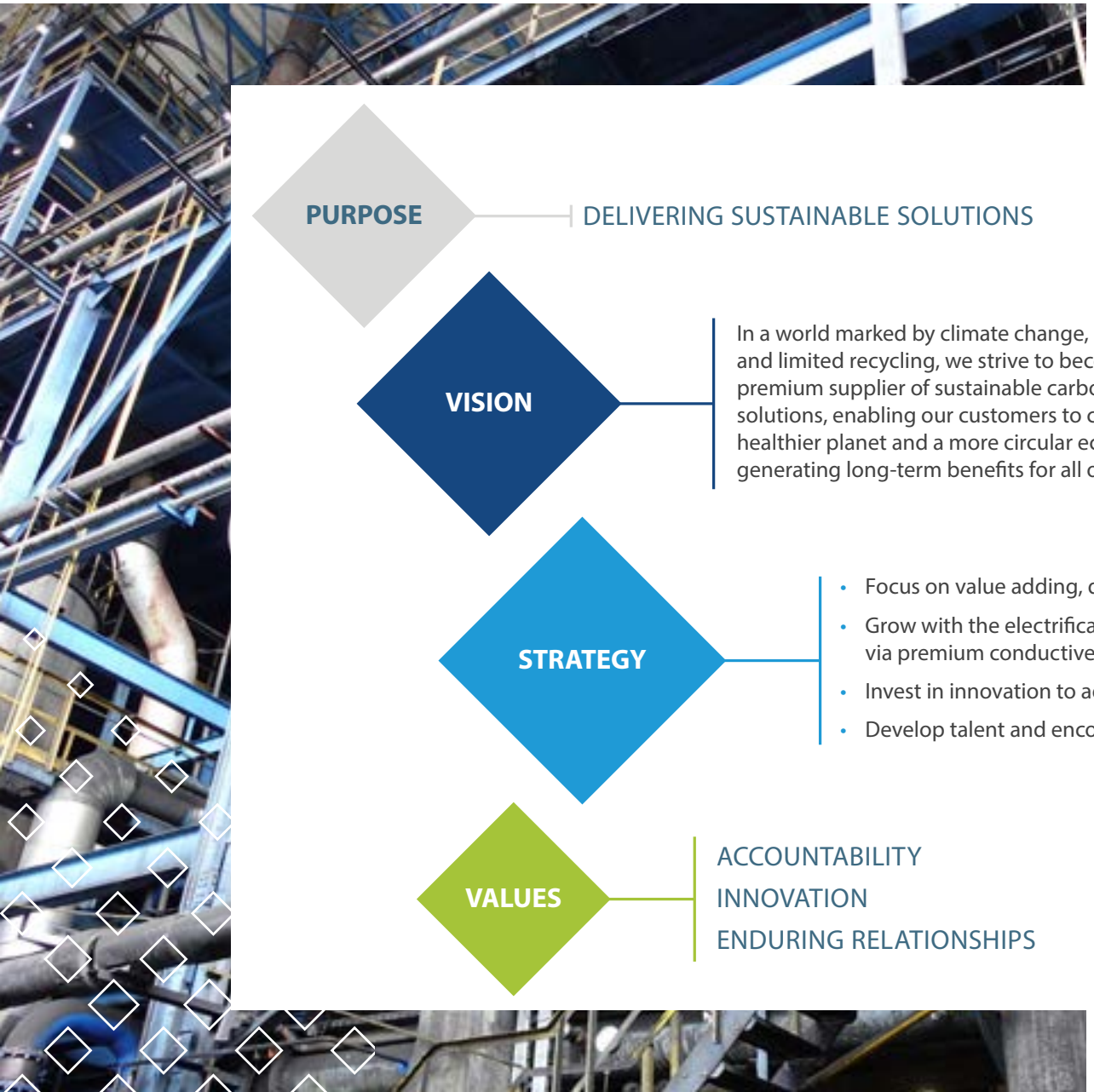
2022

SUSTAINABILITY REPORT

orion

Delivering sustainable solutions

ORION AT A GLANCE



PURPOSE

DELIVERING SUSTAINABLE SOLUTIONS

VISION

In a world marked by climate change, resource scarcity and limited recycling, we strive to become the premium supplier of sustainable carbon black solutions, enabling our customers to contribute to a healthier planet and a more circular economy, while generating long-term benefits for all our stakeholders.

STRATEGY

- Focus on value adding, differentiated products
- Grow with the electrification of the economy via premium conductive additives
- Invest in innovation to advance circular offerings
- Develop talent and encourage lifelong learning

VALUES

ACCOUNTABILITY
INNOVATION
ENDURING RELATIONSHIPS

SUPPLY TO MORE THAN **1,000 CUSTOMERS** WITH AVERAGE CUSTOMER RELATIONSHIP OF **30 TO 40 YEARS**

963 kmt

ANNUAL SALES VOLUME*

$2,031 MM

REVENUES*

$312 MM

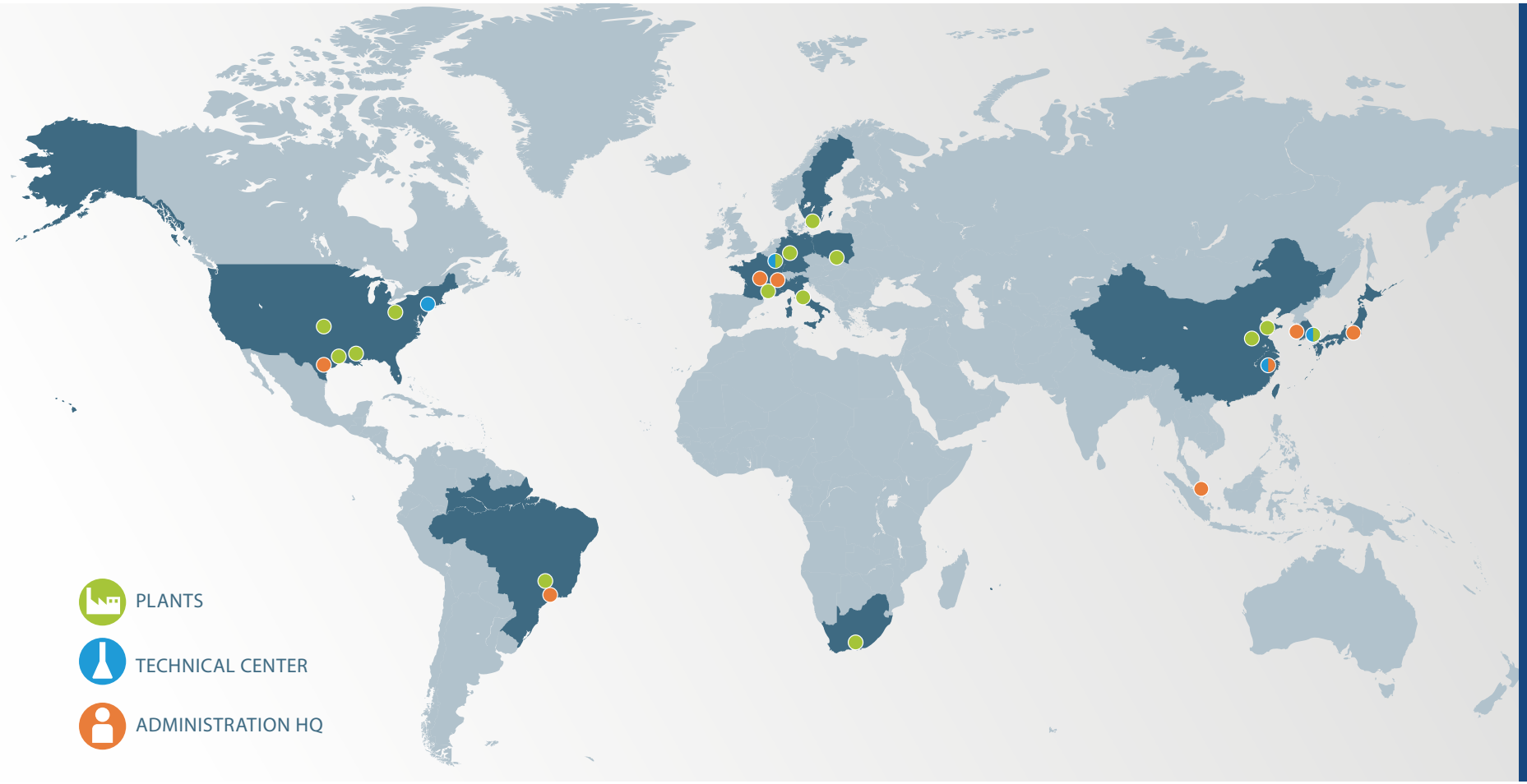
ADJUSTED EBITDA*

$81 MM

OPERATING CASH GENERATION*

*Full Year 2022

OUR GLOBAL PRESENCE



#1
GLOBAL SPECIALTY CARBON BLACK MARKET

#3
GLOBAL RUBBER CARBON BLACK MARKET

1862
YEAR FOUNDED

80+
COUNTRIES SERVED

15
PRODUCTION FACILITIES

~1,600
EMPLOYEES

~1,000 kmt
FUNCTIONAL CAPACITY

2022 HIGHLIGHTS

EMISSIONS

INDICATOR	UNIT	TARGET*	2022	2021	2020
NORMALIZED SCOPE 1 GHG INTENSITY[1]	% REDUCTION	-8	-3	-4	-5
SO_2 INTENSITY	% REDUCTION	-50	-42	-35	-17
NO_x INTENSITY	% REDUCTION	-25	-24	-13	-5
PARTICULATE MATTER INTENSITY	% REDUCTION	-15	-34	-29	+1

* Baseline year 2014; all targets set for delivery by 2029

[1]Normalized for product mix and feedstock mix in furnace black production

GOLD 2023 ecovadis Sustainability Rating

SCORE OF 77/100
99TH PERCENTILE

GOLD 2022 ecovadis Sustainability Rating

SCORE OF 72/100
97TH PERCENTILE

LAUNCH OF:

ECORAX® CIRCULAR 210
ECORAX® CIRCULAR 215
ECORAX® CIRCULAR 220
ECORAX® NATURE 200

Announced our ambition to achieve
NET ZERO GHG EMISSIONS BY 2050

WE SUPPORT UN GLOBAL COMPACT

CDP DISCLOSER 2022

2022 SAW IMPROVEMENT
FROM C TO B SCORE

ISCC International Sustainability & Carbon Certification

18% FEMALE EMPLOYEES

19% FEMALES IN MANAGEMENT ROLES

100% WORKFORCE RECEIVING TRAINING

100% EMPLOYEES RECEIVING COMPLIANCE TRAININGS

99% SUPPLIERS THAT HAVE SIGNED UP TO THE CODE OF CONDUCT

0.29 DAFW CASE RATE

0.41 TRI CASE RATE

OPERATIONAL SAFETY

ABOUT THE REPORT

STRUCTURE

This report is designed to introduce general information about Orion's sustainability status and endeavors, as well as to communicate the results of our materiality analysis, which acts as the basis for the chapters: ENVIRONMENTAL, SOCIAL and GOVERNANCE. The appendix shows the Global Reporting Initiative Index, a glossary of abbreviations and contact information.

SCOPE AND REPORTING PERIOD

The information stated about Orion in this Sustainability Report concerns and covers all the consolidated company's business entities from January 1 to December 31, 2022.

STANDARDS AND COMPLIANCE

This report is prepared in reference to the GRI standards 2021. Following current GRI standards offers the opportunity to report on the Sustainable Development Goals (SDGs) relevant to Orion and our progress to advance climate action and a just transition.

Orion applies its Code of Conduct throughout all its activities, at the same time complying with local legislation at its respective locations.

FORWARD-LOOKING STATEMENTS

The content in this Sustainability Report and all statements made herein, as well as documents or reports incorporated herein by reference, should be read in conjunction with Orion's 2022 Annual Report, which contains additional information about our company and risk factors we have identified. 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. In particular, statements on what "we will" do reflect only our current intent but should not be interpreted as a firm commitment irrespective of future developments and circumstances. You should not place undue reliance on forward-looking statements. Each forward-looking statement speaks only as of the date of the particular statement and is based only on the information available and known by Orion at the time the statement is made. 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.

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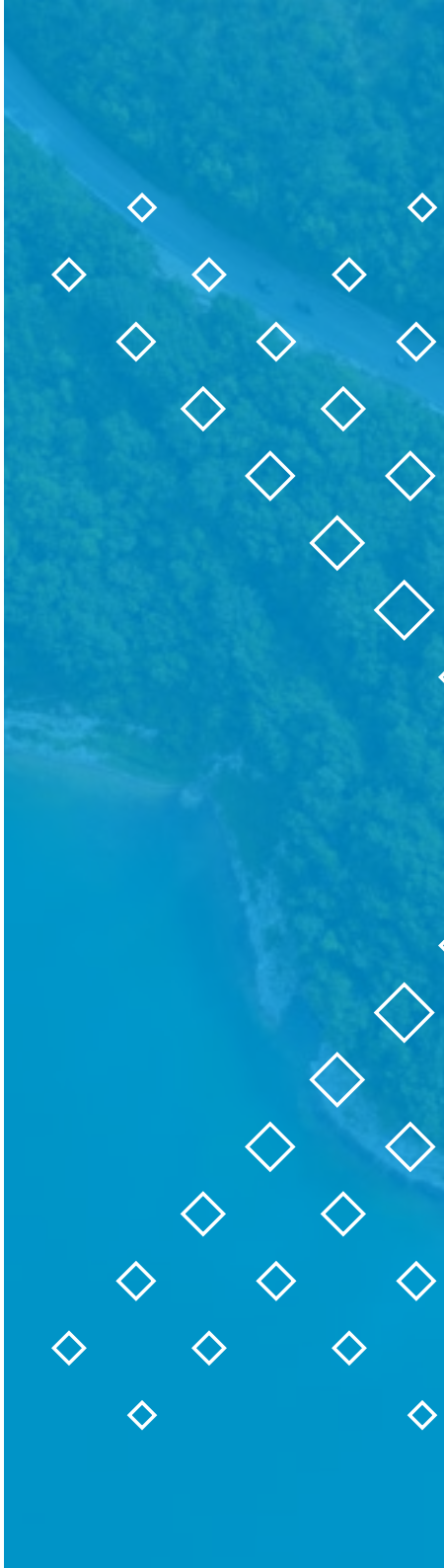


CEO LETTER TO STAKEHOLDERS

WITH MODERN CONTROLS AND CLEANER EMISSIONS, ORION BEGINS A NEW ERA OF GROWTH

by Corning F. Painter

We can think of air emission controls at chemical plants as filters that catch targeted materials from an exhaust stack like the way a coffee filter holds back the grounds.

