Sustainability Report 2022

Höganäs

Höganäs Group

2022 has been a rewarding, but also challenging year that once again has reinforced the fact that constant change, uncertainty, and disruption of business prerequisites are no longer the exception but rather the norm. We have experienced a continued Corona pandemic, war in Ukraine and rampant energy prices across Europe. At the same time, significant progress was made on Höganäs' sustainability journey, which will make us well-equipped for continued growth. One of the highlights is the acceleration towards our climate targets – to achieve net-zero emissions in our own operations by 2030 and across the value chain in 2037. Additionally, our science based targets have been submitted for validation by Science Based Targets initiative (SBTi). At Höganäs we are convinced that metal powder can contribute to a sustainable development and our vision is to inspire industry to make more with less. Metal powder technology is a resource-efficient alternative that provides opportunities for a wide range of industries. Höganäs aims to be a thought leader and role model in the transformation to a more resilient and sustainable future, and our journey is well underway.

This is the Höganäs Sustainability Report 2022.

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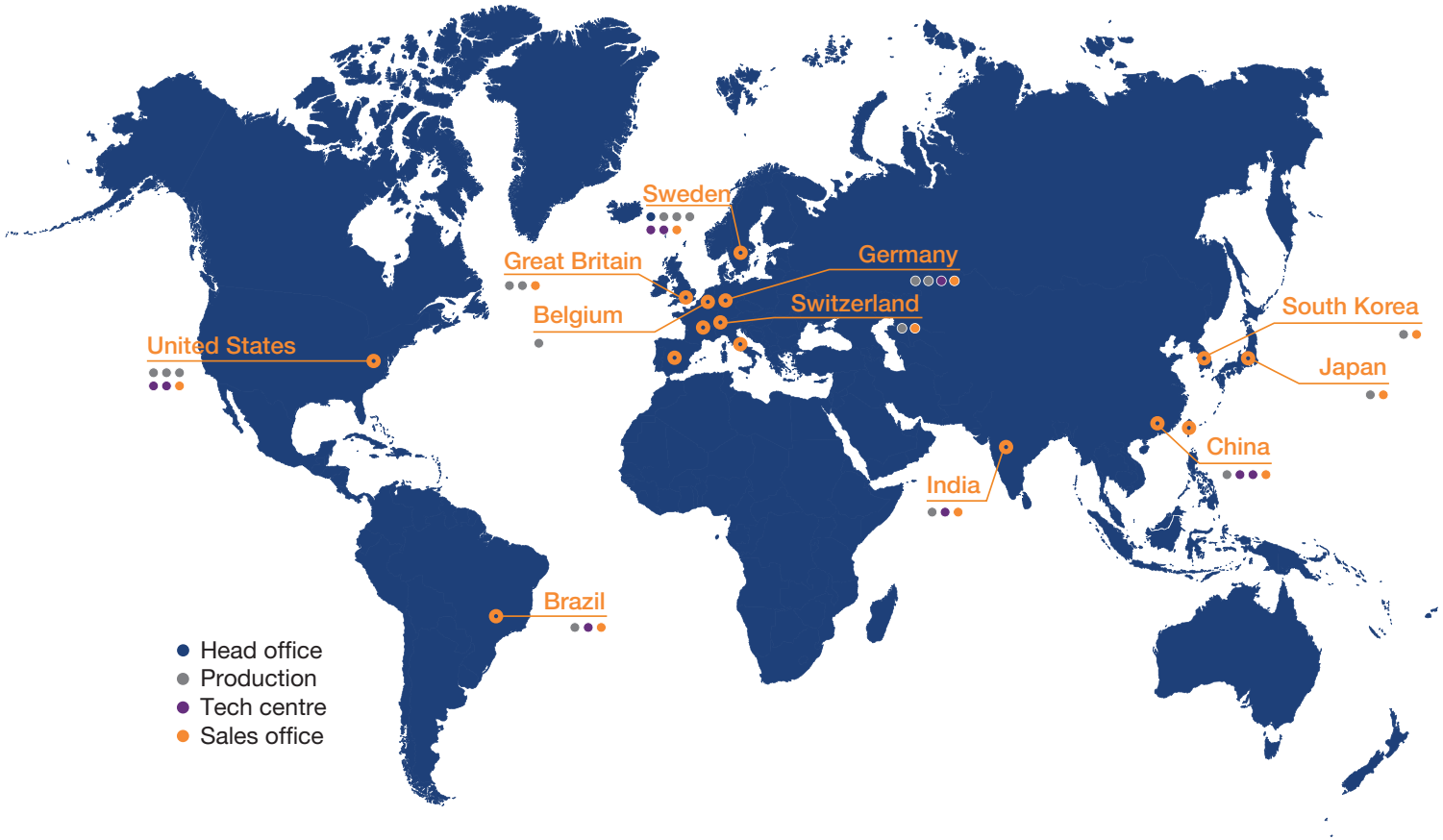
Coverphoto:
Höganäs production plant in Mogi das Cruzes, Brazil

This is Höganäs



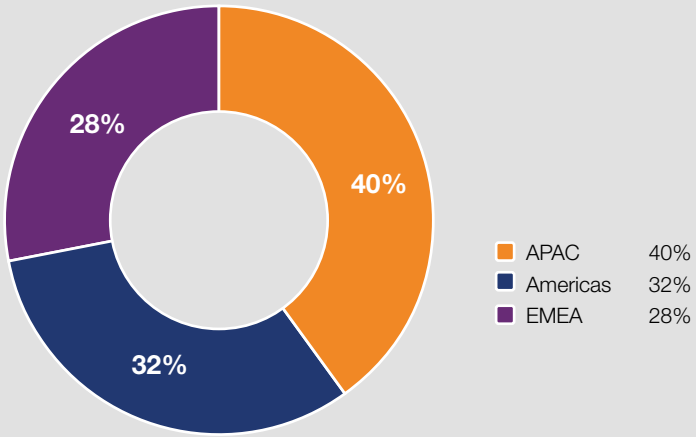
Höganäs is the world leader on the metal powders market with a yearly production capacity of 500,000 tonnes. Höganäs' vision is to "inspire industry to make more with less" and our ambition is to become the number one sustainable metal powder supplier in the world. In close cooperation with our customers, Höganäs develops tomorrow's solutions for automotive components, electrical motors, brazing, surface coating and additive manufacturing. Höganäs operates 17 production centres across the globe and has a workforce of 2,400 employees. The 2022 turnover was 12,256 MSEK. Höganäs, which was founded in 1797, is owned by Lindéngruppen and the Wallenberg owned company, FAM.

Read more about the industries we serve, our products and solutions, and our know-how at **www.hoganas.com**

The year in short

12,256 MSEK turnover

Sales per region



3,000 customers in → 75 countries

800 patents

2,400 co workers → 28 agents in 33 countries

500,000 tonnes production capacity → 3,500 products

Highlights in 2022

In **January** Höganäs committed to set near- and long-term company-wide emission reductions in line with the Science Based Target initiative.

The Climate Roadmap 2037 net-zero value chain target was approved by the Board in **February**.

In **February**, Höganäs also joined the Additive Manufacturing Green Trade Association as a founding member to help set the additive manufacturing industry on a more sustainable path.

Global Safety Week was held in **April**. This year's focus was ergonomics and manual handling.

In **May**, Höganäs announced its exit from the water treatment business and decided to close Höganäs Environment Solutions, LLC in the US, to consolidate and re-prioritise its efforts to drive more impact in its core business and ongoing sustainability transformation journey.

On **June** 6th Höganäs celebrated 225 years.

In **June** Höganäs joined the Swedish Life Cycle Center as a partner to accelerate competence-creation, knowledge sharing and exchange in development and deployment of the life cycle thinking in organisations.

Höganäs divested its company Digital Metal to US company, Markforged, in **July**. The divestment is in line with Höganäs' strategy to further focus and increase activities within the metal powder side of additive manufacturing.

The ISO 45001-certification was completed for all Höganäs' production sites.

Participation in the UN Global Compact Target Gender Equality Accelerator programme started in **August**. The purpose is to work more systematically to achieve gender equality.

