ENGINEERED CARBONS

We are Passionate about Carbon Black

Incorporating sustainability into our strategy

2019 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, innovation and sustainability.

Our Sustainability Pillars

- **Sustainable growth**
- Being **compliant** in our day to day operations
- **Living our values** by implementing relevant social agenda and
- **Driving sustainability** along our value chain

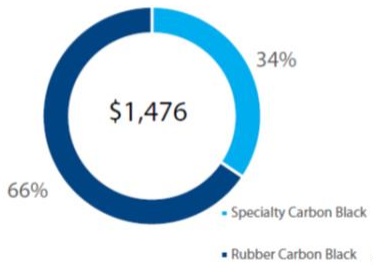
Financial Snapshot (year ending on December 31)

Sales Volume	1.0 million metric tons[1] (2019) 1.1 million metric tons (2018)
Revenue	$1.5 billion (2019) $1.6 billion (2018)
Adjusted EBITDA	$267 million (2019) $294 million (2018)
Adj. EBITDA Margin	18.1% (2019) 18.6% (2018)
Dividend per Share	$0.80 (2019) $0.80 (2018)
Adjusted Earnings per Share	$1.87 (2019) $2.21 (2018)

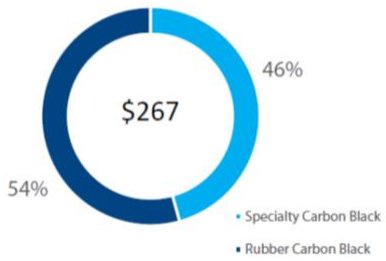
OUR COMPANY

Orion is a worldwide supplier of carbon black. We produce 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 that 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. Orion operates 14 global production sites and has over 1,400 employees worldwide.

2019A Sales by Segment ($MM)



2019A Adj. EBITDA by Segment ($MM)



About this report

This report highlights the sustainability topics that were determined to be relevant to Orion through materiality assessment conducted in 2019. We are in the process of adopting the reporting standards set forth by the Global Reporting Initiative (GRI). We will provide an index to the GRI standards in future reports. The sustainability information contained in this report reflects our combined performance at our locations where we had operational control and ownership during the 2019 calendar year. Unless noted otherwise, information on environmental, social and governance presented in this Report covers our business activities during the year.

Since issuing our first Sustainability Report in July 2019, we have strengthened our internal review process. Data corrections have been noted in this Report where we have determined that corrections are required to ensure consistency across all of our operating sites and for other reasons. All sustainability data presented in this Report have been internally audited with the support of external consultancy.

For questions or comments regarding this Report, contact Investor-Relations@orioncarbons.com.

[1] The terms "metric ton" and "ton" are used interchangeably throughout this report.

CONTENTS

Forward-looking Statements

The content in this Sustainability Report, including documents or reports incorporated herein by reference, should be read in conjunction with Orion's Annual Report for the year ended December 31, 2019, which contains additional information about our company. This Sustainability Report may contain 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,

In 2019, we focused on getting our ESG (Environment, Social and Governance) fundamentals right. The actions we took include:

- adding sustainability to the remit of our Board's Nominating, Sustainability and Governance Committee;
- setting clear emissions reduction targets for greenhouse gases (GHG), sulfur dioxide (SO_2), nitrogen oxide (NOx) and particulate matters (PM), as well as for improving overall energy recovery rate;
- updating policies on important social issues, such as strengthening our policies on non-discrimination;
- laying the groundwork for a learning platform to broaden employee training opportunities (which was launched in early 2020);
- expanding community support programs; and
- publishing our first sustainability report.

We have built on this foundation with further actions[2] including:

- increasing independence and enhancing diversity of our Board of Directors;
- conducting our first employee engagement survey and taking prompt actions in select areas, such as significantly enhancing learning options;
- commissioning enhanced air emission controls at three plants;
- creating a community support program and making PPE donations and other related items during the pandemic; and
- establishing stronger controls around sustainability data reporting to ensure consistency across all of our operating sites

The employee engagement survey revealed high marks for employee loyalty, excitement for the changes at Orion, and strong support for our newly declared values. It showed opportunities for improvement in training and development, work processes, work systems, and communications. We have taken steps to make improvement in each of these areas. For example, we have completely revamped our business process ownership program and set clear expectations around simplification and clarity. We are particularly pleased that our efforts in embedding sustainability into our management framework was recognized by EcoVadis in 2019 with a gold medal rating.

As a responsible carbon additive producer, offering sustainable products to our customers is a critical component of our strategy to drive sustainability across the full spectrum of our industry value chain.

We see sustainability as an opportunity and are working to make it an integral part of our strategy. Our sustainability strategy is grounded on sustainable supply chain, sustainable operations and sustainable product portfolio. As a responsible carbon additive producer, offering sustainable products to our customers is a critical component of our strategy to drive sustainability across the full spectrum of our industry value chain. We currently have three focus areas:

- Recycled carbon blacks
- Green carbon blacks
- Enabling carbon blacks

Recycled Carbon Blacks

Advancing sustainability requires transitioning away from "business as usual" and adapting to a changing business environment to deliver value to stakeholders on a sustainable basis over the longer term. We

[2] These actions were taken between the publication dates of the 2018 Sustainability Report and this Sustainability Report.

believe that one such transition is shifting from a linear economic process – where scarce resources are extracted and processed, and used products are discarded – to a circular economy. In this economic system, used products are recycled to create a virtuous circle, leading to resource preservation and other sustaining benefits. We are pleased to be part of the BlackCycle project, a European Union funded project that targets recycling of end-of-life tires (ELT).[3] We will use recovered oil from end-of-life tires as a feedstock for carbon black. We believe that recovery of oil from ELT is an important step in achieving an economically viable circular value chain in our industry.

Green Carbon Blacks

We have developed a process technology to produce carbon black from plant oils, a renewable feedstock source, and have included a plant-oil based carbon black in our product portfolio: *PRINTEX® Nature* which is our first-generation green carbon black. It can be used as additives in a wide range of applications, including printing inks, polymers and coatings. Building on this experience and knowhow to further our efforts in the green carbon black space, we are looking at both addition carbon black products that can be produced with plant oils and searching for new renewable feedstock sources.

We have developed a process technology to produce carbon black from… renewable feedstock… and have included a plant-oil based carbon black in our product portfolio….

Enabling Carbon Blacks

Carbon black is an additive that enhances the physical, electrical and optical properties of our customer's end products. Our core competencies include the ability to engineer the physical properties of carbon black to meet the functional needs of our customers. For example, we have developed a new surface-modified carbon black for tire application, designed specifically to reduce tire rolling resistance without compromising wear resistance. If successful, this technology will reduce fuel consumption while extending the tire's useful life and reducing microplastic generation per mile. Another core enabling role we see for carbon additives is in energy storage as conductive agents. Here for example, lithium ion battery powered electric vehicles are anticipated to replace internal combustion engine vehicles and improve air emissions.

We are also enhancing our R&D capability by opening a new technical service applications laboratory in New Jersey (USA).[4] This new laboratory in the U.S. is part of Orion's global network of four laboratories – others are located in Germany, China and South Korea. The new laboratory will accelerate customer support, new product introductions, and strengthen our business in the Americas region.

Safety is our highest priority. In 2019 one of our areas of focus was improving all aspects of safety reporting. Unfortunately, we suffered two setbacks. Tragically, we suffered a contractor fatality at one site. More broadly, we saw our performance in terms of recordable and lost time injuries deteriorate albeit to levels that were still better than average performance in the chemical industry. We have taken measures to learn from our experiences in 2019, which we believe will strengthen our operational safety performance. Thus far performance in 2020 has been much better.

We support the strengthening of environmental standards that are informed by the best, commercially applicable technology available. We approved projects in 2019 to invest $13 million to reduce emissions of SO_2 and NOx at our sites in Qingdao (China) and Yeosu (South Korea) and completed them in 2020.We also successfully upgraded in 2020 the emissions control system at our production facility in Orange, Texas to comply with the strengthened environmental standards for NOx.

We support the strengthening of environmental standards that are informed by the best, commercially applicable technology available.