The analogy does a great job describing the technology's function with basic language. However, the comparison fails to convey the complexity and enormity of the systems that Orion has installed at our U.S. plants over the past five years – the biggest sustainability-related initiative in the company's history. Indeed, it is simply the largest project since we became Orion.

As we come close to completing the undertaking, I thought this was a great time to share a few reflections about how significant finishing the air emissions projects will be for the environment and Orion's continued investment in sustainability and growth.

I am sure most people who are not familiar with the carbon black business – and even many industry insiders – would be amazed at how massive and complex the controls equipment is. It is one of those things you need to see in person to fully appreciate.

I will always remember a recent visit to our plant in Ivanhoe, Louisiana, when I climbed the 150-foot structure that is part of the new system installed at the facility. From the platform, I could look out and see miles and miles of sugarcane fields and other farmland stretching far into the distance. Just below me, the hulking, gleaming components of our system – including a thermal oxidizer, waste heat recovery boiler and huge catalytic beds – took up large areas of space in the middle of our production equipment. At the edge I could see the new cogeneration equipment that a partner company was installing to generate electricity from our steam.

One of my colleagues aptly observed that the Ivanhoe project was like building a separate chemical plant inside of an operating carbon black production facility. At the Louisiana plant, Orion was a pioneer in the carbon black industry, installing technology that captured emissions. The emissions are then converted to sulfuric acid, the world's largest volume industrial chemical, ranging in use from fertilizers to traditional car batteries. It was a major milestone in Orion's commitment to developing circular solutions for our waste-streams.

I have been thinking a lot about this lately as we near the end of an extremely arduous journey that began when the U.S. Environmental Protection Agency directed all the carbon black producers in the U.S. to reduce nitrogen oxide, sulfur dioxide and particulate emissions.

Orion reached an agreement with the EPA in December 2017 about how to proceed with the project and began upgrading the emissions control systems at its four U.S. plants.

Frankly, the mandate created colossal challenges for us – both financial and technical. No other carbon black producer has as many plants in the U.S. as Orion does.

With four facilities in the country, installing the systems would involve a massive price tag – about $300 million.

Adding to the burden, Orion was still a relatively new and very lean company, carved out of the German chemical company Evonik Industries just a few years before. The scale of these projects was huge for us. Ivanhoe alone was a larger expenditure than either of our greenfield projects in Huaibei, China, or La Porte, Texas. We were not initially geared up for the challenge.

Building such emission control systems is a huge task during normal times. And we all know the past three years have been far from normal!

Just as we were in the middle of the five-year initiative, the COVID-19 pandemic began ravaging the world, disrupting our suppliers and steady progress. Supply chain disruptions increased costs and limited the availability of building materials and delayed deliveries.

I am extremely proud that our entire team stayed committed to the goal. It is times like these when companies can show they are serious about their core values and actually live them. And that is exactly what Orion did.

We value accountability, and for us that means putting safety first and adhering to the highest standards of integrity. Innovation is another core value, and in this case, it was about finding ways to limit our emissions. Finally, building enduring relationships is our third value. For us, this includes being a positive member of our communities.

We finished our first EPA project in 2020 at our plant in Orange, Texas. The second one was commissioned in Ivanhoe in late 2021.

Most recently, our facility in Borger, Texas, was upgraded in late 2022 with a system that reduces nitrogen oxide and sulfur dioxide emissions by 90 percent, a decrease that amounts to about 23 total metric tons per day. Our final project in Belpre, Ohio, is on track to be completed in 2023.

Finishing this work will be a huge milestone for Orion. We will also continue to make other major investments in sustainability-linked projects in our operations, e.g., regarding water conservation, LiB materials, a circular economy, and especially in research focused on one of the biggest challenges in our industry – the need to significantly reduce CO_2 emissions. The solutions we are working hard to develop go beyond the ongoing efforts to improve yield and efficiency and include the exploration and use of alternative feedstocks, alternative fuels, alternative production technologies, cogeneration and carbon capture and storage (CCS) options.

These projects will create a virtuous cycle where our investments generate cash, which in turn fuels future investments and the transformation of our company.

All of us at Orion can look back at the past five years and feel an extreme amount of pride. We stayed committed during intensely trying times and honored our agreement to make our facilities cleaner, leading to a big impact for the environment and health in our communities.

If you think of yourself as an ESG investor, I encourage you to consider an investment in a company like Orion that is working to transform the footprint of an essential material. In fields like this, you can be a true impact investor.

Sincerely,

CORNING F. PAINTER
Chief Executive Officer

WHO WE ARE

OUR COMPANY

Orion S.A. is a specialty chemical company that is one of the biggest global suppliers of carbon black – an essential material found in a variety of products consumers use every day. Orion is also a leading innovator focused on sustainability in the carbon black industry.

Almost all man-made products that are black contain carbon black, a solid form of carbon produced as powder or pellets. The amazingly versatile material reinforces and fortifies tires and other rubber goods, making them last longer. It strengthens polymers and absorbs ultraviolet (UV) light, providing protection from the damaging effects of sunlight. Carbon black prevents fading in black fabric, and it adds the deep, dark bluish undertones in paint for cars. It also conducts electricity in lithium-ion batteries in electric vehicles and in high-voltage cables used by solar and wind farms. These are just a few of the applications of the near ubiquitous material.

Orion can trace its corporate lineage back more than 160 years to Germany, where it has the world's longest-operating carbon black plant. Our headquarters are in Luxembourg and our principal executive offices are in Houston. The company has four innovation laboratories on three continents and 15 plants worldwide. Orion offers the most diverse variety of production processes in the industry.

OUR BUSINESS MODEL

Fundamental to Orion's business model is developing a deep expertise in the production of carbon black, understanding our customers' needs and delivering solutions to them. Investing in innovation that enables us to lead the sustainable transformation of our industry is key to our strategy.

WE FOCUS ON SOLUTIONS

Carbon black is a highly engineered material – far from being a commodity. We can control the particle size of carbon. We can also customize the structure and aggregate size distribution so that the material will work well in a customer's formulation. All of these factors have a major influence on the end-use application of a product, such as a car tire, which can contain four different types of carbon black – each with a separate function. So we need to use the expertise from our innovation laboratories and teams in the field to develop different technical pathways that enable us to deliver tailor-made solutions for our customers.

A VARIETY OF PRODUCTION PROCESSES

Most carbon black producers use furnace reactors to make their products. Orion employs furnace reactors, too, but we also use four other production technologies – more than any other company in the industry. Some of the methods use different raw materials, and they produce different shapes, sizes and structures of carbon black that work better in different products. This enables Orion to have the broadest product portfolio – a major advantage in the specialty market, which includes ink, batteries, coatings, polymers, textiles and other applications.

THE MARKET LEADER IN SPECIALTY CARBON BLACK

Our deep expertise in customizing carbon black and our five production technologies have enabled Orion to be the No. 1 global player in the specialty market. Globally about 7% of carbon black is used in specialty applications but approximately 27% of ours is, nearly a 4x over-representation reflecting our commitment to the customers served in the specialty market. It is a high-margin business that requires companies to invest in quality and be innovative to meet the variety of customers' demands.

A LEADER IN INNOVATION

We have four innovation laboratories strategically positioned around the world. The largest one is in Cologne, Germany. We have equipment that is similar to what our customers use and how they evaluate these products in their laboratories. After we have a product or a process that is applicable for commercialization, we send it out to all of our regional laboratories. They work with our customers to optimize its performance in their specific formulation and make it work for the end-use customers.

FOCUS ON ELECTRIFICATION, SUSTAINABLE RUBBER

Two of Orion's main strategies related to sustainability include expanding our business for conductive carbon black that is in high demand by makers of lithium-ion batteries for electric vehicles and producers of high-voltage cable for solar and wind farms. The other strategy involves being a leader in the sustainable transformation of the rubber business by developing bio-circular grades. We are working on new and more effective ways to recycle end-of-life tires to make rubber carbon black. We are also developing renewable carbon blacks made from plant-based materials.

PRECAUTIONARY APPROACH

We take a precautionary approach when evaluating potential environmental, health and safety risks of our operations and products with a goal of timely action. Our management system aims to continuously improve toward best practices.

INTEGRATION OF SUSTAINABILITY INTO ORION'S MANAGEMENT FRAMEWORK

- Our Board of Directors' Nominating, Sustainability & Governance Committee oversees matters relating to sustainability and makes recommendations to the Board.
- Our CEO is accountable to the Board for sustainability and has the mandate for strategy, risk management, opportunity capture, the setting and monitoring of targets, resource allocation and culture.
- The CEO is supported by his direct reports who ensure that the Board-mandated responsibilities in connection with sustainability are embedded in our wider global management framework.

OUR GOVERNANCE STRUCTURE

Board of Directors

Board of Directors' Nominating, Sustainability & Governance Committee

Chief Executive Officer

Sustainability Committee (Chaired by CEO)

Further information on the composition of our governance bodies and committees can be extracted from our committee charters and other information available on our website.

At the management level, ESG aspects are incorporated into short- and long-term performance incentives. Below the management level, ESG aspects are incorporated into the annual bonus program, in which all employees participate with one exception: South Korea, where the annual bonus program is governed by a collective bargaining agreement. ESG aspects of our incentive plans are linked to our EcoVadis score so that they can be evaluated independently.

Our operational and financial targets are oriented toward the reduction of CO_2 emissions. The more carbon black that can be produced from the feedstock, i.e., the higher the yield, the less carbon is emitted as CO_2 into the atmosphere.

This is also reflected in our processes. ESG risks are systematically integrated into our existing risk management and undergo ongoing differentiation. This is done with extreme weather events, for example, but also with other climate risks that are critical to our business model. We also integrate social risks, e.g., the shortage of skilled labor, vocational training gaps and the management of health and safety. The better and more systematically we can identify our risks, the more effectively and carefully we will be able to avoid or mitigate them.

CORPORATE GOVERNANCE

We have a very transparent approach concerning our most important guidelines, which are all publicly available on our website.

- Code of Conduct
- Code of Ethics for financial officers
- Insider Trading Policy
- Anti-bribery Policy
- Anti-trust Policy
- Human Rights Policy
- Whistleblower Policy
- Conflict Minerals Policy
- OEC-Governance-Documents

OUR VALUES & CORPORATE CULTURE

WE SHARE THE FOLLOWING CORE VALUES ACROSS ALL OUR REGIONS, FUNCTIONS AND BUSINESS AREAS:

ACCOUNTABILITY

We put safety first, uphold the highest standards of integrity and strive for continuous improvement.

INNOVATION

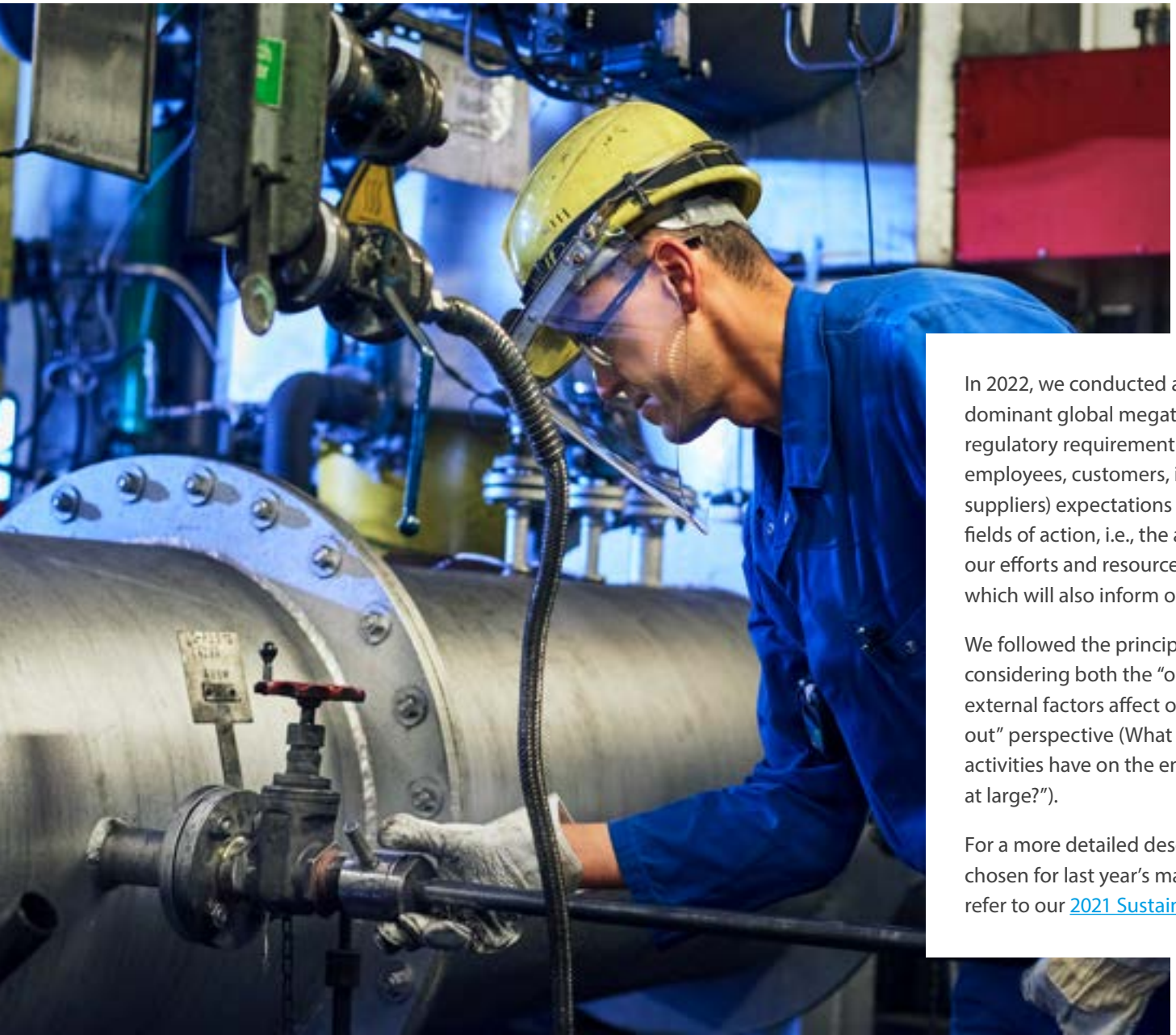
We deliver solutions for our customers and strive to sustain the planet for future generations.