Höganäs participated in the carbon capture project CNetSS, launched in **September** which aims to create sustainable and cost-efficient solutions for carbon capturing in southern Sweden.

New net-zero targets for scope 1 and 2 emissions by 2030 were approved by the board in **September**.

In **October**, Höganäs launched a new alloy powder – Astaloy CrS, a circular product produced via water atomisation from 98 percent recycled raw material, with 100 percent of its iron content being recyclable.

Words from our CEO and BOD Chairman

An interesting and challenging future ahead

Magnus Eriksson is the acting CEO of Höganäs AB and Magnus Hall is the Chairman of the Höganäs Board. They both see an interesting and challenging future for the powder metallurgy industry where Höganäs' ambition is to be the leader of the sustainable transition.

Magnus Eriksson: The past years has been a rather turbulent period, where it has become more challenging to plan and run your business. We have to become increasingly agile and ready to adapt to new conditions on short notice.

A positive outcome of rapid changes is that they can speed up sustainability transitions. New needs for a more stable supply of energy and using the global resources with care, means companies need to shift their processes. With the ›

Magnus Hall (left) and Magnus Eriksson (right).

knowledge we have today, that shift will certainly be to something more sustainable.

The accelerating transformation also opens up new business opportunities. For Höganäs, there is a large potential for both business opportunities and contribution to a sustainable future in our vision – inspire the industry to make more with less. One example is our project on developing the atomising process to produce metal powders using scrap metal at our plant in Halmstad, Sweden. The production now uses almost 100 percent recycled metals in operations – a great achievement which is drastically lowering our climate impact.

Magnus Hall: Our Climate Roadmap helps us gain business understanding through various sustainability initiatives. One notable example is how life cycle assessments (LCA) have increased our knowledge of the impact of our processes and products. We began working with LCAs even before our customers demanded it. Now we see an increasing interest from both partners and customers who would like to learn more about the insights from our LCAs.

One of our biggest challenges in the coming years is the transition to a fossil free production, where our Climate Roadmap clearly points out the direction and how to get there. The Climate Roadmap 2037 net-zero value chain target was approved by the Höganäs board in February 2022 and in September new net-zero targets for scope 1 and 2 emissions by 2030 were approved. By reducing our Scope 1, 2 and 3 emissions, we are significantly lowering our customers' Scope 3 emissions and support them in their successful climate transition. Höganäs has also committed to set near- and long-term company-wide emission reductions in line with the Science Based Target initiative (SBTi).

Apart from constantly working on finding ways to become more energy efficient, we are looking at using renewable energy sources such as replacing fossil based coke with biochar in our sponge iron process. To reach net-zero and counter climate change, we will probably have to use Carbon Capture and Storage (CCS) in the future. We are one of nine actors participating in the carbon capture project Carbon Network South Sweden (CNetSS), launched in September 2022, which aims to create sustainable and cost-efficient solutions for carbon capturing in southern Sweden.

Even though we have policies and systematic ways of working with our suppliers to ensure a sustainable value chain, we recognise the need for additional assessment of impact on for example human rights and biodiversity. There will be an increased focus on these topics in the years to come.

Magnus Eriksson: Höganäs' sustainability work would not be possible without our co-workers. Their competence, ideas, and commitment will be even more important when we accelerate our transition. Therefore, it is essential that we both keep and attract competent employees. A given part of building an attractive workplace is the importance of health and safety. These aspects of sustainability are important enablers of our development as a company and reaching the goals in our Climate Roadmap.

Going forward, our mission is to leverage new and sustainable opportunities, as this is the best opportunity to future proof of our business. The future might be uncertain, but together with our partners and customers, we can become even more resilient and help each other grow!

Magnus Eriksson
Acting CEO at Höganäs AB

Magnus Hall
Chairman of the Board, Höganäs AB

Word from our Vice President Group Sustainability

The urgency for rapid transition is clearer than ever

For many of us 2022 has probably been the year when we began to think about crisis as the new normal. Coming out of the Covid-19 pandemic a war started in Ukraine. We have seen extreme weather events caused by climate change, a full-blown world-wide energy crisis, and we are now facing a global recession.

None of this has changed the urgency to rapidly lower greenhouse gas emissions, quite the opposite. It has merely added more aspects that could risk slow down the transition. Economic strain due to high energy prices, volatile and unpredictable markets and inflation makes it harder for companies to navigate. This means enterprises need to be even more decisive in changing their way of working and business operations – radically.

Catharina Nordeman.

For too long, we, as many others, have been stuck in linear value chains highly dependent on fossil carbon.

At Höganäs, we work to continuously decrease our negative impact, while strengthening the positive effects of our business. To gain momentum in our sustainability work we focus on five areas, all of them interlinked, and reinforcing each other. Although we have an emphasis on Climate, the other focus areas Products, Workplace, Environment and Society balance our efforts to cover our material topics and contribute to achieving our climate targets.

Our sustainability agenda is an integral part of our business strategy and crucial for our success going forward. We focus on being a role model and a forerunner in our industry by setting ambitious targets and leading through example, long-term partnerships and innovative solutions. This combination improves our sustainability work and drives profitability.

Our three product areas need to tackle how to evolve, or even entirely transform our offerings – with customer demands and sustainability performance as guiding principles in decision making. Our operations need to develop climate adapted and energy efficient production processes and strive towards net-zero emissions.

Even though we are still in the beginning of our journey, our way of working with sustainability is much more systematic than just a few years ago. Our commitment to the Science Based Target initiative, our Climate Roadmap, with all the identified activities on how to lower our carbon dioxide emissions to reach our net-zero target, and our quarterly performance follow-ups are examples of structured ways of working.

Another example is our Life Cycle Assessment (LCA) work, where our goal is to provide LCAs on our products, enabling our customers to choose more sustainable alternatives based on facts. Our projects where we work together with our customers to create LCAs allows us to connect our sustainability agenda even closer to our core strategy. We are happy to see that an increasing number of customers are already reaching out to us, expressing their interest to work together on climate footprint and improved circularity for our products and processes.

We still have a long way to go. We need to implement new ways of thinking, include new perspectives and new knowledge, and be both diligent and determined working towards our targets. Looking forward, we realise that we need to focus more on other areas closely connected to climate change like human rights and biodiversity to stay on top of potential impact. We also need to build capability regarding transparent reporting to meet future legal demands and stakeholder expectations.

But the progress is faster than ever, and our prospects for the future look good. Our company consists of co-workers who are truly sustainability pioneers, who are engaged, creative and knowledgeable, and who make our sustainability journey happen. We look forward to challenging – but exciting – times ahead.

Catharina Nordeman
Vice President Group Sustainability, Höganäs AB

Targets and results

The table below summarises our Group targets, the progress we made in 2022 and if we are on track to achieve each target.

Lost time injury frequency

6.9 (5.0)

Per million hours worked
Target: Zero accidents

Carbon intensity

0.62 (0,69)

Tonnes CO_2 scope 1 and scope 2 per produced tonne

Female co-workers

17% (17%)

Target: 20% female co-workers by 2026

Process residuals put to use

74% (77%)

Target: 95% by 2026

Climate Roadmap workshops

42 (44)

Successful implementation of our Climate Roadmap through workshops involving all parts of the organisation