In the area of energy recovery, we approved in 2019 capital investment at our Qingdao site in China to upgrade the site's cogeneration system to increase the power generation capacity nearly threefold to 12 MW and to provide hot water to the local community district heating system. The district heating project was completed in 2019 and cogeneration project is on track for completion in 2020. Through this project, the site

[3] For more detail, see https://cordis.europa.eu/project/id/869625

[4] See our press release dated February 24, 2020 (https://investor.orioncarbons.com/press-releases/press-releases-details/2020/Orion-Engineered-Carbons-Officially-Opens-New-Technical-Service-Applications-Laboratory-in-New-Jersey/default.aspx)

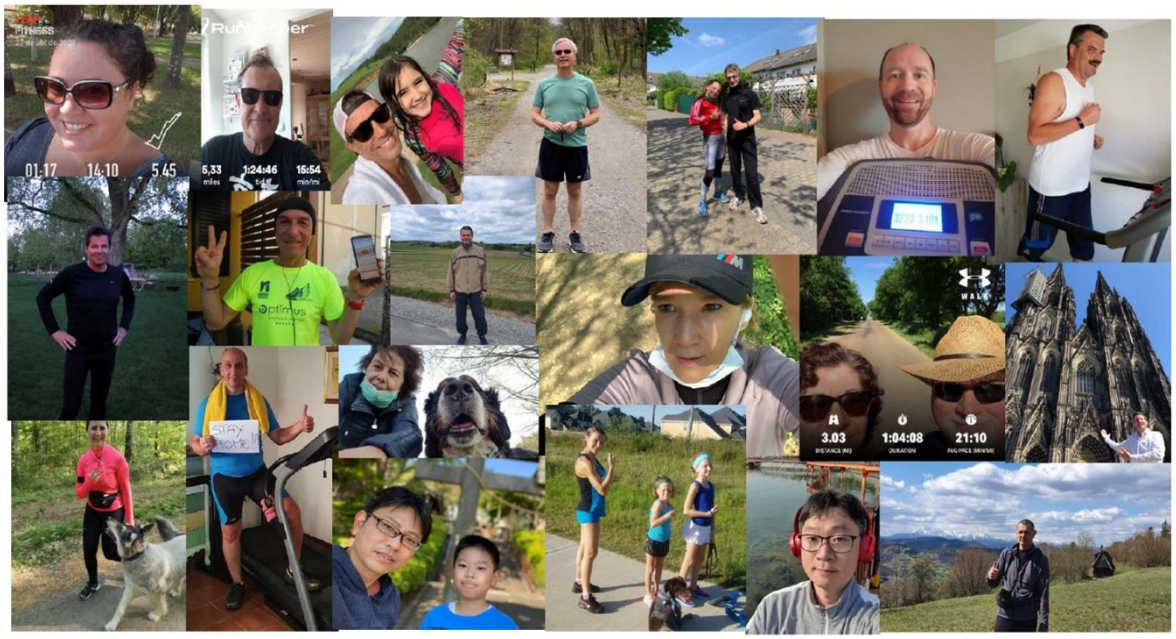
should be able to meet all of its internal demand for electricity, whilst also exporting excess power to the grid. This will not only enable us to reduce our Scope 2 emissions, but also reduce coal emissions associated with district heating and the power generation.

We take this opportunity to express our appreciation to the first responders and healthcare professionals who are on the frontline in the fight against COVID-19. Using our new community support program, we have extended assistance at various locations where we operate, for instance, by making financial and in-kind donations such as high-quality masks and other personal protection equipment. We intend to continue to remain engaged with our host communities as we strive together to overcome these challenging times.

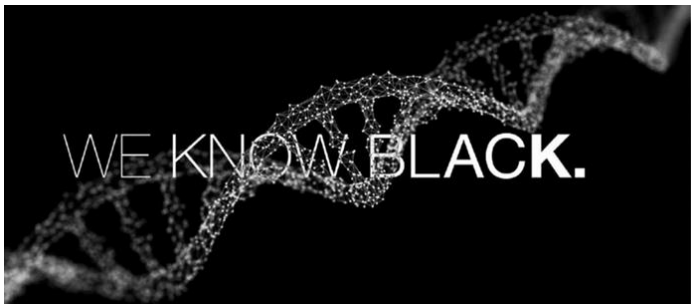
I would like to thank our stakeholders for the continued interest in Orion. I would also like to thank our employees for their dedication and commitment in making sustainability an integral part of Orion.

Very truly yours,

Corning F. Painter
Chief Executive Officer



Orion employees in all three Regions (Americas, APAC and EMEA) participating in an internal walkathon event – one of many ways to stay connected to function as One Team



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. In addition to the principal executive office in Houston (U.S.), we have offices in Luxembourg, Frankfurt (Germany), Cologne (Germany), Shanghai (China), Seoul (South Korea), Tokyo (Japan) and other locations. Our principal R&D center is located in Cologne (Germany). We also have laboratories to support our customers in Shanghai, China and Yeosu, South Korea. In 2019, we announced our plan to open a new technical service applications laboratory in the State of New Jersey (U.S.). In addition to serving our customers in the Americas region (e.g., enhancing collaborations with our customers and enabling them to accelerate their research and development in formulations containing carbon black), the new laboratory will take on projects with global application and investigate fundamental advancements in carbon black technology. See Attachment 2 for our location map.

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), 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.

Our carbon black business is managed 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.

- 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.

Our Governance Structure

Our Board of Directors' Nominating, Sustainability and Governance Committee has the remit for overseeing sustainability. Orion's CEO has the accountability for sustainability to the Board with the mandate for strategy, risk management and opportunity capture, performance target setting and delivery, resource allocation, and capturing lessons learned. The CEO is supported by his direct reports who are responsible for businesses and various functions in carrying out the Board-mandated responsibilities for embedding sustainability into the Orion management framework and corporate strategy.

Governance Structure

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

These values have been identified by our employees as being core to who we are, and to what we are committed to becoming. These values express our 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; 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.

[Our] values have been identified by our employees as being core to who we are, and to what we are committed to becoming.

Stakeholders and Engagement Platforms

We aspire to gain the trust of our stakeholders by being a responsible corporate citizen. Our assessment of material sustainability topics that are reported through this Report has been informed by our engagement with the stakeholders, including investors and lenders, customers, employees, local communities, regulators and policy makers, and suppliers.

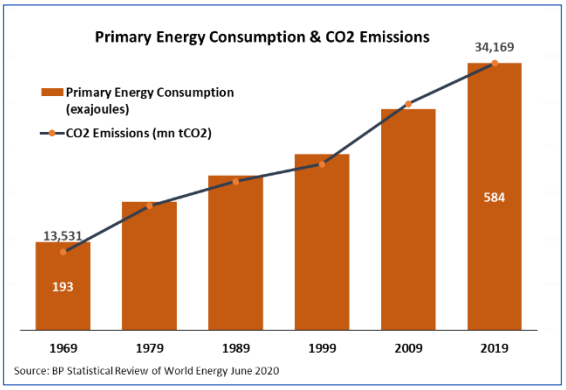
Investors and Lenders	Customers
SEC filings, quarterly earning calls, in-person meetings, conferences, and calls.	Direct engagement, joint development projects, site visits, site audits, surveys, and sustainability performance reviews.

Employees	Communities
CEO monthly briefings to company leaders and video recordings, management site visits and employee meetings, town halls, intranet communications, and trainings (classroom, one-on-one, and electronic).	Community events, site visits, sponsorship programs, charitable giving, and staff volunteerism.

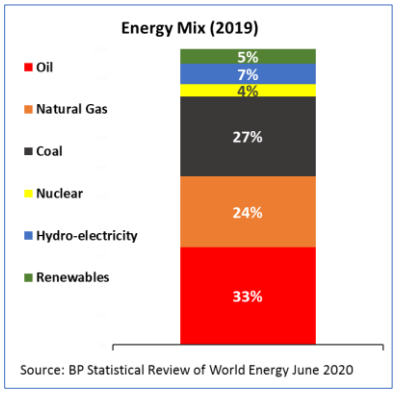
Regulators	Suppliers
Site visits, inspections, filings, and other engagements through various official forums.	Supplier site visits, inspections, audits (risk-based prioritization), meetings, and technical briefings.

Sustainability and Corporate Strategy

There are many facets to sustainability that cover a broad range of topics that need to be included in the management framework. This is to ensure the relevant risks are being managed while actions are being taken to capture the new business opportunities that arise from paradigm changes. One particularly relevant aspect of sustainability to our business strategy is climate change and the drive to reduce greenhouse gas (GHG) emissions from business activities.