ENDURING RELATIONSHIPS

We make trust and respect the foundation of our relationships. A focus on diversity, equity and inclusion guides how we operate. At Orion, people from a variety of nations and cultures work together. This is one of our key strengths.

MATERIALITY

OUR MATERIALITY ASSESSMENT



In 2022, we conducted a thorough analysis of dominant global megatrends, current and emerging regulatory requirements, and our stakeholders' (our employees, customers, investors and lenders and suppliers) expectations to determine our material fields of action, i.e., the areas on which we will focus our efforts and resources during the coming years and which will also inform our risk management approach.

We followed the principle of double materiality, i.e., considering both the "outside in" perspective ("Which external factors affect our business?") and the "inside out" perspective (What impact do our business activities have on the environment and society at large?").

For a more detailed description of the approach chosen for last year's materiality assessment, please refer to our 2021 Sustainability Report.

OUR MATERIAL FIELDS OF ACTION

CONSIDERING QUESTIONS LIKE:

- Where are the biggest opportunities and risks for our company?
- What will have the biggest impact – either positive or negative?
- What do important stakeholders define as material?
- What can we use to position ourselves in the context of sustainability?
- How do we best fulfill existing or future regulatory requirements?
- How do we realize our Purpose?
- What will lead to a tangible improvement in our ESG performance?

WE DETERMINED THE BELOW SET OF MATERIAL FIELDS OF ACTION:

ENVIRONMENT	SOCIAL	GOVERNANCE
Emissions from Productions (incl. GHGs, SO_x, NO_x)	Diversity, Equity & Inclusion	Occupational Health & Safety
Energy Efficiency	Employee Recruitment & Retention	Compliance (Operational & Business CoC)
Resource Consumption	Talent Management & Development	Supplier Management
Product Stewardship	Employee Engagement	
Circular Economy (Recycling Carbon Black)	Local Community Engagement & Charitable Giving	
Sustainable Products and Services (R&D)		

WE WILL DESCRIBE OUR GOALS AND ACTIVITIES IN THE RESPECTIVE FIELDS OF ACTION IN THE FOLLOWING CHAPTERS ON ENVIRONMENT, SOCIAL RESPONSIBILITY AND GOVERNANCE.

SUSTAINABILITY STRATEGY

OUR HOLISTIC APPROACH

At Orion, sustainability is not the responsibility of a single department on the corporate platform. Sustainability at Orion requires the active leadership contribution and coordination of all functional areas, business units and country organizations.

The sustainable solutions we deliver to our customers and to society at large are being provided by our core business, rubber and specialty carbon black. But our core business would not be able to generate its significant societal impact if it weren't firmly based on our responsible business conduct and the strongest possible ESG performance, which safeguards our societal acceptance and our permission to operate – the indispensable prerequisite for the continued success of our business.

We address the increasingly stringent regulations and the changing expectations of our customers, investors and workforce. We aim to ensure that sustainability adds value to the company through not only risk and reputation management but also by capturing growth opportunities.

GLOBAL & SOCIETAL DEVELOPMENTS

Climate change is one of the greatest challenges our world is facing. We believe collective action and a sense of urgency are needed to combat climate change. We are committed to the decarbonization of our global operations and to delivering solutions that help achieve a net zero economy. We recognize the urgency and have accelerated our efforts and enhanced our goals in support of the Paris Agreement which aims to limit climate change by achieving net zero for global greenhouse gas (GHG) emissions by mid-century. We are committed and recognize that achieving this objective will require collaboration and collective action amongst industry, value-chain partners, policymakers and all parts of society.

HOW WE PLAN TO CONTRIBUTE:

WE DECARBONIZE OUR OPERATIONS

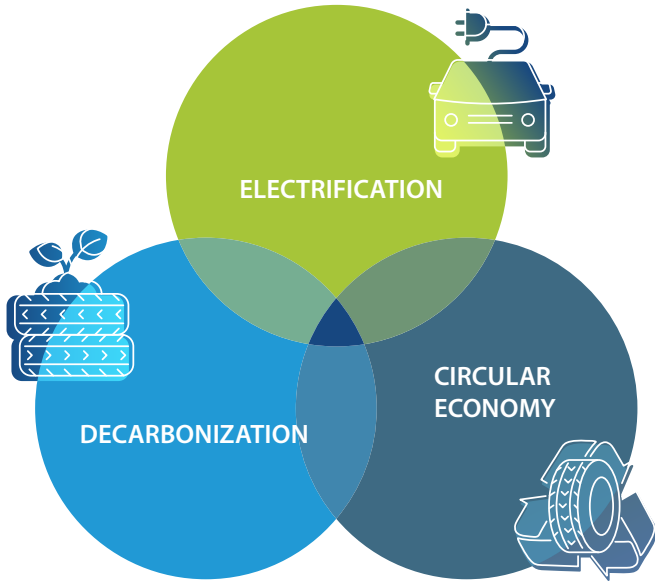
We are focusing on optimizing existing and adopting accessible technologies to reduce emissions from our operations, including advanced energy management techniques such as electricity cogeneration with waste heat ("CoGen"), maximizing renewable energy use in our operations, investing to expand our low-emission acetylene conversion technology, and capitalizing on circular and bio-circular feedstocks. Looking beyond 2030, we will be evaluating new technologies and the use of green hydrogen as alternative fuel across our operations.

WE WORK TOWARD A CIRCULAR ECONOMY

When it comes to using finite planetary resources more responsibly, reducing waste and promoting circularity, there is an increasing desire across the entire value chain to do more. We are taking a collaborative approach to help deliver meaningful progress, ensure maximum impact and advance a circular economy that enables tire waste to be transformed into more sustainable solutions for our customers. Therefore, we have been working tirelessly to contribute to the success of the BlackCycle project as one of the key stakeholders in the consortium. BlackCycle is an EU-funded project aiming to enhance circularity in the tire industry.

WE ENABLE ELECTRIFICATION AND ENERGY STORAGE SOLUTIONS

With growing concerns about climate change and environmental degradation, sustainability has become a strategic priority for automotive manufacturers. As a result, vehicles' electrification is considered a key milestone in combating climate change. Carbon-free electricity combined with the electrification of vehicles defines one key path for action. Successfully achieving this requires synchronized progress in energy generation, storage, transmission and distribution. Our acetylene-based conductive materials are designed to provide advanced conductive performance and a cost-effective solution for the electrification of the industry.



OUR SUSTAINABLE SOLUTIONS

Historically, the carbon black industry has been dependent on conventional fossil feedstocks. We recognize the opportunities that investments in innovative and sustainable products and technologies have to offer. They contribute to our goal of launching a broad range of products using circular and bio-circular feedstocks.

OUR RENEWABLE CARBON BLACKS are made from industrial-grade vegetable oils or other feedstocks derived from waste and residues of biological origin from agriculture or forestry. Orion was the first major carbon black producer to develop and commercialize a renewable carbon black a decade ago. In 2021 we launched the first product made from 100 % renewable feedstock and designed for rubber applications: ECORAX® Nature 105. In early 2022 we launched ECORAX® Nature 200, which is based on a second-generation, animal-free, bio-based feedstock. We will develop new grades and extend production to other sites to support our customers' requirements.

OUR RECYCLED CARBON BLACKS are made from post-consumer recycled products. The major focus of the rubber carbon black business is on the tire circular economy. Our primary raw material is end-of-life tires (ELT). ECORAX® Circular products are made from tire pyrolysis oils (TPO) derived from ELT. In 2021 we developed soft and hard blacks, made from 100% TPO, that match the in-rubber performance of traditional carbon blacks. In 2022 we launched the first commercial grades based on TPO.

In line with our value chain partners, we have achieved ISCC-PLUS certification of all our plants producing circular and bio-circular products using the mass-balance principle, which is very important for tracing sustainable content of consumer products all the way up the value chain.

ENERGY is not only a critical input in the carbon black production process but also an output and something we want to make greater use of:

- We use energy in the form of feedstock, natural gas and power, but also in the form of the heat and steam recovered from our own production process. The carbon black production process generates not only carbon black but also heat and tail gas, which has residual energy content that can be converted into steam or electricity.
- We have a two-pronged approach to energy management. One is to minimize the input energy and the other is to maximize the use of waste energy.

We are also committed to re-circulating waste heat back into the production process and using the byproduct tail gas to produce energy for internal consumption and third-party deliveries.

We know how important sustainability is for the success of our business. We are aware that our profit as a company, our social responsibility and our environmental performance are inextricably linked. By thinking of these dimensions as interlinked, we are considering the full cost associated with our business activities.

OUR GLOBAL FRAMES OF REFERENCE

THE UN GLOBAL COMPACT: WE ARE ON BOARD.

The United Nations Global Compact (UNGC) is the world's largest corporate sustainability initiative. It encourages businesses to adopt sustainable and socially responsible policies and to report on their implementation.

As such, it is the driver of a global movement. Strategies and processes should align with 10 universal principles in the areas of human rights, labor, anti-corruption and the environment.

Orion supports the United Nations Global Compact's 10 principles and has committed to complying with them. We have drafted these principles into our professional conduct guidelines for customers, suppliers and employees. They form the framework for the way we work together. Since we expect our partners in business to conduct themselves in the same way we do, we require them to sign up to our code of conduct.

And we are going the extra mile by providing transparency. We are committed to complying with the United Nations Global Compact's Communication-on-Progress (CoP) requirements and reporting publicly every year on our progress.

UN GLOBAL COMPACT

2023 PARTICIPANT

Our company is committed to upholding the Ten Principles of the **United Nations Global Compact**. Please refer to our **Communication on Progress.**

OUR CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development describes 17 goals (SDGs) that the United Nations have defined as necessary for sustainable development. We feel an obligation to contribute to these goals.

We know we cannot contribute equally to all 17 SDGs. It seems important to differentiate between:

- SDGs we can contribute to directly with our core business, and SDGs we can only indirectly contribute to.
- SDGs to which we intend to further increase our already positive contribution, and SDGs to which we contribute by reducing unwanted negative consequences of our business activities.

Our stakeholder survey revealed that the SDGs of particular importance and relevance for Orion are SDGs 9, 12 and 13[1]. It is by focusing on these goals that we can achieve the most. We are supplementing our positive contribution to society by producing sustainably, and as an industrial company, we clearly have a particular responsibility to act. Measures for mitigating climate change are also vital to us, and we know that we must enhance recycling and contribute to the mitigation of climate change.

Half of the world's population now lives in cities. Technological progress is key to finding solutions to the economic and environmental challenges of mass transport, renewable energy, new industries and information and communication technologies. This results in the creation of new jobs and the promotion of energy efficiency.

Our ecological footprint must be reduced by changing the way we produce and consume goods and resources. Our shared natural resources must be managed sustainably. This applies not only to water but also to the disposal of toxic waste and pollutants. Industries, businesses and consumers need to be encouraged to recycle and reduce waste. In addition, developing countries need our support if they're going to move toward more sustainable patterns of consumption by 2030.

Climate-related disasters cost many lives and hundreds of billions of dollars a year. Greenhouse gases are more than 50% higher than in 1990. Global warming is causing long-lasting changes to our climate system. Geophysical disasters killed 1.3 million people between 1998 and 2017. There is the risk of irreversible consequences if we do not act.

It is still possible to limit the increase in global mean temperature to well below 2°C above pre-industrial levels while aiming at 1.5°C, and this will require strong political will, increased investment and the intelligent use of existing technologies.

[1] The descriptions of SDGs 9, 12 and 13 are abbreviated versions of descriptions by the UN

EXTERNAL EVALUATION

Our efforts in leading sustainably are recognized by the independent rating agency EcoVadis and the not-for-profit organization CDP. Each year, both institutions evaluate Orion so that we can obtain an assessment of our performance and progress. That way, we can give our stakeholders (e.g., customers and investors) the assurance that we are taking sustainability seriously. Since we do not do the assessment ourselves, the result is even more reliable.

The assessments are approached from different perspectives. EcoVadis' examination of us is broader in scope because they inquire into all aspects of our sustainability performance. CDP focuses on climate-related issues and provides valuable insight, particularly for institutional investors.

ECOVADIS

EcoVadis is an independent organization that evaluates companies' sustainability performance in the areas of environment, labor and human rights, ethics, sustainable procurement and overall sustainability governance. Their methodology is based on international standards (Global Reporting Initiative, United Nations Global Compact and ISO 26000). Itself monitored by a scientific committee made up of sustainability and supply chain experts, the EcoVadis database counts over 90,000 rated companies in 175 countries and 200 industries.