Key suppliers approval

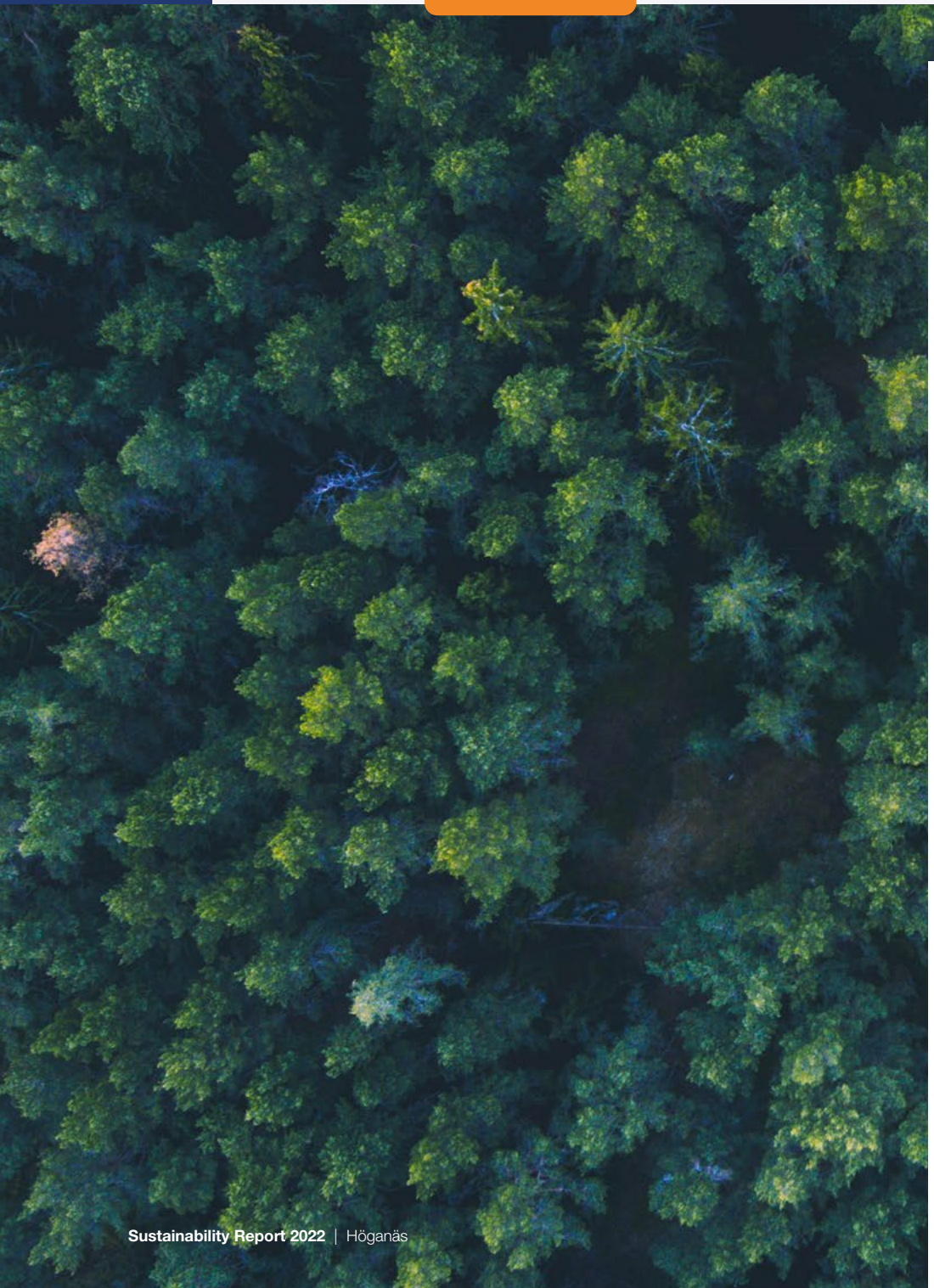
82% (80%)

Key suppliers rated as “good” or “excellent”
Target: 100% by 2026

Key

- on track
- concern
- deviation

↗ = improving
→ = flat
↘ = worsening



The Höganäs sustainability agenda

Our sustainability agenda consists of five main areas:

- **Climate** – To counter climate change, Höganäs works proactively to minimise carbon dioxide emissions generated in our operations and throughout the value chain, accelerating towards our long-term net-zero target.
- **Environment** – Höganäs is working to promote healthy eco systems by minimising the environmental impacts from our production and from the materials and chemicals we use. We proactively promote biodiversity, as well as clean water, air, and soil.
- **Products** – By lowering our products' carbon footprint, becoming more circular, and using resources and energy more efficiently, we contribute towards a more sustainable society and help our customers do the same.
- **Workplace** – By creating good and safe working conditions, and by promoting gender equality, Höganäs aims to set an industry example and continue to be an employer that attracts and retains the right competence and skills.
- **Society** – By being committed to high ethical standards in everything we do, including our sourcing, financial reporting, tax payments, and our responsibility towards external stakeholders and the local community, we contribute to building a better society for all.

Our five sustainability areas – Climate, Workplace, Products, Environment and Society – are detailed in the following chapters of this report. We summarise our impact in each area, the challenges we face and how these are addressed, how we work, the connection to the Sustainable Development Goals, and the progress we have made during 2022.

Materiality analysis – the work that matters

The materiality analysis is the foundation of our sustainability work. By assessing where Höganäs has the most positive and negative impact on environment, economy, and society we can allocate resources and efforts where they matter the most.

Höganäs' sustainability work is grounded in:

- Höganäs' principles and values
- External expectations and demands
- Our business perspective and value creation
- Legislation and internationally accepted principles and standards
- The UN Global Goals
- A scientific understanding of the socio-ecological system.

In addition to principles and values all above-mentioned aspects are constantly developing, some of them rapidly, and we are consequently recalibrating our sustainability work. Achieving a deeper understanding, increasing ambition, and revising our materiality analysis is an ongoing process.

Materiality analysis

To work effectively to accomplish sustainability improvements, we continuously assess our negative and positive impact, and make decisions on direction and ambition. We need to know what we have to change, and how. This is ongoing work, where the foundation was laid already in 2016, when we carried out our first materiality analysis. A new assessment was done in 2019, to inform our new sustainability strategy building on a thorough stakeholder dialogue and materiality analysis. Moreover, this assessment emerged from the concept of double materiality, examining both sustainability-related impacts on Höganäs, and impacts of our operations on any dimension of sustainability.

As an introductory part of the materiality assessment of 2019, each member of the Höganäs Group management team and a number of appointed co-workers, carried out their individual assessments of the sustainability topics relevant to Höganäs. The assessments covered aspects such as the topics' impact on business stability, long-term profitability, and reputation, as well as present performance and the perception of external stakeholders' prioritisation of the topics.

Initially, we identified more than 50 different impact areas through internal and external stakeholder dialogue. These were clustered into 27 material topics, which were ranked by significance based on the outcome of a stakeholder dialogue. These topics were then sorted into five focus areas relevant to our day-to-day work. The results from this process and updated sustainability strategy were then anchored with the Group management team and approved by the Board of Directors.

To further align our sustainability work with current developments, the process of ranking our material topics was updated during 2022, taking into consideration an increased focus on actual impact. To this end, interviews were conducted with members of the Höganäs Group management team and appointed co-workers on relevant topics. The conclusions were then fed into the impact assessment guiding the process of prioritising the material topics.

Höganäs has also taken into consideration third party assessments, such as health and safety inspections, science and academia, legal reviews, financial audits, media coverage, and reports from civil society organisations.

Adjustments to Höganäs' materiality analysis

The steel and metals industry provide essential materials for the global economy and societal development. At the same time, our industry faces substantial sustainability challenges by being one of the largest emitters of greenhouse gases which aggravate climate change.

Our five sustainability areas: Climate, Workplace, Products, Environment, and Society cover our impact on the economy, environment, and society, as well as the value created by our operations. During the reporting period there has not been any significant changes in Höganäs' business that would call for major adjustments to the materiality analysis.

Climate transition to net-zero and to prevent ill-health or injuries in the work- ›

place are our two most pressing issues. However, circularity has become increasingly important as a way to become more resource efficient and reducing emissions. Biodiversity and human rights are also growing in significance due to the strong connections to climate change and elevated regulatory focus.

Because of our operations-driven emissions, climate change is the focus area where we have our main impact, though we recognize the importance of broadening our focus to include biodiversity and human rights. Healthy ecosystems provide us with clean air, clean water, and healthy soils for food production. They can also help counteract climate change. In parallel, rising temperatures cause rapid changes in living conditions, which can accelerate the extinction of species and the loss of healthy ecosystems.

Advancing our sustainability targets requires improved ways of working, innovation, and technical development. To succeed we need new and diverse perspectives, and we need to tackle the challenges of finding the right competence to help us get there.

The adjustments have been approved by the Höganäs Group management team.

Material topics

An overview of Höganäs' material topics in our five focus areas, Climate, Workplace, Products, Environment and Society, are presented in the following pages.