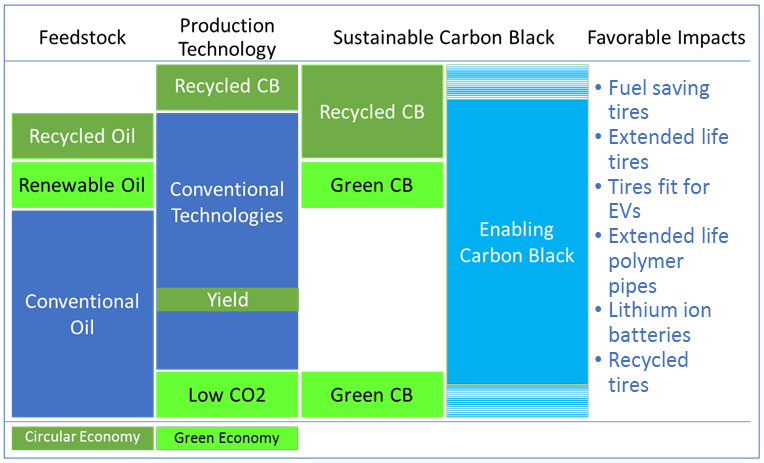


According to BP Statistical Review of World Energy (June 2020), primary energy consumption has grown at 2.2% CAGR over the past 50 years, from 193 exajoules in 1969 to 584 exajoules in 2019. GHG emissions have also grown over the same period at 1.9% CAGR, from 13.5 billion tCO_2 to 34.2 billion tCO_2. While we have seen growth in renewable energy, as of 2019, they accounted for just 5% of the total energy mix. Fossil fuel (oil, natural gas and coal) has the largest share of the energy mix at 84%. These trends are widely believed to be unsustainable to contain global warming, inviting governments to take actions to curb GHG emissions.



Over a reasonable time horizon, we believe that more and more jurisdictions are likely to adopt mechanisms such as cap-and-trade and CO_2 tax that would place a price tag on GHG emissions to encourage investments in low carbon options. In the jurisdictions where we have operations, cap-and-trade regimes are in place in the European Union and South Korea. This is likely to impact not only our own operations but the entire industry value chain. We have therefore taken a broader value chain approach in developing our corporate strategy with the intent to become an industry leader in addressing the climate change challenges. To this end, we are exploring alternative, eco-friendly technology options in

- feedstocks (use of renewables and recovered oil from end-of-life tires);
- production process (yield improvement, low CO_2 emitting production technologies and recovery of used carbon black in ELTs); and
- production of carbon additives that enable our customers to advance sustainability (e.g., high performance tires that reduce fuel consumption, tires fit for electric vehicles, conductive additives for lithium ion batteries, etc.).



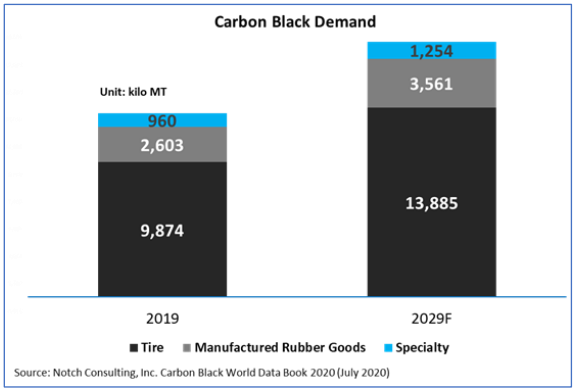
The timeline and implementation of various technology options we are, and will be, exploring will depend on the extent of their technical maturity and commercial feasibility.

Emissions reduction from operations

The carbon black production process by its nature is inherently aligned with the GHG initiative. Our contribution comes in the form of (1) removal of carbon content in liquid feedstock that would otherwise be used as liquid fuel; and (2) avoidance of GHG emissions by using tail gas as fuel.

- Carbon black is produced from liquid feedstock that, in most cases, would otherwise be burned as fuel. The extraction of carbon from feedstock reduces GHG emissions.

- While we strive to extract as much of the carbon content as possible from our feedstock, a portion of carbon remains in the residual tail gas due to limitations in today's technology. This leads to GHG emissions from the carbon black production process. We endeavor to squeeze as much of the remaining energy content in the tail gas as we can to produce energy for captive and for third party use. In the production process, tail gas is used as fuel to generate heat in the drying process and the remaining tail gas is used as fuel to generate electric power, steam and/or hot water. Making full use of the tail gas helps to reduce fossil fuel consumption, contributing to avoidance of associated GHG emissions.



A key component of our sustainability strategy is to reduce GHG intensity through yield improvement, that is extracting a higher proportion of the carbon in our feedstock. Increasing yield enhances not only our sustainability performance, but also our financial performance as it reduces our input costs.

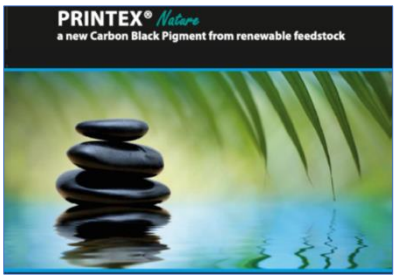
Circular economy

In a linear economy, resources are extracted, processed, consumed and discarded. Breaking this chain to shift recycling and reusing to the mainstream economic model is widely viewed as an important component in reducing the environmental footprint from economic activities. According to Notch Consulting, tire production is estimated to have accounted for 73% of the global demand for carbon black in 2019.[5] Tire's share of the global demand for carbon black is projected to remain at a similar level over the next 10 years. We believe that realizing circularity in the tire industry presents the largest prize for the carbon black industry. To this end, we are pleased to be part of a European Union funded project to test the viability of using recovered oil in the production of carbon black for tire production application.[6]

BLACK CYCLE
Move to the green revolution

Green economy

Included in our product portfolio is *PRINTEX® Nature*. It is our first-generation carbon black produced with a plant oil, a form of renewable feedstock. Its colloidal properties enable it to be used in various applications, including polymers, coatings and printing inks. We are further exploring ways to broaden our product portfolio based on plant oils and searching for other forms of renewable and alternative feedstock sources.



Enabling products

We have the broadest range of carbon black production technologies that include furnace black, acetylene black, gas black, lamp black and thermal black. These technology bases, coupled with our process knowhow, enable us to produce a wide range of products that are engineered to enhance specific functionality of carbon black to meet our customers' application requirements. Our portfolio of carbon blacks for tire applications includes products that are engineered to support our tire customers' needs. For instance, tires with enhanced rolling resistance that lead to lower fuel consumption typically have reduced useful life. Conversely, tires with extended longevity typically have weaker rolling resistance. Recently, we have developed a new, surface modified carbon black which we believe would contribute to production of tires that would advance fuel savings through improvements in rolling resistance, but without compromising their useful life. Our portfolio also included advanced acetylene blacks designed for applications in lithium ion batteries as conductive agents to fuel electric vehicles.

[5] Notch Consulting, Carbon Black World Data Book 2020 (July 2020)

[6] BlackCycle project. For more detail, see https://cordis.europa.eu/project/id/869625

In summary,

- Feedstock: we are exploring alternative feedstock sources to fossil fuel by exploring oil extracted from end-of-life tires and renewable sources. These endeavors would lead to recycled carbon blacks and green carbon blacks.
- Production technology: in addition to improving yield to reduce GHG intensity, we are exploring ways to extract used carbon black in end-of-life tires to reuse them in tire and other applications. Extracted, used carbon blacks would form part of our recycled carbon black offer. We are also investigating alternative, low GHG emitting carbon black production technologies that could potentially replace existing technology.
- Enabling carbon blacks: through our carbon black products we are supporting our customers to enhance the performance of their products to promote sustainability across our industry value chain.



Sustainability Framework

Environment impact, social issues and governance practices across the value chain of the carbon black industry provide the framework for our approach to sustainability. We have grouped sustainability subject matters that are relevant to us under the following 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 consumption (including avoided CO_2 through product sustainability)
- Water consumption
- Waste generation

Compliance

As a responsible corporate citizen, we are committed to the operating standards set out in the applicable laws and regulations, and our policies in the areas of

- Operational Safety
- Operational Compliance
- Business Compliance
- Trade Compliance
- Code of Conduct
- Corporate Governance

Living Our Values

We are committed to living our values by addressing difficult but important social agenda. For instance, we believe in basic human rights and 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 are committed to continuous improvement in strengthening sustainability along our value chain.