This year, we have defended our gold medal but further improved our score, which now places us in the 99th percentile of companies assessed by EcoVadis. It is our goal to achieve the highest distinction – a platinum medal – soon. EcoVadis provides us with comprehensive feedback, benchmarking and tools that we can use to continuously improve.

CDP

CDP is a not-for-profit organization that provides investors, companies, cities, states and regions with information relating to their environmental impacts.

Over the years CDP has developed into an important reference for other sustainability ratings and is used by investors as an important factor when investing. CDP represents more than 680 investors with over US$130 trillion in assets and more than 200 large purchasers with over US$5.5 trillion in buying power.

In 2022, Orion was awarded a "B" score for the first time ever. "B" is in the Management band, an achievement that we share with 39% of companies in our industry. It is the same as the European regional average score, slightly higher than the Chemicals sector average of B-, and higher than the global average score across all industry sectors, C. CDP rates companies D (Disclosure), C (Awareness), B (Management), or A (Leadership.) It is our clear ambition to become a Climate Leader in our industry.

RISK MANAGEMENT

RISK MANAGEMENT

We recognize that sustainable development offers our industry attractive opportunities. Orion's goal is to identify and act upon the right opportunities while effectively mitigating any associated risks by focusing on a circular economy, renewable feedstocks and supporting the electrification of the economy - with an emphasis on Electric vehicles (EVs) battery technology.

Highlighted by the BlackCycle project, recycling end-of-life tires is an opportunity with great potential for Orion. Our production methods using sustainable feedstocks need further development. Additionally, the role of highly purified acetylene-based conductive additives in the electrification of the automotive industry offers tremendous potential.

Orion strives to become the industry leader in leading this transition toward more sustainable solutions.

OUR RISK MANAGEMENT APPROACH

- Risk Management at Orion is a defined process of identifying, assessing and prioritizing potential risks, then working to mitigate those risks by actively monitoring, managing, controlling and reducing their probability. Our goal is to focus on negating the consequences of events which adversely impact the performance of Orion in terms of EBIT, cash and societal effects
  - Risks are assessed with regards to their potential monetary impact within the time horizon of 18 months for operational risks and five years or longer for strategic risks
- From an organizational point of view, our risk management approach consists of 3 lines of defense:
  - 1ST LINE: Business Lines & Corporate Functions (own and manage risks firsthand)
  - 2ND LINE: Chief Risk Officer, Risk Committees & various SMEs (conduct ongoing surveillance with regimented frequency and proper forum)
  - 3RD LINE: Board of Directors (provide governance and periodic of oversight of the 2nd line)

We take several steps to monitor advancements in production technologies, as well as to develop and include renewable & circular feedstock sources.

Expert consultants support us to quantify our full value-chain GHG footprint and to develop a high-level GHG abatement roadmap[1], as well as to evaluate the imminent US & EU sustainability disclosure requirements and to assess our assurance readiness[2].

All Orion production plants are in the process of identifying location-specific climate-related risks [acute (i.e., flooding) and continuously growing (i.e., water shortage)], covering potential impacts with short-, mid- and long-term time-horizons. This compilation of work will further support us in defining and prioritizing mitigation actions.

[1] For more information, please see this report's chapter on "Environment"

[2] Our understanding of the still needed improvements determine our future approach to "ESG Data Management" and to non-financial reporting.

OUR SUSTAINABILITY RISKS

1. CO_2 PRICE MECHANISMS COULD LEAD TO INCREASED COSTS

There are areas where regulations like the EU Emissions Trading System (ETS) will result in higher direct costs and pose a risk to our operations. Increases in the unit price of CO_2 certificates are expected and more severe curtailments of free credits are likely to be introduced.

The EU ETS could influence us directly through the allocation of fewer free credits and higher offsetting hurdles via more expensive credit purchases. As an energy-intensive sector, Orion could also be indirectly impacted by our energy consumption from external sources.

HERE IS WHAT WE ARE DOING TO MITIGATE THIS RISK:

Energy is a critical input in the carbon black production process. We are naturally incentivized to consume less energy because of the direct relationship to our profitability and competitiveness, not only to reduce costs, but also to increase our output and earnings from the same cost base.

The more efficient our production-technology becomes, the fewer greenhouse gases we emit. Carbon black is produced through processing carbon rich feedstocks, typically waste-streams from refining or coal processing which would otherwise be burned for fuel value. Consequently, the more carbon we can extract from the feedstock, the less carbon is converted to CO_2. Further improvements in our efficiency will translate into higher yields, more products, fewer emissions and lower costs. It is worth noting that if we did not use these waste-streams as feedstock material to make our product, solid carbon, they would largely be burned for fuel - emitting roughly three times more CO_2.

We continuously monitor and seek to always comply with the regulations and reduce costs over the long term. CO_2 management is critical and integrated into our strategy and processes. We set appropriate targets in our corporate strategy and carefully monitor them. We also set a good example in product development. Each year, we invest a significant amount of money and time in the development of more efficient and higher-yield technologies, as well as in the exploration of renewable feedstocks.

As the EU ETS will lead to higher operational costs and impact competitiveness of the European industry, the EU has introduced the Carbon Border Adjustment Mechanism (CBAM) that will introduce a levy for importers for the carbon embedded in their products. This levy should equal the price paid for carbon by domestic producers.

The CBAM will be gradually introduced and will mirror a gradual phasing out of the free allowances under the EU ETS. This means that sectors will either be covered by CBAM, or they will continue to be entitled to receive EU ETS allowances.

The CBAM will enter into force for a first group of sectors in October 2023; carbon black is not included in this first group. The EU Commission will evaluate in 2025 if other sectors should be brought under the scope of CBAM. Orion is in the process of evaluating if CBAM will be more beneficial than receiving free allowances under the EU ETS.

Going forward, we expect that more jurisdictions will place carbon border adjustment mechanisms into effect to ensure that our operations in jurisdictions that impose a carbon cost are not disadvantaged by imports from countries which do not impose similar costs, and at the same time that our exports are not disadvantaged.

2. RAW MATERIALS ARE BECOMING SCARCE OR MORE COSTLY

Irrevocably, the world is transitioning toward a lower carbon-intensive economy; as a result, the demand for petroleum and coal will likely be reduced over the long-term. By-products, residues and waste-streams of the refining industry which are used as feedstock to produce carbon black, such as slurry oil and coal tar, will be less readily available.

HERE IS WHAT WE ARE DOING TO MITIGATE THIS RISK:

Our mitigation strategies include improving yields so that we need less of the traditional feedstocks, developing alternative sources such as renewable feedstocks or oil recovered from the ELT pyrolysis process – as in the BlackCycle project – and gearing our production processes toward increased usage of such raw material substitutes. Our investments in acetylene-based or other technologies, which do not use traditional feedstocks and the potential of purified carbon black also recovered from ELT-pyrolysis, strengthens the shift of our product mix away from these fossil fuel-based raw materials.

OUR SUSTAINABILITY OPPORTUNITIES

1. UPCYCLING TO CONSERVE RESOURCES

We are striving to reduce our demand for fossil-based raw materials, to conserve natural resources and reduce our environmental impact. We are demonstrating how it can be done with the BlackCycle project.

Carbon black is an essential component of tires. Although the life cycle of a tire currently results in creating waste, recycling such waste to new high-value products could transform the entire industry moving forward.

The sustainable management of end-of-life tires through recycling is a big opportunity for us. Along with our research partners, we have identified circular solutions as an important strategic imperative. Our starting point is tire pyrolysis, which involves heating end-of-life tires in a reactor and extracting oil from them that can be used as a feedstock for making carbon black. A circular business model in the tire industry would reduce waste and/or the incineration of used tires, potentially making us the industry leader in bringing sustainable solutions to our customers.

HERE IS WHAT WE ARE DOING TO TAKE ADVANTAGE OF THIS OPPORTUNITY:

We are investing in research and development with the goal of creating a circular product portfolio. With the BlackCycle project, we are also part of an EU-funded public-private partnership that gathers all the necessary competencies along the circular value chain to ensure its success with 13 partners from different EU countries.

2. DEVELOPING "GREEN" CARBON BLACK

The demand for "green" carbon black will continue to grow. Renewable oil[3], which is already technically feasible, will be an important feedstock. This has been demonstrated – in industrial grades – by PRINTEX® Nature 11 and ECORAX® Nature 12, our first generation of renewable carbon blacks from vegetable oils.

We believe that using renewable oil as a feedstock is one of the most capital-efficient means of decarbonizing the production process within the confines of the currently visible technology trends. However, there are several challenges along the road to fully substituting renewable oil for fossil fuels in carbon black production.

HERE IS WHAT WE ARE DOING TO TAKE ADVANTAGE OF THIS OPPORTUNITY:

We are committed to meeting current challenges by continuing our research and exploring various types of renewable oil for our production process. We research internally and seek collaborations with alternative oil producers.

Non-edible sources are especially important because they do not conflict with other important sustainability initiatives. For example, we are working with the RISE Research Institutes of Sweden – a state-run research institute collaborating with universities, industry and the public sector – to assess the feasibility of producing carbon black using renewable oil derived from forest products as feedstock.

[3] Renewable oil under consideration includes among others non-edible industrial grade vegetable oils and oil derived from pine and spruce stem wood.

3. NEW MARKETS MEAN NEW GROWTH OPPORTUNITIES

The electrification of the economy, using renewable energy, is a common theme across many countries. We can contribute to this goal. Electric vehicles (EVs) are the most visible manifestation of this strategy and an important building block for the future of transportation. Lithium-ion batteries are at the heart of this technology and highly conductive additives play a critical role with EVs. Less visible but also essential is upgrading our electricity grids for offshore wind, distributed solar and widespread charging stations. Conductive carbons again have an important role to play in power distribution cables.

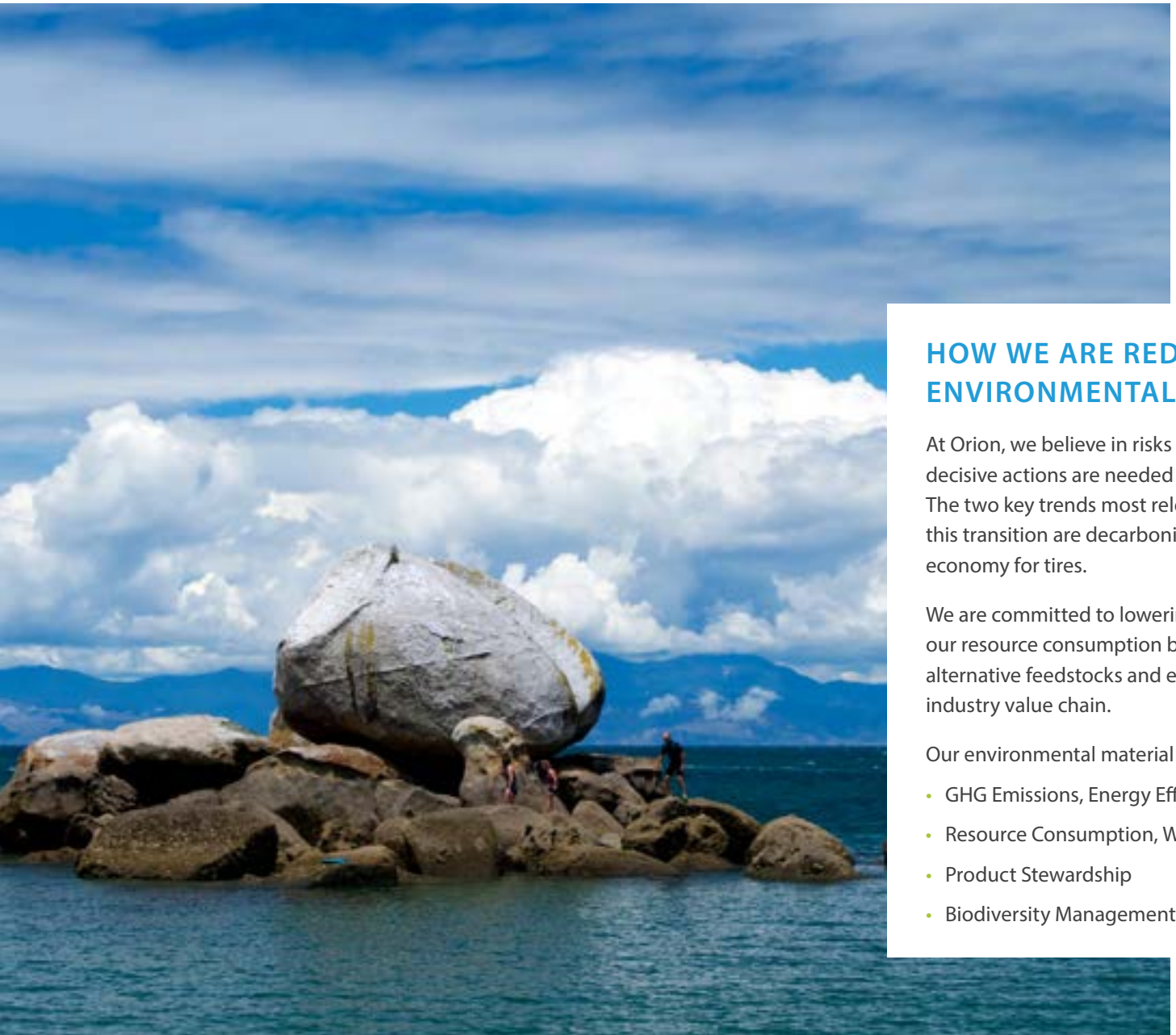
For lithium-ion EV batteries, conductive carbon additives, such as carbon black, graphene and carbon nanotubes are used in cathodes Our acetylenebased conductive products (PRINTEX® Kappa 100 and 400) provide high purity additives at an attractive price relative to performance. Demand for conductive additives is expected to grow as the transition toward more electrification gains in importance.