Focus area	Risks	Material Topic	Impact
Climate – Climate change is one of the most pressing sustainability challenges for humanity. Considering Höganäs' climate impact it is also our main focus area. Supports SDG 7, 9 and 13	If we fail to reduce our emissions, Höganäs and the industry will lose credibility and be perceived as being less relevant in terms of societal sustainable development.	Greenhouse gas (GHG) emissions	Höganäs emits carbon dioxide due to use of fossil fuels and carbon containing materials in our processes. Our work on mitigating the negative impact is explained thoroughly in the Climate section. Through ambitious efforts to lower our carbon dioxide emissions we set a positive example for the industry.
		Fossil-free energy and process materials	A transition to fossil-free energy, like use of biofuels and purchase of fossil free electricity is an urgent matter to decrease carbon dioxide emissions.
		Energy efficiency	By lowering our energy use, we emit less carbon dioxide and free up capacity for other sectors in society.
		Permanent removals	Höganäs investigates opportunities and participates in a project on Carbon Capture and Storage (CCS) infrastructure.
		Transportation	Our raw materials, such as metals, are often transported long distances. We need to decarbonise our own transports, as well as influence our suppliers to do the same.

Focus Area	Risks	Material Topic	Impact
Workplace This focus area ensures a sustainable working environment for the people in, or affected by, our operations. Supports SDG 4, 5, 8, 10, 12	Failure to ensure a safe and engaging work environment, impacts first and foremost our co-workers. It also means we will miss our targets and will be a less attractive employer.	No harm (Zero accidents)	A safe working environment is essential to our co-workers, their families, and communities. It is also important for the industry to continue being an attractive employer. Our processes can involve working with hot, molten materials, and heavy lifting and moving machinery. We have a systematic approach to minimise risks that includes clear safety measures and implementing a safety culture.
		Healthy workplaces	Some production activities involve risk factors that, if not managed, could potentially cause ill-health, causing suffering for the employee and adding to societal costs. We strive for a workplace where employees thrive throughout their careers. By setting a good industry example, we also contribute to positive societal development.
		Labour rights	Our **'Code of Conduct'** always sets the minimum labour standards, even if local regulations place lower demands on worker rights. We prioritise a workplace that offer a sound environment and respects the individual and human rights principles. Some of the labour rights especially important to us are working hours, living wages, health care, annual vacation, and parental leave.
		People development	By continuously offering our co-workers skills development, we contribute to a better quality of life, thriving communities and the empowerment of individuals. To Höganäs, and the industry, it is important to recruit and retain competent personnel to accelerate its sustainability transition.
		Equal treatment	Equal and fair treatment is a core value at Höganäs. We use our *'Code of Conduct'* as a tool for implementing values of equality throughout the company, as well as among our suppliers.
		Sustainability incentives	We continuously highlight our sustainability goals and encourage co-workers to take an active part in our sustainable business transformation journey.

Focus Area	Risks	Material Topic	Impact
Products This focus area is about how to best solve our customers' challenges through products that are circular, resource and energy efficient, and adapted to a low carbon society. Supports SDG 9, 12,	If we fail to create a demand for more sustainable products, we will miss out on business opportunities as well as slowing down the transformation overall in our industry.	Sustainable products	Höganäs has a big impact on the metal powder industry overall. We drive the development towards more sustainably sourced materials and broader use of recycled materials. Our product design aims to replace non-circular materials with more sustainable choices. Our four principles for sustainable products are: climate adapted, circular, non-hazardous, safe and ethical.
		Customer relations and partnerships	Höganäs drives positive impact through working in close partnership with its suppliers, customers, and their customers, to develop new and more sustainable products and processes. Our transition is dependent on our partners recognising the added value that our focus on sustainability brings.
		Circularity	Höganäs continuously develops products and processes to enable the use of secondary input material and recycling of its products. We also develop the use of side streams and the market for circular products. By working systematically towards increased circularity, we will have a positive impact by reducing waste, energy use and the use of virgin materials.
		Material use	We partly use virgin materials in our production, which impact the environment and people in the mining and metal business. The metals we use cause greenhouse gas emissions when extracted, as well as during our processes to manufacture powdered metals. By continuing to increase recycled material in our products, we reduce the need for virgin material and move towards a more circular production.
		Zero waste	By working to minimise waste to landfill and by finding use for our side stream materials, we decrease virgin material use in other businesses. We are still managing some materials as landfill, and we produce a small amount of hazardous waste materials in need of special handling.
		Business intelligence	To build thought leadership in the industry and continue supporting the sustainability journey of our customers, we systematically monitor and analyse market trends and demands. We use our knowledge and understanding to be one step ahead. This enables us to develop new products and enter new markets – both with the purpose of speeding up the transition towards more sustainable solutions.

Focus Area	Risks	Material Topic	Impact
Environment This focus area is about our commitment to do no harm to people or the environment Supports SDG 6, 9 and 12	If we fail to minimise our environmental impact, we risk indirectly compounding climate change and violating human rights.	Process safety	Stable processes and well-maintained equipment mitigate the risks of injuries, unwanted emissions, and environmental damage.
		Sustainable investments	Every business investment should aim to decrease our impact on climate change and improve our environmental performance. Prior to investing, Höganäs perform sustainability assessments to ensure environmental and social aspects are considered.
		Environmental impact	Our operations can negatively impact land use, emissions to air and/or water and soil pollution. If not managed, this can have a negative impact on human rights and biodiversity. On the positive side, some of Höganäs side stream products contribute to water purification and soil improvement.
		Biodiversity	The ecosystems near our current production sites are very likely stable. This is based on our experiences, being established in these areas for a very long time. However, when building new sites or changing existing operations, we need to assess the environmental consequences carefully. Höganäs recognises the intimate connection between biodiversity, climate change and human rights. Working systematically will contribute to not just preserving the ecosystems close to our sites, but also improving them.
		Chemicals use and exposure	Höganäs use a small number of hazardous substances in our production. Alloying metals like cobalt, chrome and nickel could have a negative impact on the environment if not managed correctly. Methods to control dusting, implementing safety precautions and working on substitution are important ways to mitigate potential negative impact.
		Water use	Although Höganäs uses large volumes of sea water for cooling in production processes, the impact is low, as the water is returned to the sea unchanged. Fresh water is used in the water atomisation processes, where it is recirculated and purified. Water treatment is done on site, by a third party, and water discharges are monitored in accordance with control programmes. We have identified a potential indirect negative impact from our use of metals, since the mining industry often use large quantities of fresh water in its processes.

Focus Area	Risks	Material Topic	Impact
Society This focus area is about how we act responsibly as a member of society. Supports SDG 8, 12 and 16	If we fail to act responsibly it will damage trust for Höganäs as a company, and in the long run having a negative impact on democracy.	Responsible sourcing	Höganäs has a substantial impact, both positive and negative, in the supply chain through the purchase of goods and services. Conflict minerals, human rights, labour rights, and social and environmental impacts are of particular concern. We contribute to the prosperity and development of our suppliers and their employees.
		Human rights	Höganäs' business might impact the right to a healthy environment, including clean air, water, and a stable climate if environmental precautions would be insufficient. Höganäs aims to consider the impact on human rights in all business activities.
		Ethical business behaviour	Ethical business behaviour is fundamental to all long-term partnerships whether it is between Höganäs and members of society, co-workers, or business partners. Our principles for ethical business behaviour expressed in our **'Code of Conduct'** and other relevant policies give clear direction and mitigate potential negative effects of our business activities.
		Profitability and taxes	Ensuring profitability, refusing tax avoidance, and paying competitive salaries are all fundamental principles to us. We work to contribute to effective, accountable, and inclusive institutions and societies, as well as driving economic growth.
		Good citizenship	Compliance ensures a stable society. Höganäs contributes to local societies by being a responsible employer as well as a good neighbour. Höganäs grievance mechanism is accessible at all times for anyone who wishes to file a complaint. Additionally, through partnering with local community organisations, we can help create value for the local society where we operate.
		Advocacy	By being active in industrial organisations and raising our voice in different forums, we strive to inspire the industry to become more sustainable. Also, we aim to contribute to knowledge-sharing among decision makers, such as politicians.