- Sustainable procurement
- Minimizing environmental footprints
- Supporting human rights
- Enhancing our capabilities in training and data transparency

1. Sustainable Growth

Emissions and Energy

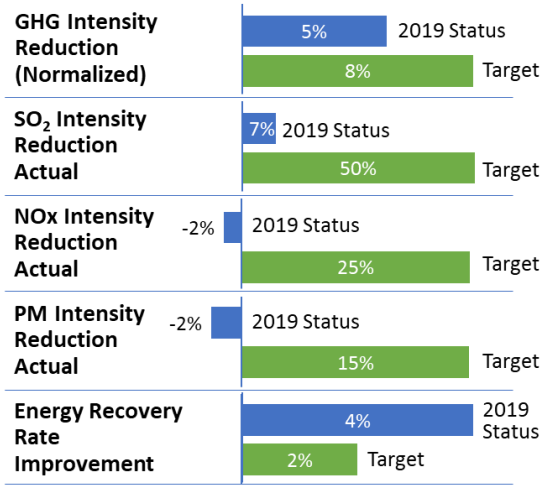
Targets and 2019 Status

Our environmental footprint is measured by emission levels of greenhouse gases, sulfur dioxide, nitrogen oxide and particulate matters. In 2019, we established reduction targets for these four items. Management of day to day operations to reduce emissions and achieve the stated targets rests with the Global Operations function, which captures and disseminates best operating practices across all of our production sites. We have made investments over the years to improve our yield and reduce GHG, and to install air pollution control systems throughout our global network of production sites. These investments are intended to improve productivity and efficiency and ensure compliance with operating permits and licenses, as well as with the applicable environmental laws and regulations. We will continue to invest in measures to improve yield (thereby reducing GHG emissions) and new pollution control systems to achieve our stated targets.

In addition, we have established a target to improve our ***energy recovery rate***. This is intended to measure the percentage of useful energy extracted from the total energy input (feedstock, electric power from the grid and other forms of procured energy) at each of our operating sites. Useful energy is defined to include carbon black and other forms of energy generated with tail gas, such as electric power, steam and hot water. Tail gas is a residual waste byproduct from our production process that has sufficient energy content to be used as fuel for our boilers and cogeneration facilities in the production of electric power, high pressure steam for industrial usage and hot water for local district heating. We believe that our use of residual tail gas for energy production has the effect of reducing fossil fuel consumption by third parties, including electric power producers that would otherwise supply electric power needed in the production process, and our steam customers who would otherwise be producing or procuring steam made by burning fossil fuel.

Targets and 2019 Status

Measured against the 2014 Baseline for achievement by 2029



Notes:

(1) Emissions reduction targets, as well as the energy recovery rate improvement target, are set against the 2014 baseline for achievement by 2029.

(2) GHG intensity reduction target has been set on a normalized basis. In view of our performance to date, the reduction target has been increased from 5% to 8%.

(3) Energy recovery rate is a percentage of useful energy produced with the total energy input. Useful energy includes carbon black, electric power, steam and hot water. Because of the high conversion loss in producing electric power in comparison to high pressure steam for industrial usage, electric power production has been restated to steam equivalents to provide a more accurate picture of the total energy output from the total energy input. Tail gas used in the production process as fuel for dryers and others is not included in the equation. Accordingly, the actual conversion rate of tail gas into energy during our production process is expected to be higher than what is being reported.

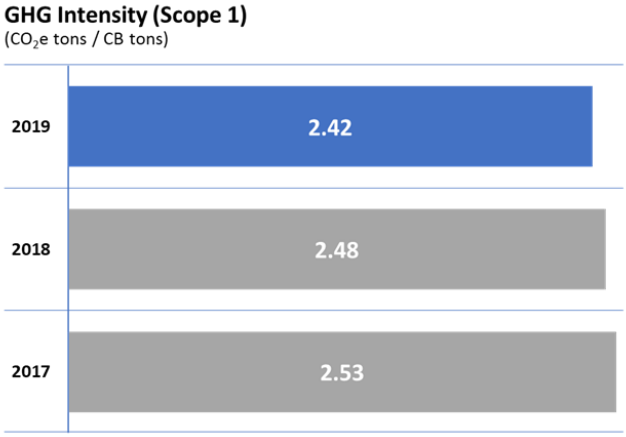
(4) We met our energy recovery improvement target of 2% in 2019. We will review our performance base and establish a new target in our 2020 Sustainability Report.

Emissions Intensity Results

In 2019, we achieved a 2.3% reduction in our GHG intensity compared against 2018. On a normalized basis, however, our 2019 results show higher intensity rate due to the effects of neutralizing feedstock mix variances and treatment of new product grades in the calculation methodology. The 2019 normalized GHG intensity is 5% lower than the 2014 baseline.

SO_2 intensity declined in 2019 by 3.5%, falling below the 2017 level by 1.5%. This compares against the increase in SO_2 intensity in 2018 by 2.1% vs 2017. NOx and PM intensities, however, rose in 2019 by 4.4% and 12.1%, respectively. We expect NOx and PM intensity levels to decline over time as we continue to invest in emissions control systems and improve our operating systems to minimize our environmental footprint.

Set out below are our environmental performance in 2019 for GHG, SO_2, NOx, and PM.



Notes:

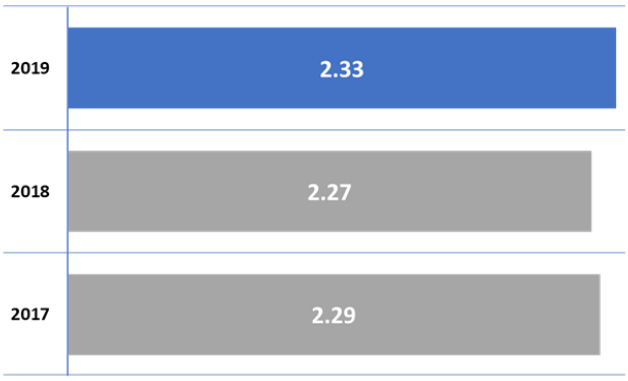
(1) GHG intensity is based on Scope 1 GHG emissions and carbon black production from operating sites under Orion's management control and ownership. This report uses GHG emissions data reported to the relevant governmental authorities where available; [7] and emissions data estimated by the site using recognized calculation methods where such data are not reported to the authorities. Carbon black production volume has been defined to include total production volume from each site as reported to the Group management without any adjustments.

(2) 2019 GHG intensity includes the results from the acetylene black facility located at Berre-l'Etang, France that was acquired in October 2018.

(3) 2018 and 2017 values have been corrected from 2.55 and 2.66, respectively.

[7] GHG emissions data found in relevant government systems have been compared against our record of internal estimates. Where the government system appears to be understating the GHG emissions for any particular site, upward adjustments have been made to avoid the risk of understating our GHG intensity. No adjustments were made where they appear to be overstated.

Normalized GHG Intensity
(CO_2e tons / CB tons)



Notes:

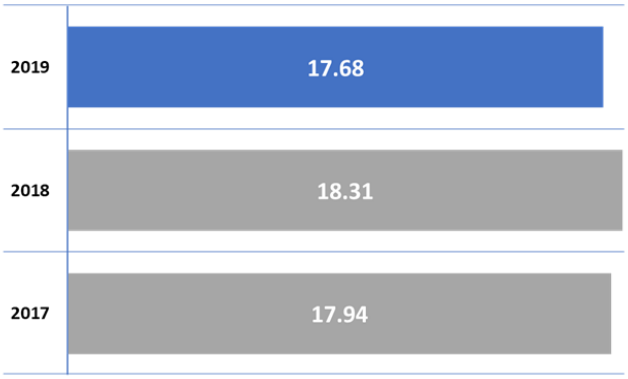
(1) Normalization process attempts to neutralize the variances in GHG intensity arising from product portfolio mix and feedstock mix. Its underlying premise is that yield (the amount of carbon extracted from the feedstock) determines the CO_2 emissions level. In the calculation process, the pre-adjusted CO_2 emissions is a function of calculated yield.