HERE IS WHAT WE ARE DOING TO TAKE ADVANTAGE OF THIS OPPORTUNITY:

We believe that we have an important role to play as a conductive-additives supplier to support the transformation of the sector and grow with it. For example, we recently announced a new plant in La Porte, Texas which will quadruple our production of acetylene-based conductive additives. We are also offering enabling solutions to our tire customers with our family of technically advanced carbon black to address the requirements of EVs. Because they are significantly heavier than internal combustion engine vehicles and have a higher engine torque, EVs need tires that can handle greater weight and are more durable.

ENVIRONMENT

STRATEGY



HOW WE ARE REDUCING OUR ENVIRONMENTAL FOOTPRINT

At Orion, we believe in risks associated with climate change and that decisive actions are needed to transition toward a low carbon future. The two key trends most relevant to our industry and required for this transition are decarbonization and the establishment of a circular economy for tires.

We are committed to lowering our emissions, our energy intensity and our resource consumption by continually refining our technology, using alternative feedstocks and establishing circular economies along our industry value chain.

Our environmental material fields of action are:

- GHG Emissions, Energy Efficiency and Circular Economy
- Resource Consumption, Water Management, Waste and Spills
- Product Stewardship
- Biodiversity Management and Local Pollution Prevention

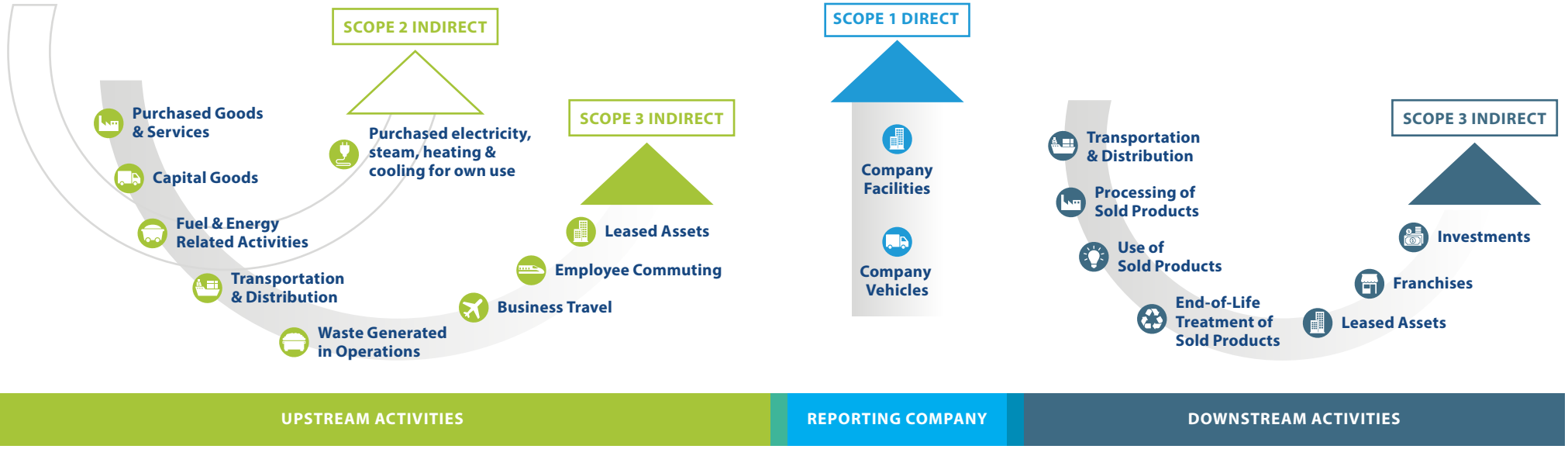
IMPLEMENTATION

EMISSIONS MANAGEMENT

We are committed to minimizing our environmental footprint, which we will achieve through new technologies, renewable feedstocks, enhancements in our operational efficiency, higher recovery of waste heat from the production process for generation of useful energy and the application of air pollution control systems. It is very important to remain commercially successful with low-emission operations.

Our recent investment in acetylene-based technology with significantly lower Scope 1 and 2 emissions[1] is an attractive part of our path forward. We are also initially concentrating our efforts on production because our greenhouse gas emissions are closely linked to the operational efficiency of our traditional technology. Carbon black is produced by processing hydrocarbon feedstock. The more carbon we can recover from the feedstock, the less carbon is converted into CO_2. Improving our efficiency means higher yield, more product, lower costs and lower GHG emissions.

Consequently, we are economically and ecologically motivated to reduce our emissions, and it is important that we manage our day-to-day operations with this in mind. We need the best operating practices across all our production sites to minimize our global emissions and achieve our stated targets. To this end, as well as to ensure compliance with operating permits and the applicable environmental laws and regulations, we are continually monitoring the productivity data from the individual production sites. We also invest in improving our air pollution control systems.



Source: WRI/WBCSD

[1] GHG Protocol: Scope 1 emissions are direct emissions from stationary or mobile installations owned or controlled by the company, e.g. fuel consumption, industrial processes. These emissions are calculated using the applicable local conversion factors. Scope 2 emissions are indirect emissions associated with the production of imported electricity, heat, steam or cooling for the organization's activities. These emissions are calculated using the market-based method. Scope 3 emissions are indirect emissions not produced by the company itself and not the result of activities from assets owned or controlled by the reporting company, but by those that it's indirectly responsible for up and down its value chain.

OUR "ROADMAP TO NET ZERO"

We support the main goal of the 2015 Paris Agreement on Climate Change and aspire to net zero emissions into the atmosphere by 2050.

To achieve net zero by 2050, we are currently focusing our efforts on the reduction of our Scope 1 and Scope 2 emissions.

To achieve our existing target of reducing the intensity of our normalized Scope 1 emissions by 8% by the year 2029, we are concentrating our corresponding annual capital expenditure on:

- Optimization of existing and adopting accessible technologies to reduce emissions from our operations
- Expansion of our low emission acetylene conversion technology
- Capitalization on alternative and circular feedstocks

Our Scope 1 emissions currently account for slightly less than 60% of the total of our GHG emissions across the scopes 1-3.

In 2022, we entered yet another commitment: we aim to eliminate our Scope 2 emissions by 2030. We will achieve this through:

- Improved energy management, by increasing the amount and own use of emissions-free electricity generated through our own CoGen units (cf. "Energy efficiency" on page 37)
- Expansion of renewable energy use in our operations, i.e., Power Purchase Agreements (PPAs) from certified renewable sources whenever our power need cannot be addressed with power generated through our CoGen units

Our Scope 2 emissions currently account for approximately 5% of the total of our GHG emissions across the scopes 1-3.

OUR GHG SCOPE 3 EMISSIONS

In 2022, we created our first ever GHG Scope 3 inventory. This was guided by the principles and standards of the WRI/WBCSD GHG Protocol's Corporate Value Chain Accounting and Reporting Standard and its supporting technical guidance for calculating Scope 3 Emissions. We undertook an extensive data identification and collection process to gather the appropriate, available activity data, and the emissions estimates were developed using the information and calculation techniques available at the time of inventory development (cf. table on pg. 35).

Our Scope 3 emissions currently account for less than 40% of the total of our GHG emissions across the Scopes 1-3. We have started the exploration of initiatives that would help us reduce our Scope 3 emissions, aiming to define a Scope 3 related emissions reduction target over the next years. Given the dependency of Scope 3 data from all kinds of assumptions and conversion factors and given the difficulty of truly influencing what happens up- and downstream the value chain, we believe the biggest contribution toward a net zero future would be if all market participants measured, reported and reduced their own, controllable Scope 1 and Scope 2 GHG emissions. This should be the goal and expectation of regulators, industry associations, investors and customers across the world.

SCOPE 3 CATEGORY	STATUS	CALCULATION METHODOLOGY	% OF SCOPE 3 TOTAL (IN 2022)
1 PURCHASED GOODS & SERVICES	RELEVANT – CALCULATED	Hybrid: Spend-based Method (Using EEIO* data for non-CBO) & average data method (for CBO)	73.5%
2 CAPITAL GOODS	RELEVANT – CALCULATED	Spend-based Method using EEIO data	2.9%
3 FUEL- AND ENERGY- RELATED SERVICES	RELEVANT – CALCULATED	Average Data Method using industry average factors	1.9%
4 UPSTREAM TRANSPORTATION & DISTRIBUTION	RELEVANT – CALCULATED	Hybrid: Distance-based Method & spend-based Method	8.2%
5 WASTE GENERATED IN OPERATIONS	RELEVANT – CALCULATED	Average Data Method using industry average factors	0.4%
6 BUSINESS TRAVEL	RELEVANT – CALCULATED	Distance-based Method from spend	0.2%
7 EMPLOYEE COMMUTING	RELEVANT – CALCULATED	Average Data Method using national commuting data	0.1%
8 UPSTREAM LEASED ASSETS	NOT RELEVANT	–	–
9 DOWNSTREAM TRANSPORTATION & DISTRIBUTION	POTENTIALLY RELEVANT – NOT CALCULATED	Downstream transportation, warehousing or logistics not paid for by Orion is not currently tracked or estimated. Orion does capture downstream transportation paid for by Orion which is categorized as category 4 because it is a procured service.	–
10 PROCESSING OF SOLD PRODUCTS	POTENTIALLY RELEVANT – NOT CALCULATED	The downstream processing of Orion's sold product (carbon black) by its customers is not accounted for due to uncertainty associated with customer processing.	–
11 USE OF SOLD PRODUCTS	NOT RELEVANT	–	–
12 END-OF-LIFE TREATMENT OF SOLD PRODUCTS	RELEVANT – CALCULATED	Waste-type-specific Method	0.2%
13 DOWNSTREAM LEASED ASSETS	NOT RELEVANT	–	–
14 FRANCHISES	NOT RELEVANT	–	–
15 INVESTMENTS	RELEVANT – CALCULATED	Average Data Method	12.4%
TOTAL	–	–	100%

* EEIO: Environmentally extended input output (EEIO) models estimate energy use and/or GHG emissions resulting from the production and upstream value chain activities of different sectors and products within an economy. The resulting EEIO emissions factors can be used to estimate GHG emissions for a given industry or product category.

EMISSIONS FROM LOGISTICS AND BUSINESS TRAVEL

We are constantly seeking new ways to lower our outbound logistics' CO_2 footprint. As a global player, we have significantly strengthened our remote-working capacities and reduced our business travel. In addition, we only fly commercial aircrafts, we do not fly higher emission per passenger private aircraft. In the future, we will continue to challenge ourselves to further improve our transportation efficiency and minimize transport-related emissions.

NON-GHG AIR EMISSIONS

In 2022, we further reduced our SO_2, NO_x and PM emissions intensity rates and are well on track to hit our targets for 2029. For past three years Orion invested more than $200 million dollars to install NO_x and SO_2 control technologies that reduce 90% of emissions from the emission point. In 2020, Orion installed NO_x Selective Catalytic Reduction (SCR) at our Orange plant to reduce 90% of emissions from the incinerator. In 2021 Orion installed SNO_x plant that convert SO_2 to sulfuric acid (usable product when it meets specification) and reduce NO_x that resulted in 90% reduction of NO_x and SO_2 emissions from our Ivanhoe plant. In 2022, Orion installed Circulating Dry Scrubber (CDS) and SCR to reduce the SO_2 and NO_x emission from our Borger plant. In 2023, we will be completing the SO_2/NO_x upgrades in the U.S. and advancing our controls in other jurisdictions. PM reductions have been made though improving the technology of our PM monitoring equipment and process optimization.

HIGHLIGHT

WE ARE BUILDING THE FIRST PLANT FOR ACETYLENE-BASED CONDUCTIVE ADDITIVES IN THE U.S.

We are the first to build a plant of this kind in the U.S. Acetylene-based conductive additives are a critical link in the global momentum for products powering the transition to clean energy.

Acetylene is a high-energy gas. Our acetylene-based process does not require natural gas or oil firing, thus significantly reducing CO_2 emissions. We turn acetylene into a powder that is used as an additive in lithium-ion cells to enhance the electrical conductivity by providing electrical pathways within the electrodes, improving the performance and efficiency of the most valuable component of an electric vehicle: the battery.

The material also plays an important role in extra-high-voltage cables, homogenizing the electrical field in the insulation material.

We are looking to start commercial sales in 2025. Our conductive additives capacity will increase by approximately 12 kilotons. The new plant will offer the country new technologies and high-quality long-term jobs.

Incidentally, our plant in France makes us the sole manufacturer of acetylene-based conductive additives also in the European Union – with demand for the material growing worldwide.

ENERGY EFFICIENCY

We regard energy as having two aspects. We use energy in the production process, and this process itself yields residual energy, which we can use. Consequently, we are committed to minimizing the input energy and maximizing the use of waste energy.

Our first approach is to reduce energy consumption through improvements in productivity and efficiency.

Compared to standard ASTM products, energy intensity is higher for specialized carbon black designed for the specific functionality required by our customers. Our technically advanced rubber grades, which are designed to improve rolling resistance to enhance tire fuel mileage, require higher energy intensity than corresponding standard grades. All-in-all however we believe the net societal impact is better for specialized carbon blacks due to the improved tire fuel efficiency and tire life.

Add to that the fact that compared to the competition, we have a higher share of specialized products in our portfolio that contributes to a reduction of the GHG footprint of our industry value chain. Consequently, we remain committed to improving our energy intensity while ensuring that we further enhance our role as a provider of advanced solutions that support industry-wide sustainability initiatives.

Our second approach is to re-circulate waste heat back into the production process and to use it in the production of other forms of useful energy. In addition to directly capturing and recirculating heat generated from our production process (which lowers the need for input energy), we utilize the by-product tail gas to produce electricity for internal consumption and distribution to third parties.

RESOURCE CONSUMPTION

WATER IS VALUABLE.

