Piping
- e) Bag Filters – Including Primary Bag Filter, Conveying Filters, Dryer Exhaust Filters – including filter housings and filter bags
- f) Tail Gas Headers – Piping, Blowers, Auxiliary equipment
- g) Dryers – Combustors, Drums
- h) Carbon Black after treatment unit e.g. DeSOx and DeNOx
- i) Cogeneration

The PSM protocols are consistently used globally and address: Process Hazard Analyses, Operating Procedures, Training, Mechanical Integrity, Management of Change, Pre-Startup Safety Reviews, Contractors, Hot Work, Risk Assessments and Audits, among other elements of the system. We have developed this into a globally applied Process Safety Management system that also meets the SEVESO II requirements in Europe. Additionally, we implemented several management review processes to ensure continual improvement in the PSM area.

Monitoring and Measurement of EHS Performance – Our manufacturing sites are required to undertake an annual self-assessment of their compliance with applicable legal and company EHS requirements. Exceptions are noted, and corrective actions are tracked to closure. These self-assessments are backed up by corporate audits (see Compliance Assurance below).

As part of the overall management system, EHS performance is measured, tracked, and goals are set to promote continual improvement. Progress on meeting our EHS objectives and targets are monitored through a performance tracking system where over 25 EHS metrics are reported to the business by each manufacturing facility monthly. This allows priorities to be established in line with our EHS performance objectives.

EHS performance goals and data are shared between regions and with Orion corporate management to facilitate EHS performance improvement.

Regulatory Responsibilities – Systems are implemented to proactively monitor and assess new and amended EHS regulations to ensure continued compliance is maintained. Each manufacturing sites has an EHS Manager and, depending on the size and complexity of the site, additional EHS professional staff is available. Also, each area has a Regional EHS Manager, which is supplemented by the Global EHS organization. The site EHS staff relies on a variety of tools to identify and assure that it complies with applicable regulatory requirements. These include: access to EHS regulatory web-sites, industry associations, internal OEC Subject Matter Experts (SME), annual regulatory compliance self-assessments as required by applicable GMS standard, periodic compliance assessment conducted by the Regional EHS Manager, the Global EHS organization, and frequent interaction and reviews between the site EHS team and the Global EHS organization.

Compliance Assurance – To augment site self-assessments, and the periodic EHSQ Audits conducted by the Global EHS and Quality organization, we are supplemented by the 3rd party Certification Auditors (DQS) that periodically conducts audits to assess adherence to legal and company EHSQ requirements. The results of these assessments are reported to the Orion executive leadership.

The results of compliance assessments and audits are documented, and corrective actions are tracked to timely closure. Global EHS compliance audits are typically focused on environmental, occupational and process safety systems. The frequency of these audits ranges from one to three years based the size and complexity of the operation, and the corresponding level of EHS risk. The audit protocols are periodically reviewed by Orion and outside EHS experts and updated as necessary to incorporate changes.

All findings from both self-assessments and Global / Regional / 3rd party level audits are classified as either Compliance or Noncompliance findings and are entered into an electronic Audit Tracking System (ATS) database. To the extent any compliance issues are identified, OEC has established a rigorous audit closure tracking process that involves assignment of individual accountability, a fixed period for closure and continually tracking of the status until the audit finding has been closed.

All of manufacturing sites that are certified to ISO 9001 and ISO 14001 standards also conduct an internal audit of their ISO 9001 and 14001 Environmental Management Systems, and undergo 3rd party certification audit.

Incident Investigation and Corrective Action – All incidents within Orion are considered important events and treated as such in order to determine the causes and prevent recurrence. Therefore, all incidents are reported, evaluated to determine the appropriate classification according to the severity, and investigated to determine the causes; incident learning(s) are summarized and communicated with the appropriate work group; and the corrective actions are tracked to closure.

Orion has implemented Gensuite – an electronic database to facilitate incident management system. Investigation report information is automatically retained in the database and can be mined for trend analysis to be used for continual improvement in our facilities around the world.

Security Programs – Orion has implemented security systems designed to identify security risks to our business, protect our assets, and be capable of responding effectively to security threats. A security hazard analysis and vulnerability assessment has been conducted at each facility and security standards have been met consistent with the specific risks identified. The site-specific security asset protection programs include perimeter protection, access control, security monitoring and incident reporting, and emergency response planning.