(2) There are largely two variables that affect yield. One is the product mix. Tighter colloidal and quality specifications for specialty blacks and technical rubber goods tend to result in lower yield (and thus higher CO_2 intensity) than ASTM rubber blacks. The other is the feedstock mix. Coal-based feedstocks (e.g., coal tar distillate (CTD)) tend to have higher concentration of carbon than petroleum-based feedstocks (e.g., fluid catalytic cracking (FCC) slurry oil), resulting in higher yield (thus lower CO_2 intensity).

(3) Due to the assumptions and calculation methods used to normalize the actual CO_2 intensity, it is possible for the normalized result to diverge from the actual result and show an opposite trend. For instance, our normalization process ignores the differences in quality within the given feedstock type when neutralizing the effects of different feedstock mix. This can result in a different intensity trend between actual and normalized results. For instance, assume that there are only two types of feedstocks, CTD and FCC. Assume further that the feedstock mix has not changed but that FCC has higher quality in the current year that is at parity with CTD. The actual effect of this feedstock mix will be like operating with CTD only, leading to a higher yield and lower CO_2 intensity in the current year when compared against the prior year. However, on a normalized basis, the favorable impact of higher quality FCC is ignored. If all other variables are the same, on a normalized basis, there would be no change in CO_2 intensity between the two years.

(4) Similarly, when a new grade is introduced or an existing product is manufactured on a line where it has not been produced in the past, the absence of past record to compare yield results requires certain assumptions to be made for those products. This could have a distorting impact that could lead to a divergence between the actual results and normalized results. As we expect to introduce new products and optimize our asset utilization in the coming years, we are reviewing our normalization methodology to remove such distorting effects.

SO_2 Emissions
(SO_2 kg / CB tons)

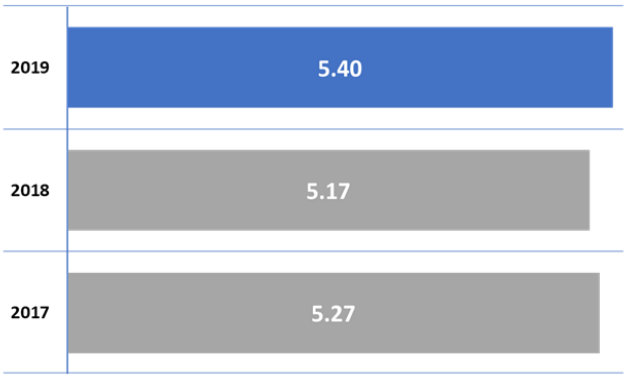


Notes:

(1) All sites that emit SO_2 report the emissions data to the authorities. Reported data are used without adjustments.

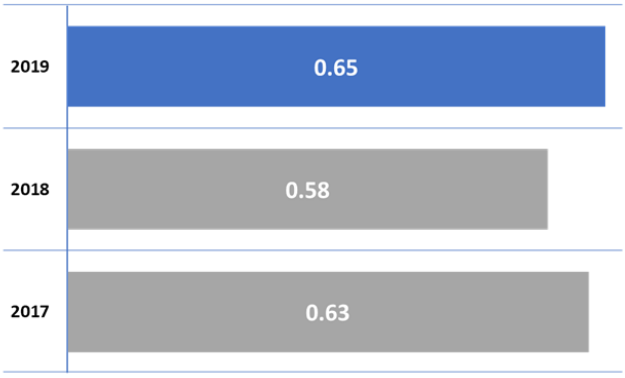
(2) 2018 and 2017 values have been corrected from 18.43 and 18.37, respectively.

NOx Emissions
(NOx kg / CB tons)



Notes:
(1) All sites that emit NOx report the emissions data to the authorities. Reported data are used without adjustments
(2) 2018 and 2017 values have been corrected from 5.20 and 5.39, respectively.

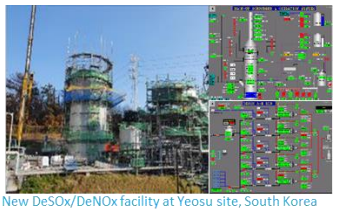
Particulate Matters Emissions
(PM kg / CB tons)



Notes:
(1) Particulate matters emissions data reported to the authorities are used without adjustments where available. Site estimates using recognized calculation methods are used where PM emissions are not reported to the authorities.
(2) 2018 and 2017 values have been corrected from 0.60 and 0.54, respectively.

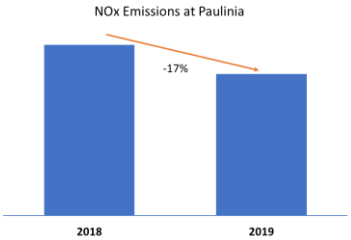
Investments in air pollution control systems

In 2019, we invested $13 million to install state-of-the-art emissions control systems at our two sites in the APAC region (Qingdao, China and Yeosu, South Korea) to enhance our capacity to reduce emissions of SO_2 and NOx.


New DeSOx/DeNOx facility at Yeosu site, South Korea

Continuous improvement in emissions reduction

Our site team in Paulinia, Brazil has found a way to reduce NOx emissions from the drying process by incorporating a multistage combustion process through modification of the combustion chamber. This has resulted in a reduction in NOx intensity by 17% in 2019, enabling the site to operate at levels below the permit levels.



EMAS and ISO 45001 Certificates

Our plant in Ravenna, Italy, along with other chemical companies located at the Ravenna Chemical District secured in November 2019 the Eco-Management and Audit Scheme (EMAS) Certification. This was the first project of its kind in Italy, and the Chemical District of Ravenna is the third to be registered EMAS. Our Ravenna site has also received ISO 45001 certification.

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.


Il Comitato Ecolabel Ecoaudit
Sezione EMAS Italia

ATTESTA

che il Soggetto Gestore del

DISTRETTO CHIMICO ED INDUSTRIALE DI RAVENNA

ha attivato iniziative a livello locale di promozione e diffusione di EMAS e di creazione delle sinergie necessarie sia per l'adesione delle aziende allo schema del Regolamento sia per il miglioramento ambientale del distretto nel suo complesso.

Rilasciato a:

Associazione EMAS Ravenna
Via Barbiani, 8/10 - Ravenna

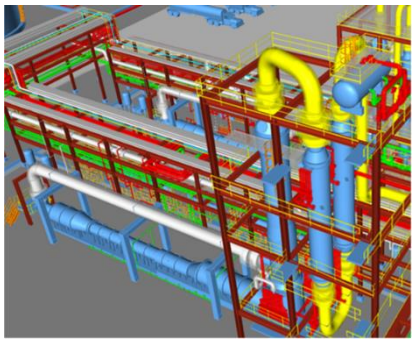
Roma, 14/11/2019 Validità: 31/07/2022

Il Presidente
(Dott. Renato Ricco)

EMAS

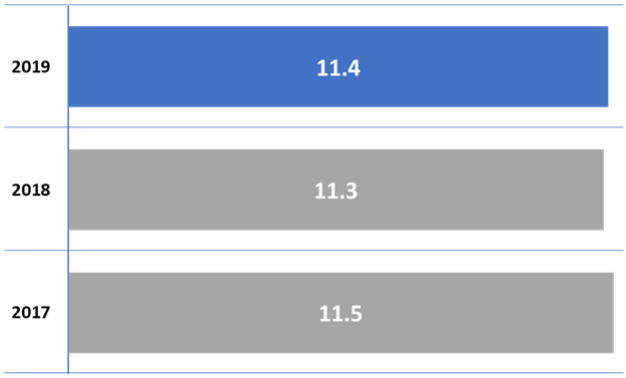
Water

Fresh water, like air, is essential to sustaining life on earth. According to UN-Water, water scarcity is an issue that is already affecting every continent and the growth in demand is straining the system's ability to deliver water services sustainably.[8] We are committed to being a good steward of this vital resource.