Just as we all need water to survive, a consistent and uninterrupted supply of water is also critical to our operations. Water is used in the production of carbon black and steam. We use tail gas to generate steam. We then use the steam in our production process or deliver it to external customers or use it to generate electric power (which we use ourselves and/or sell to the grid).

We are aware that water is a shared, vital resource, which is why we strive to minimize its consumption in our operations. We ensure that wastewater is treated in compliance with the applicable laws and regulations. We reuse/recycle our wastewater within the process and only discharge the water during unusual storm events.

Responsibility for water management rests with both our global operations department and the individual production sites. We minimize our consumption levels and carefully check the quality of wastewater sent to outside of the plant.

WE AVOID WASTE AND SPILLAGE

Our feedstock is a byproduct of oil refining and coal processing. It is rich in carbon, and we capture most of that carbon as a solid, essentially our product. The alternative to our processing of the feedstock is for it to be burned for fuel value with virtually all carbon converted to CO_2.

We also use materials in our production process that contain chemical components classified as hazardous, e.g., coal tar and petroleum-based feedstock. We know that there is a risk of spilling hazardous materials, and we are aware of the potential harm that chemicals can have on the environment.

We are therefore focusing on ensuring that our processes are mechanically reliable and prevent the loss of primary containment. We are also committed to the prevention of accidental spills of hazardous materials by closely monitoring operations and spill events that occur at our operating sites. In 2022, we focused on developing and training our personnel to report on a Loss of Primary Containment metric, which focuses the plant on detecting and eliminating even the smallest of leaks.

Waste is generated from our production process and comprises both non-hazardous and hazardous industrial wastes. We are committed to minimizing waste generation, for example, by improving "first time prime" production and to its proper handling and disposal in full compliance with all applicable laws and regulations. Further, we are committed to recycling, reusing and recovering waste. It should be noted however that some air emission controls technologies do capture sulfur in a solid form that needs to be disposed of.

Our plants' EHS programs are governed by a clear set of standards documented in our Global Management System (GMS). These standards assure compliance with not only the applicable laws and regulations but also with best practices in the proper handling, storage, transportation and disposal of materials.

In collaboration with regional professionals, our global EHS function is responsible for keeping the applicable GMS standards updated and relevant. Training is provided to site employees and contractors, and audits are carried out periodically to ensure compliance. The plants are audited regularly to ensure compliance with these standards. Any findings requiring corrective actions are recorded and monitored to timely closure.

HIGHLIGHT

HOW WE USE WASTE FOR NEW PACKAGING BY USING FIBC WITH RECYCLED POLYPROPYLENE CONTENT

The use of Flexible Intermediate Bulk Containers (FIBC) with recycled PP content offers several benefits for a sustainable future. Incorporating recycled materials into FIBC production reduces plastic waste, conserves resources and lowers greenhouse gas emissions and energy consumption associated with virgin plastic production. Additionally, FIBC with recycled PP content provides durable and secure packaging for bulk materials, contributing to a circular economy while meeting the needs of clients. Ultimately, FIBC with recycled PP content serves as a practical and sustainable solution for industrial packaging and transportation needs. We are introducing FIBCs with a 30% recycled PP content into our packaging portfolio in 2023 after successful test campaigns. We plan to increase the number of recycled PP FIBC during the next years significantly in accordance with our sustainability targets.

PRODUCT STEWARDSHIP

Our customers use carbon black for specific purposes that improve the properties of their own products. As a technology leader of the carbon black industry, we are at the forefront of providing our customers with solutions that enable their own progress in sustainability.

We are keenly aware of this responsibility, and we are committed to closely monitoring the development of health and safety issues and of regulations with respect to carbon black. This is to ensure that our products do not cause harm to anyone who comes into close contact with them.

We closely monitor the quality of our products and ensure that detailed information is available. To protect our customers' health and safety, we provide information on the intended use of our products and how to correctly handle and store them. We also comply with local as well as global laws and standards, e.g., the United Nations' standard set out in the "Globally Harmonized System of Classification and Labeling of Chemicals."

All aspects of product stewardship are managed collectively by our global operations department, the individual production sites and regions, the EHS function, the innovation function (R&D), the business lines and the technical marketing functions. We work closely with renowned universities and research institutes to monitor the latest developments in health and safety matters and in technologies relevant to improving our product quality. All our sites are ISO 9001 certified.

BIODIVERSITY MANAGEMENT AND LOCAL POLLUTION PREVENTION

"Society relies on biodiversity and the goods and services it provides for human well-being and for the provisioning of raw materials that produce greater material welfare. Over the past 50 years, through increased population growth and climate change humans consumed and degraded biodiversity and ecosystems more rapidly than at any other time in human history. All businesses, regardless of their size, location, or sector, depend upon and have a direct or indirect impact on biodiversity and ecosystem services (BES) through their operations, supply chains or investment choices. It is thus important for businesses to integrate BES considerations into their practices and to participate in the sustainable and equitable use and conservation of BES."

– Quote from UNGC Biodiversity Framework

The diversity of ecosystems and species is inherently valuable and needs to be protected. We acknowledge that the production of carbon black, like all energy-intensive operations, results in GHG emissions that can have an impact on climate change and biodiversity. We strive to operate with careful environmental consideration toward our surroundings.

We reduce our impact on biodiversity by reducing our environmental footprint. For water we assure no effect to biodiversity by ensuring all our water emissions follow local regulations and do not harm the environment. As we reduce SO_x, NO_x and PM, and become more efficient we are improving overall environmental conditions which in the long-term should improve conditions for biodiversity. By reducing Loss of Primary Containment (LOPC) events and advancing our mechanical integrity programs, we are reducing the chance of spills, specifically carbon black oil, and this ultimately lowers the risk to plants and animals.

PERFORMANCE MEASUREMENT

INDICATOR	UNIT	TARGET* (2029)	Reporting period 2022	2021	2020
PRODUCTION	MT		913247	913705	804371
GHG EMISSIONS					
SCOPE 1	MN MT GHG		2.3	2.2	1.9
SCOPE 2	K MT GHG		166	159	170
SCOPE 3	MN MT GHG		1.4	1.4	1.2
SCOPE 1 INTENSITY	MT GHG / MT PRODUCTION		2.5	2.4	2.4
SCOPE 2 INTENSITY	MT GHG / MT PRODUCTION		0.2	0.2	0.2
NORMALIZED SCOPE 1 [2]					
INTENSITY	MT GHG / MT PRODUCTION		2.4	2.4	2.3
INTENSITY REDUCTION	%	-8	-3	-4	-5
SO_2					
EMISSIONS	K MT SO_2		10.0	11.3	12.6
INTENSITY	KG SO_2 / MT PRODUCTION		11.0	12.4	15.7
INTENSITY REDUCTION	%	-50	-42	-35	-17

* Baseline year 2014 (unless specifically stated otherwise), and all targets set for delivery by 2029

[2] Normalized for product mix and feedstock mix in furnace black production

INDICATOR	UNIT	TARGET* (2029)	Reporting period 2022	2021	2020
NO_x					
EMISSIONS	K MT NO_x		3.6	4.2	4.0
INTENSITY	KG NO_x / MT PRODUCTION		4.0	4.6	5.0
INTENSITY REDUCTION	%	-25	-24	-13	-5
PARTICULATE MATTER [3]					
EMISSIONS	K MT PM		0.4	0.4	0.5
INTENSITY	KG PM / MT PRODUCTION		0.4	0.5	0.7
INTENSITY REDUCTION	%	-15	-34	-29	+1
ENERGY					
ENERGY CONSUMPTION [4]	TWH		20.8	20.6	18.1
INTENSITY	CF. FOOTNOTE [5]		2.1	2.1	2.1
TAIL GAS UTILIZATION RATE [6]	%	79	73	76	76

[3] PM emissions based on the local authorities' requirements, which can differ across the different legislations.

[4] Energy consumption includes fuel oil, make oil and other energy (e.g., electric power) consumed at the operating sites under our management control and ownership.

[5] Total energy consumed in TWhs divided by total useful energy in TWhs (including carbon black and energy produced)

[6] Tail gas usage in the production of energy for internal or third-party consumption

INDICATOR	UNIT	TARGET* (2029)	Reporting period 2022	2021	2020
WATER INFLOW					
INFLOW	MILLION M^3		12.0	12.5	11.3
SURFACE WATER	%		29	32	27
WELL WATER	%		18	16	16
MUNICIPALITY	%		48	50	52
RETENTION POND	%		5	2	5
WATER OUTFLOW					
OUTFLOW	MILLION M^3		3.5	4.4	3.4
SANITARY SEWER	%		1	2	2
MUNICIPALITY	%		24	22	26
NATURAL BODY OF WATER / COLLECTION POND	%		75	76	72
WATER INTENSITY [7]	M^3 / MT PRODUCTION		9.3	8.9	9.8
WASTE INTENSITY	KG / MT PRODUCTION		15.4	15.5	15.7

[7] Calculated as net water usage (inflow less outflow) per million metric tons of carbon black produced

INDICATOR	UNIT	TARGET* (2029)	Reporting period 2022	2021	2020
WASTE GENERATION					
TOTAL WASTE GENERATION	K MT		14.1	14.2	12.6
GENERAL & NON-HAZARDOUS WASTE	K MT		10.8	10.6	11.3
HAZARDOUS WASTE	K MT		3.3	3.6	1.3
WASTE DISPOSAL METHOD					
GENERAL AND NON-HAZARDOUS WASTE					
LANDFILLED	K MT		6.3	6.6	7.6
RECYCLED, REUSED & RECOVERED	K MT		4.3	4.0	3.8
INCINERATED	K MT		0.2	0.0	0.0
HAZARDOUS WASTE					
LANDFILLED	K MT		1.8	3.4	1.0
RECYCLED, REUSED & RECOVERED	K MT		0.4	0.2	0.2
INCINERATED	K MT		1.0	0.0	0.0
SIGNIFICANT SPILLS [8]					
NUMBER OF INCIDENTS	NUMBER		0	0	0

[8] Significant spill is defined as a reportable release of a substance that is large enough to be included in our financial statements and is recorded as such in our EHS registry.

SOCIAL RESPONSIBILITY

STRATEGY

A deep commitment to social responsibility is core to who we are as a company. We believe people are at the heart of our business and work to advance a positive work culture. We strive to be an optimal employer for our employees, as well as a valued partner to our communities. We engage with our employees to provide a challenging, dynamic, inclusive and diverse work environment that supports their professional development, as well as promoting a good work-life balance that prioritizes their overall health and wellness.

To support our commitment to Social Responsibility, we focus in the following material fields of action:

- Culture, Engagement and Growth
- Diversity, Equity and Inclusion
- Human Rights
- Strengthening our Communities

IMPLEMENTATION

CULTURE, ENGAGEMENT AND GROWTH

We are committed to promoting a workplace of belonging where our employees are informed, engaged and enabled to do their best work and be their best selves. We are also committed to providing our employees with opportunities for learning and personal growth in an environment where creativity and innovation are encouraged.

We have committed to:

- Make available an enjoyable, spirited work environment that rewards innovation and collaboration at all levels.
- Ensure the voices of our employees are heard to help shape our priorities and actions.
- Offer development planning to support learning and career growth.
- Ensure employees receive regular performance alignment and feedback.

"The Orion Site Leader Certification Program provides our aspiring plant managers with essential tools in key areas of product knowledge, safety, environmental compliance, operations, leadership profit and loss. It is a critical path for employee development and is aligned with Orion's value system, leadership competencies and focus to develop our pipeline of future site leaders"

– NICOLE LEWIS – Senior Director of Americas Operations and key sponsor of Orion's Site Leader Certification program

HIGHLIGHT

ORION SITE LEADER CERTIFICATION PROGRAM

At Orion, we are committed to career progression, development opportunities and succession planning. Our Site Leader Certification Program is an example of a program designed to prepare future Orion site leaders. Participants are paired with key experts/functional leaders and follow a path of learning period and board review that is fully aligned with individual career development.

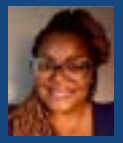
This broad-based program focuses on areas including:

- Environmental Health and Safety
- Process Safety
- Human Resources/ Leadership
- Technical Knowledge
- Operations
- Maintenance & Reliability
- Quality
- Financial
- Information Technology
- Sustainability
- Supply Chain

SEVERAL GRADUATES FROM THIS PROGRAM HAVE RECENTLY BEEN APPOINTED AS SITE LEADERS WITHIN THE ORION MANUFACTURING FOOTPRINT:

ANA PAULA NEVES
Plant Manager
Paulina, Brazil

MANHO HA
Plant Manager
Yeosu, South Korea



LATAURA YOUNG
Plant Manager
Orange, Texas, USA

STEVE MIRABELLA
Plant Manager
Borger, Texas, USA

NOMFUNDO FALTEIN
Plant Manager
Port Elizabeth, South Africa

DIVERSITY, EQUITY AND INCLUSION

We believe diversity, equity and inclusion (DE&I) are keys to our success and we strive to create a welcoming environment where everyone can belong, grow and thrive. We place a premium on the freedom for our employees to be their authentic selves and offer an equal chance to bring different skills, backgrounds and experiences to work. To realize our commitments, we pledge to:

- Enable a trusting environment so employees are free to share individual experiences to increase understanding.
- Promote an environment where each Orion employee owns the responsibility to exemplify inclusive behavior and treat others with respect, dignity and empathy.
- Ensure our leaders will drive a higher social consciousness and ensure accountability within the company.

HUMAN RIGHTS

As described in our Human Rights Policy, we believe our long-term business success can only be achieved if human rights are acknowledged, respected and protected. In this regard, we respect and support international standards aimed at protecting and promoting human rights, as described in:

- The United Nations Guiding Principles on Business and Human Rights;
- The United Nations Universal Declaration of Human Rights;
- The International Labor Organization's Declaration on Fundamental Principles and Rights at Work;
- The International Covenant on Civil and Political Rights;
- The International Covenant on Economic, Social and Cultural Rights;
- OECD Guidelines for Multinational Enterprises.