Stakeholder dialogue – expectations make us grow

In 2019, we conducted a thorough stakeholder analysis and dialogue, which lay the foundation of the update of our materiality analysis. We have since then had a continuous dialogue with the stakeholder groups that were identified as relevant.

The process involved interviewing key stakeholders and inviting both external and internal stakeholders to fill in questionnaires. Customers, suppliers, and neighbours were asked to give their view on what sustainability aspects they thought Höganäs should focus on by ranking what topics were most significant from their perspective and from what they expected of Höganäs.

Our stakeholder groups share many of the same concerns regarding for example areas related to health and safety, climate change and ethical business practices. But there are differences as well, depending on how the stakeholders are affected by Höganäs' activities. These are noted in dialogue for each stakeholder group. ›

Customer Survey 2022

Höganäs conducted a Customer Survey in 2022 focusing on products, the customers overall opinion on Höganäs as a supplier, and the importance of sustainability properties in our products. Overall, customers give Höganäs a rating aligning with the Benchmark B2B Top in Class. 79 percent of customers agree to "environmental aspects/sustainability practice being important when choosing a supplier" and even higher 80 percent confirm that "Höganäs assumes responsibility for bringing environmentally sustainable solutions to the market". On the other topics we get 85 percent customers agreeing to "I am satisfied with the treatment I get from Höganäs employees" and 82 percent confirming "it is easy to be a customer at Höganäs". The net promoter score is on a total of 42.

Type of dialogue – ongoing and planned

Owners

Board meetings and owner inquiries.

Board Members (non-owners)

Board meetings.

Group Management

Group Management meetings, ongoing dialogue, and day-to-day engagement.

Customers

Bi-annual customer surveys will from 2022 and onwards include a sustainability perspective. Received complaints. R&D projects, where we collaborate with customers, end-users, and universities/research institutes.

Suppliers

Meetings and evaluations. Dialogue regarding climate impact and compliance.

Co-workers

Team meetings, performance and development discussions and input from formal forums with union representatives.

Union representatives

Board meetings. Negotiations. Works councils. Ad hoc communication.

Neighbours

Public consultation meetings at production sites. Information through website, social media, and various local communication channels. Participation in public debate.

Local communities

Partnerships through our non-profit projects and hands-on contribution based on an assessment of opportunity and need.

Financiers

Individual meetings and surveys.

Academia

Participation in research projects. Partnerships with universities. Development of educational materials.

NGOs*

Partnerships, common projects sharing of expertise and reports.

Potential/Future co-workers*

Trainee programme. Employer branding towards future and graduate engineers and other needed competences. Participation in university open house days.

Customers' customers*

Reach through, and together with, our customers.

Participate in public debate and utilising social media and other communication channels.

** Stakeholder group added in 2022.*

Overview of stakeholder key issues and engagement

When reassessing our material topics in 2022 we identified additional stakeholder groups we would like to prioritise: Potential/Future co-workers, Customers' customers, and NGOs. It is important to establish a dialogue with these groups since they can be affected by our business and our sustainability work.

Our ambition to lead the sustainability transformation of the industry depends on being able to reach and recruit potential employees. Various skills and competencies are needed to reach our sustainability goals regarding for example digitalisation, electrification, and diversity.

The 'customers of our customers' have the potential to speed up the shift towards more sustainable products and processes.

Non-governmental organisations (NGOs) are already part of our stakeholder groups in India, where we have several community-oriented sustainability projects. Additionally, we will establish new partnerships with some selected NGOs, where the goal is to improve our social and environmental performance, for example to inform the development of our human rights approach.

Climate

Countering climate change

Science is clear – the effects of climate change are shaping not only how business is conducted in the future, but the future itself.

The causes of the climate crisis can be traced back to the world economy – the dependency on fossil fuels in energy and food production, transportation, and the extraction of raw materials. This makes climate change the biggest challenge facing modern society. As an industry leader, we have a responsibility to contribute to countering climate change.

Höganäs is built upon a foundation of innovation. We see change as an opportunity and this is one of the reasons our company has flourished for 225 years.

We want to lead by example and inspire the rest of the industry. This is how we develop our business and contribute to societal change. We strive to reach net-zero emissions in our operations by 2030. Our biggest challenges are transitioning away from the use of fossil energy and primary materials and moving towards becoming fossil-free across our whole business operation and our value-chains.

Our transition to net-zero is not limited to the direct emissions from our own operations. We also work with our

SDG target	Our objectives and what we do
TARGET 7·2 — INCREASE GLOBAL PERCENTAGE OF RENEWABLE ENERGY	Increasing the use of fossil free electricity and renewable fuels (Höganäs Climate Roadmap). » See the "Our energy use" section in this chapter.
TARGET 7·3 — DOUBLE THE IMPROVEMENT IN ENERGY EFFICIENCY	Reducing emissions through energy efficiency (Höganäs Climate Roadmap). » See the "Our energy use" section in this chapter.
TARGET 13·2 — INTEGRATE CLIMATE CHANGE MEASURES INTO POLICIES AND PLANNING	The Höganäs Climate Roadmap. » See this entire Climate chapter.
TARGET 13·3 — BUILD KNOWLEDGE AND CAPACITY TO MEET CLIMATE CHANGE	Höganäs' internal work to increase competence and capability, and the work in our sphere of influence, such as supply chain, customers and other stakeholders in society. » See this entire Climate chapter.

suppliers, of both energy and raw materials, to reduce our carbon dioxide emissions within scope 2 and 3. We aim for net-zero in our value chain and we are convinced that changing our business to decrease our dependence on fossil fuels, will create new opportunities and deepen our relationships with business partners.

Höganäs has committed to set near- and long-term company-wide emission reductions in line with science-based net-zero with the SBTi.

Our Climate Roadmap

Our Climate Roadmap is a strategic plan to reach net-zero, which has been developed through systematic work involving every part of the company. Local action plans have been developed for each production site, which show a potential to lower greenhouse gas emissions by 90 percent across scope 1 and 2. During the year we also formed working groups and ways of working to reduce scope 3 emissions from raw materials. Our Climate Roadmap is supporting the Paris Agreement goal of limiting global warming to 1.5 degrees Celsius within scope 1 and 2, and well below 2 degrees Celsius within scope 3.

Our history of innovation stems from a conviction that industrial solutions can contribute to societal development and solve global challenges. Being able to plan for the future needs of our customers, makes us relevant today and strengthens our position as market leader tomorrow. ›

Direct emissions, Scope 1, tonnes	2022	2021	2020	2019	2018
Emissions from fuels as CO_2e	80,800	97,600	77,400	79,700	91,700
Carbon in raw materials as CO_2e	172,000	192,200	154,000	166,300	194,600
– Carbon in waste as CO_2e	-12,500	-10,700	-10,300	-10,500	-14,100
– Carbon in sidestream materials as CO_2e	-1,100	-3,800	-1,100	-1,200	-1,300
– Carbon in products as CO_2e	-100	-100	-100	-100	-100
Total emissions as tonnes CO_2e (Scope 1, fuels and raw materials)	**239,100**	**275,200**	**219,900**	**234,200**	**270,800**
Emissions from biogenic fuels as tonnes CO_2e	**544**	**244**	**690**	**902**	**614**

Carbon dioxide emissions from fuels and raw materials have decreased due to lower production volumes. Carbon intensity per produced tonne has decreased to 0.62 in 2022 compared to 0.69 previous year (including scope 2). The main reason is the increase in fossil free electricity, and more efficient energy utilisation in our production processes.

Indirect emissions from purchased energy, Scope 2, tonnes	2022	2021	2020	2019	2018
Market based (own choices)	30,600	67,900	65,200	84,400	103,500
Location based (residual mix)	84,900	90,000	92,500	112,700	141,400
CO_2 emissions not emitted by choosing fossil free energy (compared to location based emissions)	54,300	22,100	27,300	28,300	37,800
Total emissions as tonnes CO_2e (Scope 1 and Scope 2)	**269,700**	**343,100**	**285,100**	**318,600**	**374,300**

In 2022, 29 percent of the purchased electricity was fossil free, which is an increase compared to the 10 percent previous year. This is according to our plan to phase out electricity from fossil origin. Besides increasing our own production of renewable energy, we also buy electricity with Guarantees of Origin (GoO).