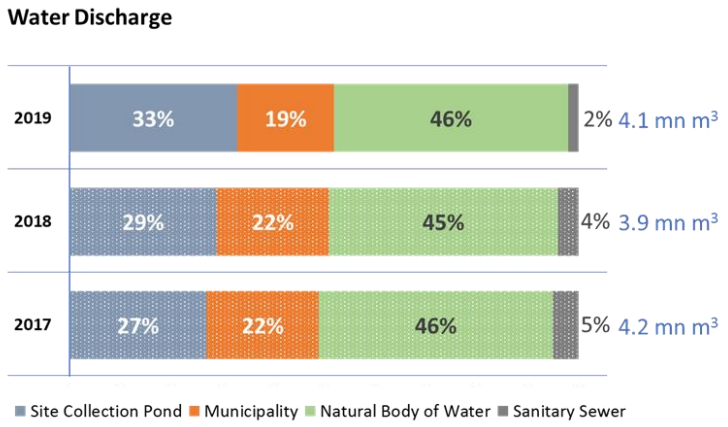
We consume water at various phases of our production process, including quenching to stop the carbon extraction process to achieve the desired colloidal properties. In lieu of using water, a number of our sites use waste heat boilers that deliver the same effect as water quenching by applying the process heat to generate steam needed in the production process. This delivers reduction in both water and fuel consumptions. As noted above, a number of our sites produce, using residual tail gas, high pressure steam for industrial users. This is another example of water demand that adds variability to our overall water consumption.

Water Supply
(mn m^3)



Note: 2018 and 2017 values have been corrected from 10.9 mn m^3 and 10.9 mn m^3, respectively.

[8] https://www.unwater.org/water-facts/scarcity/

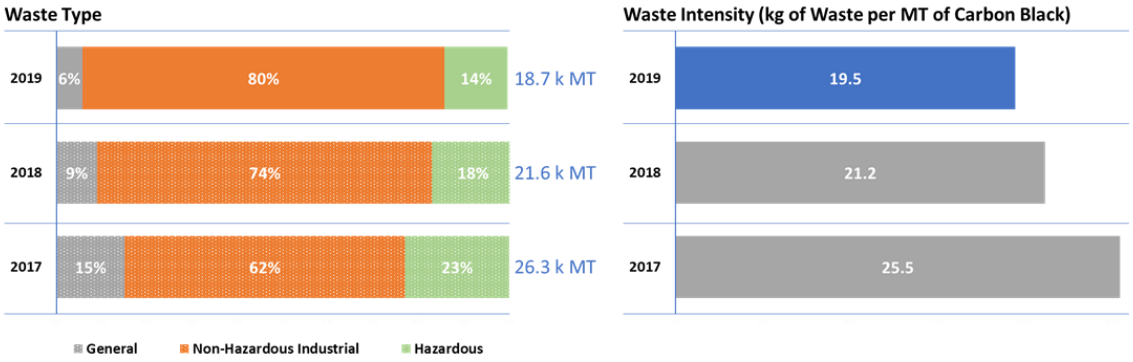


Notes:
(1) Water is used at certain sites as a cooling agent in the operation of cogeneration units where the full volume of water intake from the natural body of water is discharged back. Corrections are made as this was not fully accounted for in our previous report.
(2) 2018 and 2017 values for water discharge are corrected from 2.2 mn m^3 and 2.5 mn m^3, respectively.

Waste

We apply the principles of "reduce, recycle, reuse and recover" in managing waste. In 2019, total waste was reduced by 13%. Hazardous waste went down by 31% from 3.8 kilo tons in 2018 to 2.6 kilo tons in 2019; and non-hazardous trash by 10% from 17.8 kilo tons in 2018 to 16.1 kilo tons in 2019. Waste intensity has declined by 8% in 2019 from 21.2 kgW/tCB to 19.5 kgW/tCB.[9] While, in keeping with our principles, we endeavor to minimize waste generation in the first instance, we experience periodic spikes in waste generation for various operational reasons, such as feedstock storage tank inspections that require disposal of accumulated bottom oil and generation of deSOx sludge as we reduce SO_2 emissions.

In addition to waste reduction, we are committed to recycling, reusing and recovering waste. For instance, the targets we have establish under sustainable procurement includes reusing plastic pallets and packaging bags. Our use of residual tail gas at various stages of our operations is also an example of repurposing waste to reduce overall fossil fuel consumption.



Notes:
(1) Pre-existing industrial wastes before commencement of our operations, but for which we are legally mandated to dispose once discovered are excluded. In 2019, we discovered 5.1 kilo tons of pre-existing asbestos at our site in Ravenna (Italy). They were duly disposed of in compliance with the applicable laws. As this pre-existing hazardous waste was unrelated to our operations, it was excluded from our 2019 waste value. Its inclusion would increase our 2019 waste from 18.7 kilo tons to 23.6 kilo tons.
(2) 2018 and 2017 values for total waste are corrected from 19.3 kilo tons and 23.0 kilo tons.
(3) Share of general, non-hazardous and hazardous wastes in 2018 are corrected from 10%, 72%, and 18%; Same values in 2017 are corrected from 17%, 59%, and 25%.
(4) 2018 and 2017 values for waste intensity are corrected from 19.0 kgW/tCB and 22.5 kgW/tCB.

[9] Waste intensity unit: kg of waste per metric ton of carbon black

Small actions can add up

Our Paulinia site in Brazil is working with our customers to collect the package bags and reuse them. Rather than washing the used bags with water, an aspiration cleaning process is used to clean them.

The site has also started the process of upgrading its lighting with LED lamps, starting in areas with the highest energy consumption. This process will involve changing out 655 lamps and is expected to lead to 180 kWhs of electric power savings per annum.

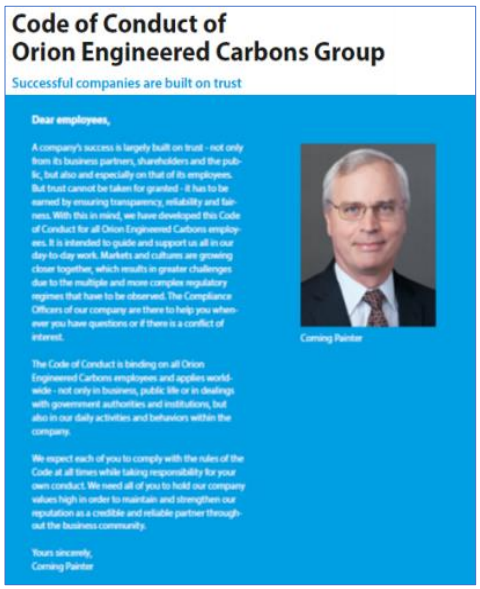
2. Compliance

Operational Compliance

We comply with all applicable laws and regulations, as well as with the boundaries set in the operating permits and licenses in effect. As part of our compliance assurance program, we actively monitor changes in laws, regulations, guidelines, court decision, and developments in changes in standards 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 without exception.

Business Compliance and Code of Conduct

Our commitment to compliance with laws and regulations governing business conduct is expressed in our Code of Conduct. In fact, the policies and standards we have adopted go beyond legal compliance – we have elected to codify best practices into our Code of Conduct, which is applicable to all Orion employees and to all associated persons who provide services for or on behalf of Orion, including agents.



Code of Conduct of
Orion Engineered Carbons Group

Successful companies are built on trust

Dear employees,

A company's success is largely built on trust - not only from its business partners, shareholders and the public, but also and especially on that of its employees. But trust cannot be taken for granted - it has to be earned by ensuring transparency, reliability and fairness. With this in mind, we have developed this Code of Conduct for all Orion Engineered Carbons employees. It is intended to guide and support us all in our day-to-day work. Markets and cultures are growing closer together, which results in greater challenges due to the multiple and more complex regulatory regimes that have to be observed. The Compliance Officers of our company are there to help you whenever you have questions or if there is a conflict of interest.

Corning Painter

The Code of Conduct is binding on all Orion Engineered Carbons employees and applies worldwide - not only in business, public life or in dealings with government authorities and institutions, but also in our daily activities and behaviors within the company.

We expect each of you to comply with the rules of the Code at all times while taking responsibility for your own conduct. We need all of you to hold our company values high in order to maintain and strengthen our reputation as a credible and reliable partner throughout the business community.

Yours sincerely,
Corning Painter

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 stakeholders such as 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. We aspire to achieve a coverage ratio of 100% of all of our workforce but have set our target at 95% in view of employees in transition.