ENGAGEMENT WITH LOCAL COMMUNITIES

Gaining and safeguarding the acceptance and trust of our local host communities is key for our business continuity. We therefore want to contribute to the development of these communities and engage and interact with our local neighbors and other stakeholders transparently and on an ongoing basis.

Our Charitable Giving policy encourages our sites to be a contributing member of their respective local host communities through donations and employee volunteering. We have an annual budget that is calculated as a fixed percentage of our budgeted adjusted EBITDA. Under our policy, each site defines their own local community engagement plan to tailor our activities to the respective local needs.

All our locations again made numerous charitable donations in 2022. However, nowhere was the effort greater and more needed than at our site in Jaslo, Poland (130km from the Ukrainian border), where numerous activities were carried out throughout the year to provide humanitarian aid to Ukrainians who had to flee their country because of the brutal military invasion by Russia.

Funds were reallocated to Poland from other countries to maximize our impact; our employees raised money to further increase the available budget; and our leadership further added to that by matching the contributions made by our employees. A part of the budget was transferred to the German and Korean Red Cross which oversaw the further distribution for their special initiatives in the Ukraine, and a part was offered directly to the Ukrainian Government.

Supporting the Polish Red Cross, Orion provided several hundred refugees (mainly women and children) with blankets, bedding, cleaning products, washing powders and liquids, and hygiene products.

First aid medical kits, protective clothing, firefighting hoses, boots, gloves, helmets and other equipment needed for firefighting were provided to the Ukrainian State Fire Brigade.

Most of our material aid was dedicated to wounded civilians and soldiers. This action was coordinated with Caritas in Poland.

Orion delivered 15 vacuum therapy and wound treatment systems (ACTIV.A.C.™) with consumables and dressings for 300 wounded people in various Ukrainian hospitals.

Furthermore, Orion provided the Ukrainian military with medical supplies that are critical for first aid on the battlefield, such as: Celox® pad gauzes, Israeli Bandages®, hemostatic gauze pads, bleeding control kits, tourniquets, trauma dressings, vented chest seals, aluminized rescue blankets, etc.

We very much hope to have made at least a small contribution to the alleviation of the unspeakable pain and suffering of the Ukrainian people.

PERFORMANCE MEASUREMENT

INDICATOR	UNIT	TARGET*	Reporting period 2022	2021	2020
EMPLOYEES BY GENDER [1]					
TOTAL	NUMBER		1605	1475	1448
MALE	%		82	82	82
FEMALE	%		18	18	18
FEMALES IN MANAGEMENT ROLES	%		19	19	15
EMPLOYEES BY CONTRACT [2]					
PERMANENT	NUMBER		1584	1451	1423
TEMPORARY	NUMBER		21	24	25
FULL-TIME	NUMBER		1573	1436	1401
PART-TIME	NUMBER		32	39	47

* All targets set for delivery by 2029

[1] Gender ratio - Orion operates in the Chemical manufacturing industry which is predominantly a male workforce, and our gender ratio is consistent with the industry. Approximately 2/3 of our workforce are in blue collar roles.

[2] Part-time/Temporary Employees – Approximately 2/3 of our workforce are in blue collar roles and the nature of this work in the chemical industry lends itself to regular full-time roles so that employees are properly trained. Our unions and works counsels generally prefer for employees to have the security of regular full-time employment.

INDICATOR	UNIT	TARGET*	Reporting period 2022	2021	2020
U.S. EMPLOYEES BY ETHNICITY [3]					
TOTAL U.S. EMPLOYEES	NUMBER		355	322	307
WHITE	%		72	75	74
AFRICAN AMERICAN	%		13	10	11
HISPANIC	%		9	10	9
ASIAN	%		4	4	3
OTHERS/UNDISCLOSED	%		1	1	3
EMPLOYEES BY REGION					
AMERICAS	NUMBER		419	385	360
APAC	NUMBER		362	313	316
EMEA	NUMBER		824	777	772
EMPLOYEE BY AGE GROUP					
<30	NUMBER		175	137	127
30-50	NUMBER		735	721	719
>50	NUMBER		695	617	602

[3] US Ethnicity – Orion strives to have a workforce representative of the communities in which we operate. It is not possible to provide figures on a global basis as ethnicity definitions are not consistent from country to country. In several countries, Orion is not permitted to request this information. Orion US represents ~ 22% of the overall Orion population and is not representative of OEC on a global basis.

INDICATOR	UNIT	TARGET*	Reporting period 2022	2021	2020
EMPLOYEES IN BARGAINING UNIT [4]					
NUMBER OF EMPLOYEES	NUMBER		762	738	715
AS A PERCENTAGE OF TOTAL	%		48	50	49
VOLUNTARY TURNOVER RATE					
VOLUNTARY TURNOVER RATE	%		4	4	4
EMPLOYEES RECEIVING PERFORMANCE REVIEW					
AS A PERCENTAGE OF TOTAL	%		65	58	57
AS A PERCENTAGE OF EMPLOYEES ELIGIBLE EMPLOYMENT CONTRACT [5]	%	95	96	95	92
WORKFORCE RECEIVING TRAINING					
AS PERCENTAGE OF TOTAL	%	100	100	97	96
AVERAGE TRAINING HOURS					
AVERAGE TRAINING HOURS	HRS	40	27	23	18

[4] Collective Bargaining – Orion recognizes and respects our employees' right to be represented under a collective bargaining agreement however, we strive to provide a safe working environment and competitive wages and benefits for all employees regardless of representation.

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

INDICATOR	UNIT	TARGET*	Reporting period 2022	2021	2020
NON-DISCRIMINATION					
CLAIMS ALLEGED	NUMBER		0	0	1
SUBSTANTIATED	NUMBER		0	0	0
UNSUBSTANTIATED	NUMBER		0	0	1
CLAIMS CLOSED	NUMBER		0	0	1
CORRECTIVE ACTIONS TAKEN [6]					TRAINING

[6] Options include no action, policy review, training, discipline and termination.

GOVERNANCE

STRATEGY

We believe that our integrity as a business – the foundation for earning the trust of our stakeholders – is expressed through our commitment to compliance in the way we conduct our business. A high degree of social, legal and ethical compliance is expected from all employees and those with whom we do business. We do not tolerate corruption, bribery, fraud, money-laundering, anti-competitive practices, conflict of interest, child-labor and threats to information security.

For the implementation of our strategy and the success of the organization and our affiliated companies, the trust of business partners, shareholders and the general public is essential.

Our material fields of action are:

- General Business Compliance and Code of Conduct
- Environment, Health & Safety (EHS) Compliance
- Supplier Management

BOARD-LEVEL SUSTAINABILITY OVERSIGHT[1]

Our full Board regularly discusses corporate strategy of which two pillars are driven by sustainability: developing the market for conductive carbons and the development of a circular economy for used tires. The Board is updated periodically on Life Cycle Analysis of our products and various manufacturing processes we operate or are developing.

Our Board of Directors' Nominating, Sustainability and Governance Committee reviews the Company's strategy, activities and policies regarding sustainability and makes recommendations to the full Board which has the oversight function with regard to the Company's Environmental, Social and Governance ("ESG") goals and activities. Our CEO is accountable to ensure accurate reporting on sustainability to the Board. In 2022, Orion refreshed its ESG materiality assessment, engaged with customers and EU authorities on environmental topics, with employees via a flash interim employee engagement survey, with its plant managers on community engagement and with investors on various financial and ESG achievements.

[1] For a detailed description of our Corporate Governance principles, composition and leadership structure of the Board, Director independence, the Board's role in risk oversight and the Board's committees with their respective responsibilities, please refer to our Corporate Governance Guidelines and our 2023 Proxy Statement.

IMPLEMENTATION

GENERAL BUSINESS COMPLIANCE AND CODE OF CONDUCT

We believe that our integrity as a business – the foundation for earning the trust of our stakeholders – is expressed through our commitment to compliance in the way we conduct our business. The result hereof is our Code of Conduct. This commitment is not limited to how Orion conducts its business; we seek the same commitment from our suppliers. Orion therefore has implemented a Supplier Code of Conduct in addition to its general Code of Conduct.

Trust does not come automatically, and it must be earned on a continuous basis. The laws of countries where Orion operates must be observed of course, but more is required. As a responsible company, Orion has adopted globally applicable principles of individual and collective behavior defining how the company conducts its business. A high degree of social, legal and ethical compliance is expected of all employees and all of those with whom we do business.

– Excerpts from Orion's Code of Conduct

The level of risk and legal compliance standards can vary from country to country. For certain strict matters, such as prevention of corruption, we believe that it is important to have an enhanced common standard that uniformly applies to all of Orion. In addition to the general adherence with laws, we have decided to codify best practices into the Code of Conduct. Our Code of Conduct applies to all Orion employees and aims to apply also to all associated persons who provide services for or on behalf of Orion, including agents.

Compliance is assured through proactive engagements at all levels of the organization, starting with our CEO and our Board of Directors, and the compliance controls in place, as well as the verification processes that include internal audits. We have an effective whistleblower program (managed by our General Counsel in his role as Chief Compliance Officer) that assures anonymity of the whistleblowers for countries in which this is allowed. We also verify compliance with the Code of Conduct through a semi-annual certification process in which Regional Compliance Officers report on issues of concern. These matters are analyzed, and appropriate actions are taken where warranted, including investigations. Our compliance is reviewed by the management on a regular, periodic basis and, depending on the topic, reported to the Audit Committee or the Nominating, Sustainability and Governance Committee of the Board of Directors.

We conduct mandatory compliance training for all employees on a regular basis, including yearly web-based training and (as far as feasible) classroom training. Such compliance training is 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 employees with not only the broad range of subject matters covered under the Code of Conduct, but also with our compliance management system and the most important policies accompanying it, like the anti-bribery policy, the anti-trust policy and the insider trading policy. Our goal is to enhance the awareness of potential risks. We aspire to achieve a training coverage ratio of 100% of our entire workforce per year but have set our target at 95% in view of computer access and employees in transition.

ENVIRONMENT, HEALTH & SAFETY (EHS) COMPLIANCE

We maintain continued compliance with the Orion Global Management System (GMS) EHS standards. These standards are designed to maintain a consistently high level EHS performance globally in our plant operations regardless of local standards and practices. Each manufacturing site has an EHS Manager, and additional EHS professional staff are available depending on the size and complexity of the site. Each area also has a Regional EHS Manager who is supplemented by the Global EHS organization.

The site EHS staff relies on various tools to identify and assure compliance with applicable regulatory requirements. These tools include:

- Access to EHS regulatory websites, industry associations and internal Subject Matter Experts (SME).
- Annual regulatory compliance self-assessments as required by the applicable GMS standard.
- Periodic compliance assessment conducted by the Regional EHS Manager and the Global EHS organization.
- Frequent interaction and reviews between the site EHS team and the Global EHS organization.

ENSURING COMPLIANCE

To augment self-assessments and the audits we conduct internally, we are supplemented by third-party certification auditors who periodically conduct audits to assess adherence to legal and company EHS requirements. The results of these assessments are reported to the Orion executive leadership team, documented, and tracked to timely closure.

Global EHS compliance audits typically focus on environmental, occupational and process safety systems. The frequency of these audits ranges from one to three years, depending on 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 where necessary to incorporate changes.

All internal and third-party findings are classified as either regulatory or non-regulatory findings and tracked in a database. To the extent that any issues are identified, there is a rigorous audit closure tracking process in place that involves assignment of individual accountability, a fixed period for closure and continual status tracking until the audit finding has been closed. All the manufacturing sites are certified to ISO 9001 and ISO 14001 and undergo the required internal and third-party audits.

WE INVESTIGATE ALL INCIDENTS AND IMPLEMENT CORRECTIVE MEASURES

All EHS incidents within Orion are considered important and investigated as needed to determine the causes and prevent recurrence. Incidents are reported, evaluated according to severity to determine the appropriate classification, 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. On a monthly basis, the learnings from the most significant incidents are discussed globally to support the investigation process, share learnings and to get additional insight and suggestion from plants with similar experience. We have implemented Gensuite — an electronic database to facilitate an 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.

PROTECTION THROUGH 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, incident reporting and emergency response planning.

OCCUPATIONAL HEALTH AND SAFETY ARE ESSENTIAL

Safety is one of our core principles. It is part of our culture and central to our operational management system. It eliminates or minimizes risks to personnel, communities, the environment and other stakeholders who could be affected by our activities. We are committed to providing our employees and contractors with a safe and healthy working environment. Our goal is that everyone who enters our operating sites exits them in the same condition.

We have a clearly defined target for the recordable incident rate, lost time rate and process safety incidents: it is zero. However, in 2022, we had one more recordable incident than in 2021. To counteract this, we are increasing our EHS training, improving our root cause elimination of incidents, implementing Life Critical rules, and increasing the rigor of our EHS auditing.

Our standards and procedures for operational safety are grounded in the principles of the ISO 45001 Safety Management System, ANSI/ASSP Z10.0 and OSHA VPP. Risk assessments have been carried out for activities taking place at our operating sites and applicable rules and processes that reflect best practices have been codified in our operating manuals. As part of our continual efforts to raise our standards, we formally joined the American Chemistry Council (ACC) and will be implementing RC-14001 in our Americas plants.

Through our work permit process, further detailed safety analysis is completed before maintenance and other activities are undertaken at our operating sites to ensure that those involved in the activities are made aware of the risks and sufficient actions are taken ahead of the work to establish a safe environment. Near misses are reported to learn and improve our safety procedures and rules. Our standards and procedures are updated to reflect best practices and changes in industry standards. Recognizing that safety requires the commitment and participation of all our employees, all our operating sites have joint management-labor safety committees where employees are represented.

Periodic employee and contractor trainings are held. Compliance audits are carried out to prevent lapses in both procedural and substantive compliance.