We have identified four main types of activities to bring down our scope 1 and 2 emissions:

1. Replace fossil-based coke and anthracite with biochar.
2. Replace natural gas with biogas, other fossil fuels with biofuels and electrify where appropriate.
3. Buy all electricity from fossil-free sources.
4. Work systematically to enhance energy efficiency.

We have identified raw materials as the single largest contributor to our scope 3 emissions and to decrease these emissions there are three main paths:

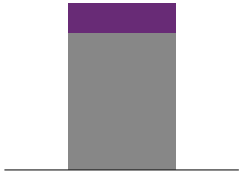
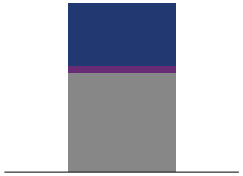
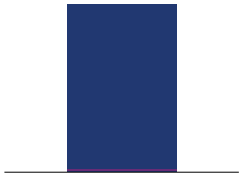
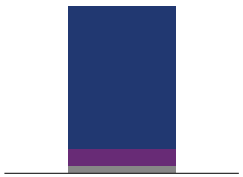
1. Improve circularity and, where possible, increase the use of secondary raw material.
2. Choose raw materials produced with lower carbon footprint.
3. Choose different types of raw materials with inherently lower carbon footprint.

This report outlines the progress made in these areas during the past year.

Direct greenhouse gas emissions from our processes

The metals industry has had a large carbon footprint for hundreds of years. This needs to change. At Höganäs we have five core processes that produce our range of metal powders. They are described in more detail on page 27. These make up almost all our direct emissions (scope 1). We are committed to transitioning these production methods to more sustainable ones to achieve net-zero carbon dioxide emissions by 2030.

The emissions originate from the processing of carbon containing raw materials and the use of energy to produce metal powders. The most carbon intensive process is the sponge iron process, where iron ore is reduced to pure iron using a reduction mix containing metallurgical coke, anthracite and slag formers. In this solid-state reduction process, the materials are heated up and the carbon in the reduction mix reacts with oxygen in the iron ore to form iron sponge, releasing carbon dioxide as a by-product.

Relative emissions per scope	Core process	Sources of emissions	Mitigation activities, scope 1	Mitigating activities, scope 2 and 3
 Sponge iron	Sponge iron	High direct emissions from metallurgical coke and natural gas. Some emissions from other process materials like slag formers	Use of biochar and biogas. Carbon capture, utilisation and storage (CCUS) or compensation for remaining emissions from raw materials	Fossil-free electricity. Use of biochar
 Water Atomisation	Iron Powder Atomising	High indirect emissions from Hot briquetted iron (HBI) and alloying elements. Direct emissions from slag formers, fossil anthracite, natural gas and electrodes	Use of biochar and biogas. CCUS or compensation for the remaining emissions from raw materials	Fossil-free electricity. Increased use of secondary iron and low-carbon alloying elements
 Annealing	Iron Powder Annealing	Indirect emissions from upstream processes and alloying elements. Direct emissions, natural gas for process heating and furnace atmosphere	Use of biogas, electrification or plasma heating.	Fossil-free electricity. Lowered emissions from upstream processes and alloying elements
 Mixing	Iron Powder Mixing	Indirect emissions due to alloying elements and additives.	No direct emissions	Fossil-free electricity. Lowered emissions from upstream processes, alloying elements, and additives
 High Alloy	High Alloy Atomising	High indirect emissions due to refined raw materials and use of electricity. Direct emissions from natural gas	Electrification, energy efficiency and bio-based fuels	Fossil-free electricity. Increased use of high-alloy secondary materials

The nature of the emissions from our core processes, and mitigation activities for scope 1, 2 and 3

The graphs in the far-left column show the relative contribution from each scope. Important features are the relatively large dependence on scope 1 in the sponge process, on scope 3 in the iron powder mixing process and high alloy atomization, and on scope 1 and 3 in the water atomization and annealing processes.

Key

- Scope 1
- Scope 2
- Scope 3

Case

Decreasing the carbon footprint with biochar

Some of the team members.

At Höganäs, we explore different ways of decreasing our carbon footprint, to be able to reach the very ambitious goal of net-zero in 2037. Replacing fossil coal with biochar in the sponge iron process is one way of reaching that goal.

The iron and steel industry, where metal powders are included, is among the largest industries in the world and a large emitter of carbon dioxide. The industry contributes to around 20 percent of global industrial sector energy consumption, and a fair amount of that energy consists of fossil-based fuels. To make the necessary transition, the industry needs to find an effective, environmentally friendly, and sustainable substitute instead of coke and coal. And biochar could be one of the possible solutions.

"Replacing fossil coal with renewables is more complicated than it may sound," says Ryan Robinson, Process Development Engineer at Höganäs. "Our fossil coal-based process has been developed during more than 100 years and even smaller changes can have major consequences for both the process and product quality."

Höganäs currently uses fossil coal as a reducing agent to convert iron ore into sponge iron. However, the company has successfully conducted various small-scale tests involving biochar made from biomass. In 2022, the project went from small-scale tests to full-scale tests. The project is supported by both the Swedish Energy Agency and Luleå University of Technology.

"When the small-scale tests, both in the laboratory and in production, showed no effect on the quality of Höganäs' sponge iron, we continued planning full-scale tests with up to 20 percent biochar. It is expected to reduce Höganäs' fossil carbon dioxide emissions in Sweden by more than 10 percent," says Elin Hernebrant, Development Engineer at Höganäs.

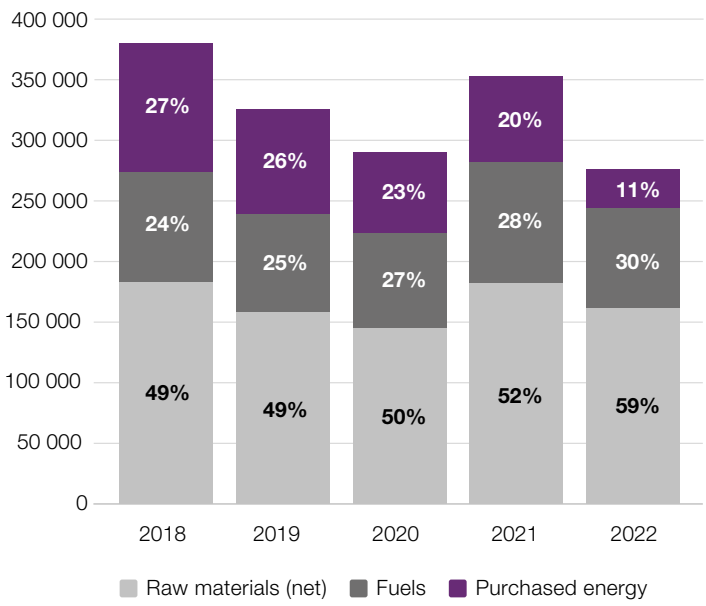
Unfortunately, there was a setback in the project in the summer of 2022 when a fire destroyed the provisional biochar pre-treatment plant. The plant should be operational again in the beginning of 2023.

"If all goes to plan, we will resume these full-scale tests later in 2023 and it will verify if this proportion of biochar can be used permanently in our production to reduce emissions while maintaining high-quality sponge iron," says Elin Hernebrant. ■

Biochar instead of fossil coke

- Biochar could be used in the two main processes at Höganäs for metal powder production: the sponge iron process and the atomisation process.
- If the full-scale tests are successful, Höganäs will be able to use 20 percent biochar in the processes.
- This is expected to reduce Höganäs' carbon dioxide emissions with more than 10 percent approximately 27,000 tonnes per year.
- The project is supported by the Swedish Energy Agency and a collaboration with Luleå University of Technology.

Greenhouse gas emissions Scope 1 and 2, tonnes CO_2e



Process-related carbon dioxide emissions from raw materials make up 72 percent of our scope 1 emissions. During 2022, process-related carbon dioxide emissions from raw materials decreased by 11 percent compared to 2021. Our residual scope 1 emissions derive from fuels. Natural gas, used for heating in our core processes, contributes to more than 95 percent of these emissions. The remaining five percent stems from liquefied petroleum gas, diesel, and petrol.