Our Code of Conduct covers:

Business Conduct

- Observance of all laws and regulations
- Preventive legal counsel
- Basic labor 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

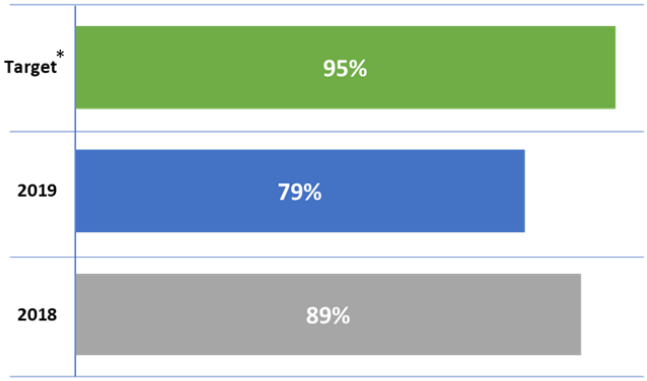
Avoiding Conflicts of Interest

- 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

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

Code of Conduct Training



* Target for achievement by 2029.

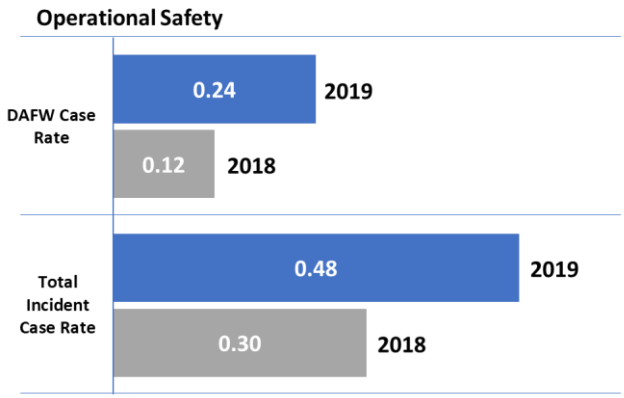
Notes:

(1) While aspiring to achieve a coverage ratio of 100% of our workforce, the target is set at 95% to account for new employees who start late in the year to receive the training in time, and existing employees who leave before taking the training. Target set for delivery by 2029.

(2) Code of Conduct trainings are offered in-class and online. In-class trainings are offered on the basis of a risk-oriented approach. In view of the comprehensive coverage of in-class trainings provided across all regions in 2018, only a limited number of in-class trainings were offered in 2019. Consequently, the completion rate declined in 2019. For 2021, we have established a new online training platform to which all employees will have access. In addition, we will continue to provide supplementary in-class trainings on a risk basis as circumstances allow.

Operational Safety

We are committed to providing our employees and contractors who enter our premises with a safe and healthy working environment. Our target for recordable incident rate, lost time rate and process incidents are all zero. Our goal of seeing everyone who enters our operating sites exiting in exactly the same condition remains unchanged. Our related standards and procedures are set out in the Orion Global EHSQ Management System (see Attachment 1). To ensure compliance with our global safety standards, we engage in periodic training of our employees and contractors who work at our sites, conduct regular site audits, and risk assessments. We have seen a setback in our operational safety performance indicators. When an incident occurs, our standard process is to conduct thorough investigation, including root cause analysis, to capture the lessons learned and take actions at the root of the incident to prevent recurrence. We believe that the measures we have taken in 2019 will strengthen our operational safety performance.



3. Living Our Values

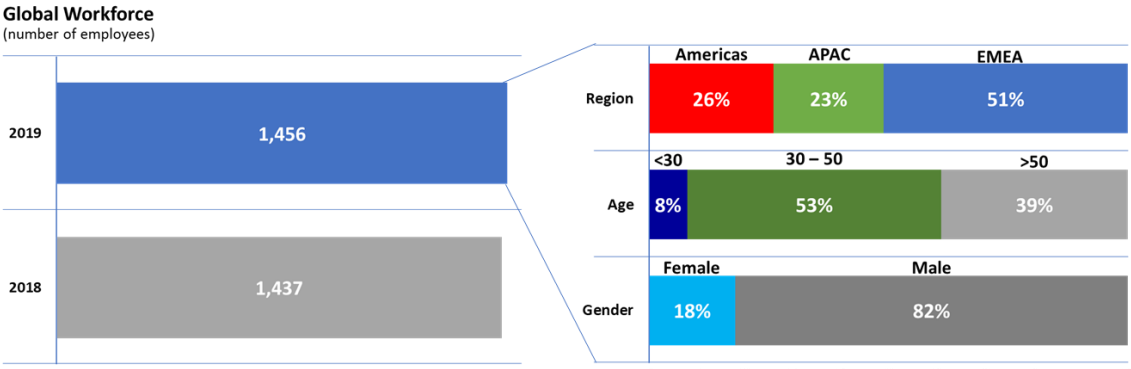
People

We are a group of people who share one common passion: carbon black. Our success depends on attracting, recruiting and developing a diverse, talented global workforce. We are committed to providing our employees with equal opportunities for learning and personal growth in an environment where creativity and innovation are encouraged. To this end, our aspiration is to be the employer of choice in our industry. With this in mind, we have reviewed our existing talent management programs and have started taking actions to augment and modify the existing programs to provide an effective platform for all of our employees to be trained and developed and to provide them with an opportunity to grow and achieve their individual aspirations.

In line with the objectives set out for 2019 to further advance sustainability and engagement with our employees, we initiated our first Employee Survey in Q4 2019, in which 91% of our employees participated.

Inclusion and Diversity

Orion is made up of over 1,400 employees with operating assets, laboratories and offices in 23 locations across 13 countries in all 3 regions (Americas, APAC and EMEA). Inspiring the entire Orion workforce to function as one team is critical to our success. We believe this is possible when we accept and value each individual for who they are. Indeed, valuing people is one of Orion's core values which define who we are and the expectation we have of Orion colleagues in our interactions with other employees, customers, supplier and within the communities where we operate. Building on this foundation, we value our people irrespective of their nationality, race, gender, sexual orientation, gender identification, religion, disability and age, among others; and we strive to put this into practice when hiring, developing and retaining talents.

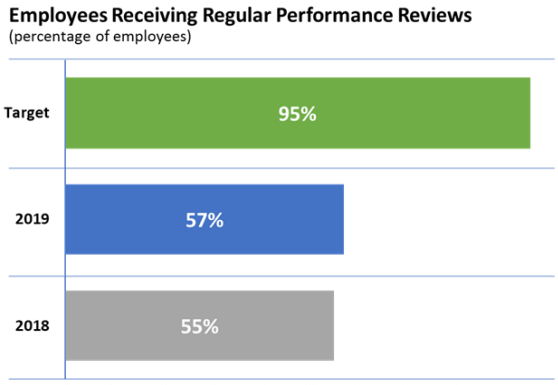


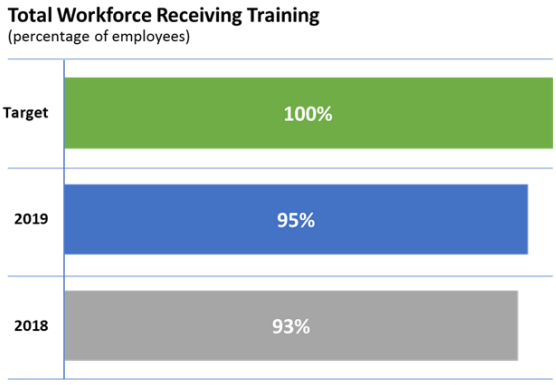
Talent Management and Development

At Orion, talent management and development is an interactive process between individual employees and the company so that the individuals can have a fulfilling career at Orion whilst taking on roles and assignments that are aligned with the company's strategy. In 2019, we have upgraded our talent management and development program, focusing on specific actions to improve Attraction, Engagement, Learning and Development, and Retention.

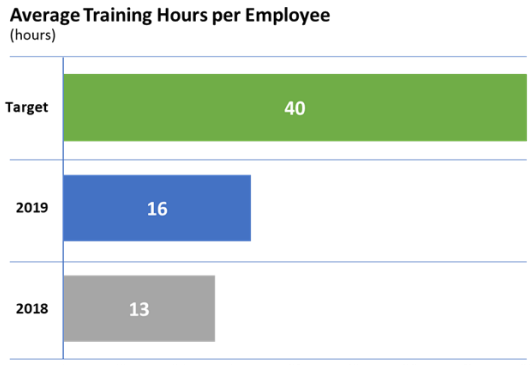
In support of these efforts, we made significant investments in 2019 both a global e-learning training platform and a human resources system platform which include focused modules for learning and development, succession planning and performance management that will allow Orion to better train and develop all of our employees.

A renewed focus on promoting from within has led to increases in internal fill rates and the involvement of business leaders across the organization in talent reviews to assess employees on performance and future potential. These talent reviews have helped to uncover talent gaps, identify high potential employees, build bench strength, increase retention, and to identify our future leaders and innovators.