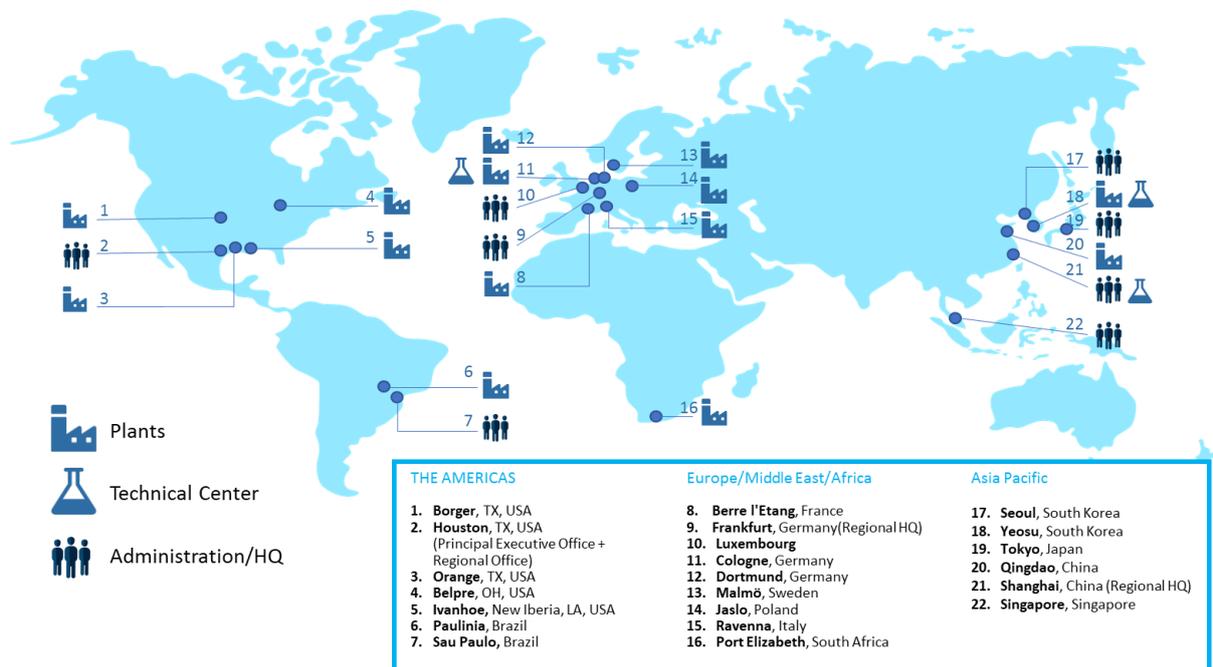
Supplier Qualification – Orion has implemented a global program to assure that all raw material suppliers are meeting our Corporate Code of Conduct and EHS Guidelines. In 2017, we established an affiliation with Avetta that provides Supplier prequalification and regulatory compliance validation. The objective of this program is to help assure that our supplier base is operating in accordance with applicable EHS regulatory requirements, industry-standards; and is employing fair labor practices and respecting human rights.

Management Review – Top management (e.g. CEO, Business Leaders, Innovations, Global EHS VP, and Quality Leaders) review and evaluate EHSQ performance periodically. The intent is to ensure the management systems are suitable and effective in allowing our organization to execute its targets, goals, and objectives. Management reviews facilitate continual improvement of overall EHSQ performance.

A formal Regional review(s) are also conducted - the Plant Manager for every manufacturing site globally presents the status of the site's EHSQ systems to Regional management. The following are typically reviewed during these sessions:

- Global progress/performance in meeting the business EHSQ goals and site-specific objectives and targets
- Key accomplishments achieved in the last 12 months
- Critical EHSQ actions, programs, and projects planned for the next 12 months
- Compliance status and potential concerns
- Emergency response preparedness
- External Audits, Awards, and Certifications
- Leadership and opportunity for improvement

Attachment 3 – Our Locations



FOR YOUR Reference

Orion has published the following materials relevant to our impact initiatives, which serve as additional background on our policies, strategies and communications. Please visit www.orioncarbons.com for more information.

- **2018 Form 20-F**
- **Code of Conduct**
- **Board Committee Charters**
- **Insider Trading Policy**
- **Compliance Guidelines**