The CEO sets the expectations for creating a healthy and safe working environment for everyone who works at any of our operating sites. The Head of Global Operations, supported by the EHS function, is responsible for establishing the standards, procedures and rules that must be observed at all Orion sites. Safety performance is monitored globally and locally, and corrective actions are taken where warranted. Site leaders are responsible for overseeing EHS performance at their respective sites. They are supported by the EHS professionals and Subject Matter Experts.

Safety performance forms a component of the executive team's performance reviews that take place at regular intervals. Safety incidents are reviewed by the operations function and the EHS function with a view to ensuring that corrective actions are taken not only at the site in question, but also at other sites where applicable. Significant safety issues are reported to and reviewed by the CEO and the Board of Directors.

We are committed to sharing incidents and learnings globally to ensure that all our plants worldwide learn from incidents and lessons learned. We are continuing our journey toward a more interdependent, sustainable safety culture by challenging our workers to be more engaged and become active participants in resolving workplace safety concerns. We placed special emphasis on:

- Improving contractor safety
- Improving work permits and simplifying the process.
- Continued encouragement of near miss reporting and root cause elimination.
- Encouraging the reporting of small Losses of Primary Containment (LOPC).
- Maintaining a fast response time to employee safety concerns.
- Accelerating the pace of equipment upgrades, such as machine guarding and upgrades to improve mechanical integrity.
- Instilling operating discipline.

The long-term target is to maintain a sustainable culture that is characterized by strong teamwork and commitment to safety performance and supported by interdependent collaboration between employees and leadership.

SUPPLIER MANAGEMENT

Our procurement strategy is founded on quality, cost, delivery and compliance. However, we believe decisive actions are also needed along the value chain to transition toward a sustainable future. Therefore, working with our suppliers globally, one of our primary focus areas is also the sustainable procurement space. We strive to work with suppliers that are in line with our sustainability efforts. To reflect our dedication toward this, we will work with our suppliers and subcontractors to ensure their compliance with the applicable laws, regulations and with our core values and standards as expressed in our newly introduced Supplier Code of Conduct with the dedicated focus on supplier's CSR and sustainability.

WHAT WE EXPECT FROM OUR SUPPLIERS

We look at the entire value chain, and this includes the suppliers who supply us with feedstocks, chemical additives, process equipment, packaging materials, maintenance and repair services, engineering services, logistics services and other professional services. We aim to have all our suppliers comply with our Supplier Code of Conduct or their equivalents in the way they conduct their business and to act responsibly in the management of their ESG risks, particularly in the following areas:

- Environment
- Health
- Safety
- Labor (e.g., working conditions, the right to collective bargaining, etc.)
- Business ethics
- Human rights (e.g., prohibition against the use of underage workers and forced labor)
- Social policy matters (e.g., diversity and inclusion)
- Sustainable procurement
- Disclosure requirements

To ensure a high level of transparency along our global supply chain, we started cooperation with EcoVadis. At the end of 2022, our 65 suppliers responsible for approximately 10% of our relevant spend (suppliers with spend over USD 10 k p.a.) were assessed by EcoVadis. Our goal is a share of at least 60% spend (value based) generated with CSR assessed suppliers by 2029.

In addition to the CSR assessment, we also use EcoVadis' Carbon Module in order to manage the supply chain's contribution to our Scope 3 emissions in the medium term. In partnership with ERM we developed a model (emissions per dollar of spend and volume of purchased Carbon Black Oil) for estimation of our Scope 3 emissions share, generated by the supply chain (Cat. 1 "Goods and Services" and Cat. 2 "Capital Goods").

CO_2e EMISSION FROM SUPPLIERS*

CATEGORY OF SCOPE 3	2022		2021		2020	
	EMISSIONS (MT CO_2e)	% OF TOTAL SCOPE 3	EMISSIONS (MT CO_2e)	% OF TOTAL SCOPE 3	EMISSIONS (MT CO_2e)	% OF TOTAL SCOPE 3
CATEGORY 1 AND 2 – PURCHASED GOODS & SERVICES AND CAPITAL GOODS	1.063.643	76,5%	1.088.265	76,0%	931.038	76,5%

*Calculation performed by ERM in accordance with hybrid method: Mix of: (i) spend multiplied with specific EEIO emissions factors and (ii) volume of purchased Carbon Black Oil multiplied with estimated average CO_2 factor.

SUPPLIER SELECTION PROCEDURE

Our suppliers are selected and managed through global and regional collaboration. The supplier selection process begins with vetting. Generally, a risk-based approach is used that starts with issuing our potential suppliers with CSR assessment by 3rd party professionals (e.g. EcoVadis). Follow-up inquiries are made where warranted. In 4th quarter 2022 Orion buyers across all locations were trained in sustainable procurement. The main topics within a training series addressed implementation of new sustainable procurement criteria in Orion's purchasing processes and utilization of suppliers CSR ratings. Almost 90% of Orion's buying team across all locations were involved.

We intend to have all our suppliers meet our most critical standards. Part of the vetting process includes the assessment of a supplier's compliance assurance basis. We help suppliers with less robust foundations to establish a compliance assurance baseline at an acceptable level. We monitor their performance periodically. This process enables us to work with suppliers from developing economies, where our engagement not only provides quality employment opportunities to the local economies but also enables our suppliers to adopt and incorporate sustainable values into their business and management practices. To date, approx. 99% of our suppliers (by value) have agreed to comply with our Code of Conduct or its equivalent. In addition, 78% (by value) of Orion's targeted suppliers' contracts in 2022 included clauses on environmental, labor and human rights requirements.

MAINTAINING GLOBAL STANDARDS

Being able to use the same standards in every region is a big advantage. Our global procurement digital tools, which provide data transparency and accuracy, play a crucial role here. It ensures a consistent and integrated flow of supplier spend data and serves as a universal access point to review supplier information. Data includes supplier performance information, supplier vetting data as well as the relevant supplier certifications and contracts in place.

Developing acumen through additional training and the sharing of best practices is a continuous improvement journey. In October 2022 87% of Orion's procurement team were trained by professional 3rd party - EcoVadis - on social and environmental issues within the supply chain. Our efforts with respect to our environmental footprint include supporting our supply chain partners to minimize their own adverse impact on the environment and to reduce CO_2 emissions from outbound freight.

We are striving for circularity in our value chain – in procurement as well. 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 recycled materials. In the case of our target relating to paper bags and FIBCs, we are working on finding solutions to achieve our stated targets. At present, however, none of our paper bags meets the minimum recycling or reusability criteria set out in our targets. In this area we continue our efforts in developing innovative solutions together with our partners. In case of FIBCs the introduction of new types with 30% of recycled PP has begun in 2022 with the aim to achieve our target latest by 2029. We started engaging our customers to join our efforts in collecting packaging waste for reuse.

PERFORMANCE MEASUREMENT

COMPLIANCE

INDICATOR	UNIT	TARGET*	Reporting period 2022	2021	2020
ENVIRONMENTAL NON-COMPLIANCE INCIDENTS					
NUMBER OF INCIDENTS	NUMBER		0	1	0
COMPLIANCE TRAINING [2]					
EMPLOYEES RECEIVING COMPLIANCE TRAINING	%	95	100	95	87
OPERATIONAL SAFETY					
DAFW CASE RATE	NUMBER PER 200,000 WORKED HOURS		0.29	0.18	0.12
TRI CASE RATE	NUMBER PER 200,000 WORKED HOURS		0.41	0.35	0.19
PSE [3]	NUMBER		18	9	11
EMPLOYEE FATALITIES	NUMBER		0	0	0
CONTRACTOR FATALITIES	NUMBER		1	0	0

* All targets set for delivery by 2029

[2] This was formerly called "Code of ConductTraining". However, the Code Of Conduct is only one of several elements of our comprehensive compliance training.

[3] Following CCPS guideline, a process safety event is defined as an event involving the release or loss of containment of hazardous materials that can result in large-scale health and environmental consequences. While we have been collecting and reviewing the underlying data, we started categorizing the relevant data under this classification in 2020.

VALUE CHAIN ENGAGEMENT

INDICATOR	UNIT	TARGET*	Reporting period 2022	2021	2020
SUPPLIERS SIGNING UP TO CODE OF CONDUCT [4]	%	100	99	98	98
USE OF PLASTIC PALLETS MADE OF RECYCLED MATERIAL [5]	%	100	95	97	97
USE OF REUSABLE PALLETS AT ALL SITES [6]	%	90	72	73	76
PAPER BAGS FROM RECYCLED PAPER [7]	%	95	0	0	0
USE OF REUSABLE FIBCS OR RECYCLED FIBC [8]	%	100	0	0	0
SHARE OF SPEND FROM TARGETED SUPPLIERS HAVING OUR CSR ASSESSMENTS OR OTHER RECOGNIZED THIRD-PARTY ASSESSMENTS (ECOVADIS, ETC.)	%	60	15	-	-
CO_2 EMISSIONS REDUCTION FROM OUTBOUND FREIGHT [9]	%	-30	-4	-4	-

* All targets set for delivery by 2029

[4] Measured in terms of value. Excludes suppliers with whom we transact on an ad hoc basis without a formal contract for a monetary value of less than $10,000 per annum

[5] Applies to sites using plastic pallets. Minimum recycled material content set at 60%

[6] Applies to pallets used in outbound logistics as we have no control over inbound pallets. Target has been increased from 75% to 90%.

[7] Minimum recycled paper content set at 50%

[8] Given the separate target for paper bags, this target has been reset for FIBCs. Reusability has been set at six; and minimum recycling content at 20%

[9] Measured vs. 2019 base value on a normalized unit cost base

APPENDICES

GRI CONTENT INDEX WITH REFERENCE TO UNGC

GRI 1: FOUNDATION 2021	
STATEMENT OF USE	ORION S.A. HAS REPORTED THE INFORMATION CITED IN THIS GRI CONTENT INDEX FOR THE PERIOD OF JANUARY 1ST TO DECEMBER 31ST, 2022 WITH REFERENCE TO THE GRI STANDARDS.

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ABBREVIATIONS

SYMBOLS	
DEGREE CELSIUS	**°C**
EURO	**€**
US DOLLAR	**$**
PERCENT	**%**
A	
AMERICAN SOCIETY FOR TESTING AND MATERIALS	**ASTM**
B	
BIODIVERSITY AND ECOSYSTEM SERVICES	**BES**
BUSINESS-TO-BUSINESS	**B2B**
C	
CARBON BORDER ADJUSTMENT MECHANISM	**CBAM**
CARBON DISCLOSURE PROJECT	**CDP**
CENTER FOR CHEMICAL PROCESS SAFETY	**CCPS**
CHIEF EXECUTIVE OFFICER	**CEO**
CARBON NANOTUBES	**CNT**
CARBON DIOXIDE	**CO_2**
CORPORATE SOCIAL RESPONSIBILITY	**CSR**
CORPORATE SOCIAL RESPONSIBILITY DIRECTIVE	**CSRD**
COMMUNICATION-ON-PROGRESS	**CoP**

D	
DAYS AWAY FROM WORK	**DAFW**
DIVERSITY, EQUITY & INCLUSION	**DE&I**
E	
EARNINGS BEFORE INTEREST, TAXES, DEPRECIATION AND AMORTIZATION	**EBITDA**
ENVIRONMENT, HEALTH & SAFETY	**EHS**
ENVIRONMENT, HEALTH, SAFETY & QUALITY	**EHSQ**
ENVIRONMENTALLY EXTENDED INPUT OUTPUT	**EEIO**
END-OF-LIFE TIRES	**ELT**
EUROPE, MIDDLE-EAST & AFRICA	**EMEA**
ENVIRONMENT – SOCIAL – GOVERNANCE	**ESG**
EMISSION TRADING SYSTEM	**ETS**
EUROPEAN UNION	**EU**
ELECTRIC VEHICLES	**EV**
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	**EPA**
F	
FLEXIBLE INTERMEDIATE BULK CONTAINER	**FIBC**
G	
GREENHOUSE GAS EMISSIONS	**GHG**
GLOBAL MANAGEMENT SYSTEM	**GMS**
GLOBAL REPORTING INITIATIVE	**GRI**

H	
HUMAN RESOURCES	**HR**
I	
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION	**ISO**
INTERNATIONAL SUSTAINABILITY & CARBON CERTIFICATION	**ISCC**
INFORMATION TECHNOLOGY	**IT**
K	
KEY PERFORMANCE INDICATOR	**KPI**
KILO METRIC TONS	**KMT**
L	
LITHIUM-ION-BATTERY	**LIB**
LOSSES OF PRIMARY CONTAINMENT	**LOPC**
N	
NITROGEN OXIDE	**NO_x**
O	
OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT SERIES	**OHSAS 18001**
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION VOLUNTARY PROTECTION PROGRAM	**OSHA VPP**
P	
PARTICULATE MATTER	**PM**
POLYPROPYLENE	**PP**
PROCESS SAFETY EVENT	**PSE**
R	
RECOVERED CARBON BLACK	**RCB**
RESEARCH & TECHNOLOGICAL ORGANIZATIONS	**RTOS**
S	
SELECTIVE CATALYTIC REDUCTION	**SCR**
SUSTAINABLE DEVELOPMENT GOALS	**SDGS**
UNITED STATES SECURITIES AND EXCHANGE COMMISSION	**SEC**
SUBJECT MATTER EXPERT	**SME**
SULFUR DIOXIDE	**SO_2**
SECONDARY RAW MATERIAL	**SRM**
T	
TIRE PYROLYSIS OIL	**TPO**
TOTAL RECORDABLE INJURIES	**TRI**
U	
UNITED NATIONS GLOBAL COMPACT	**UNGC**
UNITED STATES (OF AMERICA)	**U.S.**
W	
WILDLIFE AND ENVIRONMENT SOCIETY OF SOUTH AFRICA	**WESSA**

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