Note: Targets set for delivery by 2029



Note: Target set for delivery by 2029

Employee Representation

We uphold the freedom of association and fully recognize the right of collective bargaining. Close to 50% of our employees worldwide are represented through unions and works councils. We value exchanging information and views with the local unions and works councils with the view to finding solutions to our common issues and ensuring success for both our employees and the company.

4. Sustainable Procurement

Sustainable Procurement Policy

Our procurement strategy is founded on quality, cost, delivery, and compliance. As we work with suppliers across the world, one of our primary focus areas in the sustainable procurement space is compliance by our suppliers and subcontractors (collectively, suppliers) with the applicable laws and regulations and with our core policies and standards, such as those relating to:

- environment (e.g., emissions, water and waste);
- health (including REACH where applicable);
- safety;
- labor (working conditions, right to collective bargaining and actions, etc.);
- business ethics;
- human rights (e.g., prohibition against use of underaged workers and forced labor);
- social policy matters (e.g., diversity and inclusion); and
- disclosure requirements

Vetting Process

Our commitment to sustainability (ESG) extends across the value chain, including our 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, or compatible standards. 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 only 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 or with its equivalent. Our goal is to achieve 100%. 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 and Promoting Circular Economy

Our efforts to minimize our environmental footprint include supporting our supply chain partners to minimize their own adverse impact on the environment (air pollutant emissions, water usage and treatment, and waste generation and disposal). We have a target to reduce emissions by 30% from freight by 2029.

Our work with the supply chain also includes realization of circular economy in our industry value chain. We have implemented various packaging solutions to minimize waste and increase loading efficiency. We are also collaborating with our supply chain partners on the use of sustainable and 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. See *Target Setting* for specific recycling targets for delivery by 2029.

Enhancing Our Capability

Our people are the greatest asset when it comes to translating our strategy into action. Our procurement professionals are expected to have all the required skills sets to identify and assess sustainable procurement risks, and to apply our standards in the evaluation of potential and existing suppliers. They are expected to complete all the required training programs. Development of sustainability acumen through additional training and sharing of best practices is a continuous improvement journey. We plan to strengthen our training program.

Ensuring Data Transparency and Accuracy

Our global procurement platform is intended to provide data transparency and accuracy to ensure a consistent and integrated flow of supplier spend data and serve as universal access point to review 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.

Target Setting

We are on a journey to continuously reduce waste and improve our environmental footprint across the value chain, including those emitted by our Suppliers. To these ends, we have established in 2019 the following sustainable procurement targets (all targets set for 2029, unless stated otherwise):

Sustainable Procurement Targets Targets set for 2029	**Target**
Suppliers signing up to Code of Conduct*	**100%**
Sites using plastic pallets – pallets made from recycled materials	**100%**
Reuse of pallets at all sites	**75%**
Paper bags from recycled paper	**95%**
Reuse or recycling of packaging bags	**100%**
CO_2 emissions reduction from freight**	**30%**

* Suppliers for purposes of this target excludes those with whom we transact on an ad hoc basis without a formal contract for a monetary value of less than $10,000 per annum.
** Freight for purposes of this target refers to outbound freight only.

ESG Targets

Emissions

Normalized GHG Intensity (CO_2e ton / CB ton)	8% reduction vs 2014 base
SO2 Intensity (SO_2 kg / CB ton)	50% reduction vs 2014 base
NOx Intensity (NOx kg / CB ton)	25% reduction vs 2014 base
PM Intensity (PM kg / CB ton)	15% reduction vs 2014 base

All targets set for delivery by 2029

Energy

Energy Recovery Rate (energy output / energy input)	2% increase vs 2014 base

Target achieved in 2019. New target will be set in 2021.

Performance Reviews and Training

Employees receiving Code of Conduct training	95%(1)
Employees(2) receiving regular performance reviews	95%(1)
Average training hours per employee	40 hours
Total workforce(3) receiving training	100%

All targets set for delivery by 2029

(1) While aspiring to achieve 100% of the qualified employees, the target is set at 95% to account for new employees who start late in the year to receive the training in time and exiting employees who leave before taking the training.

(2) Employees are defined to include only those whose employment contracts (including collective bargaining agreements) that do not restrict the company from conducting individual performance reviews.

(3) Workforce in this context excludes those who exit from the company without completing their assigned training programs.

Sustainable Procurement

Suppliers signing up to Code of Conduct	100%
CO_2 emissions reduction from freight	30%
Reuse of pallets at all sites	75%
Paper bags from recycled paper	95%
Reuse or recycling of packaging bags	100%
Sites using plastic pallets – pallets made from recycled materials	100%

All targets set for delivery by 2029

ESG Fact Sheet

Environmental Performance	2019	2018	2017
Greenhouse Gas (GHG) Emissions (MT)			
Scope 1	2,318,551	2,522,884*	2,613,131*
Scope 2	182,424	180,450*	196,626*
SO_2 Emissions (MT)	16,915	18,628*	18,530*
NOx Emissions (MT)	5,166	5,261*	5,442*
Particulate Matter Emissions (MT)	623	591*	651*
Waste Generation (MT)	18,693	21,592*	26,288*
Hazardous Waste	2,637	3,803*	6,030*
Non-hazardous Waste**	16,056	17,789*	20,258*

* 2018 and 2017 values are corrected
** Includes non-hazardous industrial waste and general trash

Health and Safety Performance	2019	2018
Hours Worked	3,303,814	3,323,714*
Work Ratio (% of Employee Hourly) Production Fixed	83%	83%
General Admin (G&A)	17%	17%
Employee DAFW Case Rate	0.24	0.12
Employee Total Incident Case Rate	0.48	0.30
Employee Fatalities	0	0
Contractor Fatalities	1	0

* 2018 value is corrected

Workforce Statistics	2019	2018
Total Employees	1,456	1,437
Bargaining Unit Employees	713	719
as a percentage of total	49%	50%
Total Females	255	245
as a percentage of total	18%	17%
In management roles (%)	14%	12%
Total Employees by Region		
Americas	375 (26%)	349 (24%)
APAC	330 (23%)	328 (23%)
EMEA	751 (51%)	760 (53%)
Total Employees by Age		
<30 years of age	118 (8%)	127 (9%)
30-50 years of age	773 (53%)	779 (54%)
>50 years of age	565 (39%)	531 (37%)
Total Employees Receiving Regular Performance Reviews	830 (57%)	793 (55%)
Total Workforce Receiving Training	1,376	1,331
Average Training Hours per Employee	16.2	13.1
Voluntary Turnover Rate	4%	4%

Attachment 1 - OEC Global Environment, Health, Safety and Quality 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 Global Integrated Management System Manual is grounded in 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 integrated 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

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 requirements, and minimizing the environmental impact of our global operations. Our global EHSQ Policy 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 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 Continuous**

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 site 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 third party Certification Auditors 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 / third party level audits are classified as either Compliance or Noncompliance findings and are entered into an electronic Audit Tracking System 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 third 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 material raw material suppliers are meeting our Corporate Code of Conduct and EHS Guidelines, or their equivalents.

Management Review – Top management (e.g. CEO, business leaders, Innovation, Global EHS leader, 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.

Formal regional reviews are also conducted during which the plant manager for each manufacturing site 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 2 – Our Locations

The Americas

1 **Borger**, TX, USA
2 **Houston**, TX, USA
(Principal Executive Office + Regional HQ)
3 **Orange**, TX, USA
4 **Carlstadt**, NJ, USA
5 **Belpre**, OH, USA
6 **Ivanhoe** (New Iberia), LA, USA
7 **Paulínia**, Brazil
8 **São Paulo**, Brazil

Europe/Middle East/Africa

9 **Berre l'Etang**, France
10 **Frankfurt**, Germany (Regional HQ)
11 **Luxembourg**
12 **Cologne**, Germany
13 **Dortmund**, Germany
14 **Malmoe,** Sweden
15 **Jasło**, Poland
16 **Ravenna**, Italy
17 **Port Elizabeth**, South Africa

Asia Pacific

18 **Seoul**, South Korea
19 **Yeosu**, South Korea
20 **Tokyo,** Japan
21 **Qingdao**, China
22 **Shanghai**, China (Regional HQ)
23 **Singapore**, Singapore