Each production method and site require tailor-made solutions to mitigate their emissions. Höganäs has 17 production sites around the world, and each one has one or more processes that release carbon dioxide emissions.

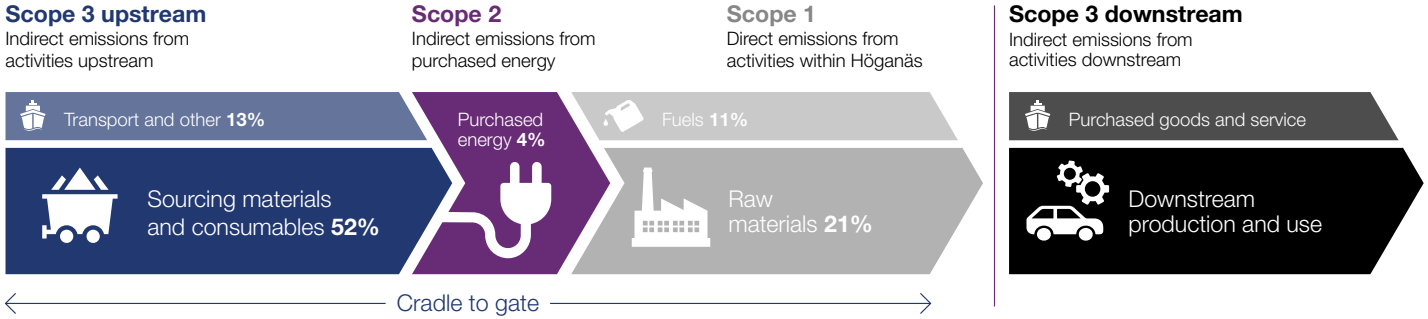
In a pilot project Höganäs explores the possibility of using biochar as a reduction agent in the sponge iron process, and a process to modify the biochar through compaction has been developed. The pilot shows promising results, and full-scale tests will be carried out during 2023 and 2024. This is an important step towards achieving our ambitious goals set out in our net-zero Climate Roadmap. ›

Knowledge and engagement

During 2022, we conducted 42 workshops throughout the organisation. The purpose was to anchor the Climate Roadmap among co-workers and to engage, and unleash the full potential of the whole organisation as this will contribute to the transition. This includes both incremental improvements and major step changes.

Cradle to gate

Illustration of the 'cradle to gate' scope for Höganäs' Climate Roadmap. Upstream scope 3 emissions are mapped and quantified. Downstream scope 3 emissions are not yet included in our quantification.



Energy use within the organisation, MWh	2022	2021	2020	2019	2018
Non-renewable fuels	410,900	495,200	392,600	405,700	464,200
Renewable fuels	1,900	700	4,000	5,100	2,600
Total energy use from fuels	**412,800**	**495,900**	**396,600**	**410,800**	**466,800**
Purchased electricity, residual mix	108,100	210,800	176,400	208,100	249,400
Purchased electricity from renewable or partly renewable sources	317,100	276,800	235,100	263,100	309,800
Purchased heat, steam or cooling	4,300	5,800	6,900	5,600	4,100
Total purchased energy	**429,500**	**493,400**	**418,400**	**476,800**	**563,300**
Self-generated energy from renewable sources[1]	3 700	600	500	200	100
Total energy use	**846,000**	**989,900**	**815,500**	**887,800**	**1 030,200**

1 Only energy from renewable sources. Energy generated from surplus process heat is excluded (produced and sold)

Total energy consumption was 15 percent lower compared to previous year mainly due to decreased production volumes. The energy consumption per produced tonne (energy intensity) is 3 percent lower compared to last year. Efforts have been made to save energy and lower production volumes have enabled optimisation of processes to run at a pace that uses less energy.

Energy use

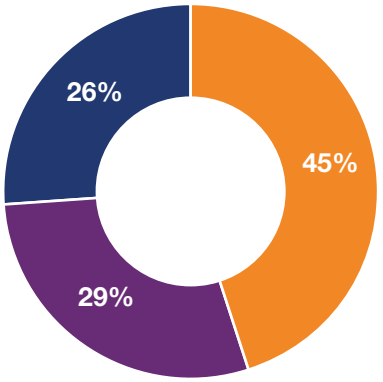
Our energy use consists of fuels and electricity. The fossil fuels we use are natural gas, liquified petroleum gas (LPG), diesel, petrol. We also use some biofuels for our vehicles and biogas in the production. The energy-related carbon dioxide emissions caused by use of natural gas in our production, are described on page 26.

Our goal is to use 100 percent fossil-free electricity by 2024. This is achieved by purchasing fossil-free electricity with Guarantees of Origin (GoO), through Power Purchase Agreements (PPAs) and by investing in our own production of renewable electricity. Several of our production sites have solar panel installations, and we are in the process of purchasing a windmill park in India, with a capacity of 3,200 MWh per year. In 2022 electricity from renewable sources, with GoO, amounted to 29 percent, compared to 10 percent in 2021.

We put the residual heat produced from our production sites to use, by delivering it to external parties, such as district heating networks. During 2022, we delivered 38,000 MWh of surplus heat to the Swedish cities of Höganäs and Halmstad.

Energy efficiency is prioritised in all our operations. Five out of our ten most energy intensive sites are certified to the ISO 50001 Energy Management System. The remaining sites will be certified according to plan. Our target is to increase our energy efficiency by 1 percent per year. During 2022 we achieved this by 3 percent.

Electricity sources, percentage



Partly renewable	45%
Renewable (GoO)	29%
Residual mix	26%

At Ahmednagar in India, Höganäs is in process of purchasing two wind turbines. These wind turbines will provide our site with up to 3,200 MWh of electricity per year, starting in 2023, lessening the need for fossil fuels and saving more than 2,300 tonnes of carbon dioxide.

Working with customers and suppliers

We know that climate transition is something that can only be achieved by working in partnership with others. A large portion of our total impact on climate change are the indirect emissions originating from production and transportation of the raw materials (scope 3) used in our processes and in the generation of the electricity we use (scope 2). To mitigate these emissions, it is necessary to improve the sourcing of raw materials, enhance energy efficiency and purchase renewable energy. Approximately 80 percent of our scope 3 emissions, when accounting from cradle to gate, come from the production of the raw materials we use.

Lowering carbon dioxide emissions from raw materials

As part of our long-term commitment to reach net-zero, we have intensified our focus on the indirect greenhouse gas emissions related to our raw materials (scope 3). In 2022, we organised the work according to material groups, or clusters, in four so called Cluster Teams.

We held two training sessions for the whole purchasing organisation and 12 workshops with these teams, which resulted in a deeper understanding of how to mitigate scope 3 emissions from raw materials.Through this process, we have identified which materials are the high emitters, which materials are relatively easy to exchange for other materials with a lower carbon footprint, and what challenges we need to address going forward.

We aim to reduce the climate impact from our sourced raw materials by 30 percent until 2030. To kick-start our work, we are currently reaching out to our suppliers, specifically asking them about their climate ambitions and identifying new ways to support each other in the transition journey. The positive responses we have received clearly show that to achieve our objectives, we need to come together as one supply chain and make this a common agenda.

We have already reduced the scope 3 emissions by increasing our use of secondary raw materials in our production, for example at our production sites in Halmstad, Sweden and Stony Creek, US.

Case

Secondary raw materials lower our carbon footprint

Charlie Wedell

Mikhail Lukin

Höganäs focuses on increasing the amount of secondary raw material in metal powder to reduce both costs and carbon footprint. During 2022, the atomising plant in Halmstad, Sweden, continued to develop solutions for increasing the use of secondary raw material in the production.

As a society we need to decrease the use of virgin raw materials in most of our modern industries, from plastic to textiles and metal powders. It is both a question of resource scarcity as well as energy efficiency. The challenges are often related to quality of the materials and the possibilities of processing secondary raw materials in a cost-effective way.

At the site in Halmstad, Höganäs is running an Electric Arc Furnace to melt both steel scrap and virgin materials (HBI and pig iron) to steel powder. Here, Höganäs started a project to entirely replace virgin materials with scrap.

In the long run this will strengthen Höganäs' market position by cutting indirect carbon dioxide emissions, reducing production costs and energy consumption. Mikhail Lukin, responsible for plant operations in Halmstad, explains how the atomising process works.

"The scrap blend is converted into liquid steel and then dispersed into small particles with the help of high-pressure water, instead of being continuously casted into billets/slabs as on conventional steel plants."

It is relatively easy to remove impurities from virgin/primary materials. To replace these materials, the plant in Halmstad had to change melt refining praxis and improve the scrap supply chain by implementing stricter demands on scrap quality with both existing and new suppliers.

"We were forced to learn new ways of working with steel refining, completely changing old views and habits," says Charlie Wedell, Site Manager at Halmstad

The plant in Halmstad is now 99 percent scrap-based and the achievement has become routine. Development is ever ongoing, like initiatives to replace the remaining virgin alloying materials with recycled ones and process optimisation to lower carbon dioxide emissions.

"We have learned a lot from transitioning to a fully scrap-based production. We used to think it was impossible to blend-in lower quality scrap without sacrificing the quality of the product. But it was easier than expected," says both Mikhail Lukin and Charlie Wedell. ■

99 percent recycled materials

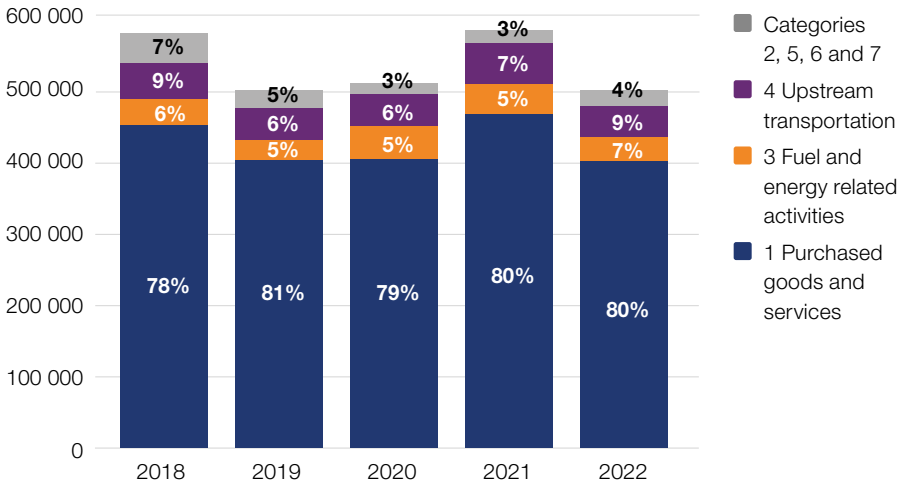
- The plant in Halmstad produces up to 220 ktpa of iron powder, which after several more process steps is mostly used by automotive industry.
- The use of virgin materials went down from 15 to 0,7 percent of total amount raw materials used through the project.
- The scrap used in the process comes from automotive industry as well as from structural steel and consumer goods recycling.

Indirect emissions from upstream activities, Scope 3, tonnes	2022	2021	2020	2019[1]	2018[1]
1. Purchased goods and services	394,500	458,500	397,100	395,500	444,100
3. Fuel & energy related activities	32,700	42,600	45,800	28,700	35,600
4. Upstream Transportation	43,500	55,700	42,800	43,500	50,000
Categories 2, 5, 6 and 7	21,200	17,500	16,500	23,500	41,200
Total Scope 3, upstream as tonnes CO_2e	**491,900**	**574,300**	**502,200**	**491,200**	**570,900**
Total emissions as tonnes CO_2e (Scope 1, Scope 2 and Scope 3)	**761,600**	**917,400**	**787,300**	**809,800**	**945,200**

[1] Scope 3 emissions for 2018 and 2019 are estimated for our facilities in Germany, Laufenburg and Goslar.

Scope 3 emissions in the largest category, Purchased goods and services, consists mainly of emissions related to the production of the raw material we use. The categories Capital Goods, Waste generated in operations, Business travel, and Employee commuting are labelled as Categories 2, 5, 6 and 7 respectively.

Greenhouse gas emissions Scope 3 upstream, tonnes CO_2e



Scope 3 includes seven of the eight categories upstream, from cradle to gate.

Increasing the use of secondary raw materials in Belgium

At the site in Ath, Belgium the departments Product Management, Supply Chain, Production and Quality Control has worked on a project to increase the use of secondary raw material in the production.

"It's main purpose is to reduce the carbon footprint of the raw material, the finish goods and to reduce the cost," says Benoît Gobeaux, Quality Control and Environment Manager at Höganäs in Belgium.

During 2022 the production site in Ath used 1,364 tonnes of high speed steel, 29 tonnes of T15, 66 tonnes of T400 and 40,5 tonnes of CobaltTungsten-Carbide. This added up to a total of 1,500 tonnes of secondary raw materials.

"The next step will be to find new secondary raw materials for our Corporate Purchaser, Håkan Hellberg. We need to succeed in that to fulfil our ambition to lower our carbon dioxide emissions towards our net-zero target." says Benoît Gobeaux.

Benoît Gobeaux

In December 2022, we started using a battery-electric truck for transports between Höganäs and the port of Helsingborg. This will reduce direct emissions from this transport route by 98 percent compared to a conventional diesel truck.

Transportation

Addressing transportation-related emissions means systematically using a variety of measures. Transport efficiency is key, in addition to the use of biofuels and transition to electric vehicles where possible.

We match inter-company transports with outgoing transports to our customers. In Sweden, we have contracted the use of High-Capacity Transport (HCT) vehicles, which can transport more material and products leading to lower transport related impact. Our current fleet consists of 2 vehicles and use a fuel mix of 100 percent biofuel, reducing greenhouse gas emissions by 82 percent compared to fossil diesel.

Case

Creating an infrastructure for carbon capture and storage

Magnus Pettersson

The UN Climate Panel has singled out Carbon Capture and Storage (CCS) as a necessary measure to reach global climate goals. CNetSS is a project focusing on sustainable and cost-efficient solutions for carbon dioxide infrastructure in southern Sweden.

It is essential for life on our planet to keep global warming at, or preferably below, 1.5 degrees Celsius. To succeed in this, the UN Climate Panel recognise Carbon Capture and Storage (CCS) as a necessary measure. Although CCS comes with a lot of possibilities there are also some challenges that need to be addressed. The techniques for capturing and storing are still under development and the main task is to make them both scalable and cost-efficient.

"Another challenge is the infrastructure needed. There is no point capturing carbon dioxide from flue gasses if there is no infrastructure for transportation to final storage. This is why the project CNetSS is so important and why we at Höganäs are excited to be a part of it," says Magnus Pettersson, Energy Coordinator at Höganäs.

Together with nine other actors, such as Copenhagen Malmö Port, E.ON, Kemira, Kraftringen, Nordion Energi, Stora Enso, Sysav and Öresundskraft, Höganäs is partaking in the project CNetSS, which aims to create sustainable and cost-effective solutions for carbon dioxide infrastructure in southern Sweden. The project is led by Växjö Energi and supported by the Swedish Energy Agency with approximately SEK 2.5 million. Several of the participating companies have already scheduled plans to capture carbon dioxide.

"CNetSS is a very exciting project since the carbon capture and storage infrastructure we are looking to create is essential for Höganäs to reach net-zero emission targets. Höganäs works to primarily reduce its fossil emissions, but some emissions may be difficult to remove completely, and in that case CCS may become a partial solution in the future," says Magnus Pettersson.

CNetSS began in September 2022 and will continue until December 2023. In its motivation, the Energy Agency highlighted the project being an important step towards realising the benefits of bio-CCS (biogenic Carbon Capture and Storage). The potential for negative emissions (meaning a positive climate contribution) is also estimated to increase further in line with the transition from fossil fuels to renewable fuels. ■

Infrastructure for CCS

- The site in Höganäs emits approximately 180,000 tonnes of carbon dioxide per year. 75–80 percent emanates from the sponge iron process.
- Part of Höganäs' work to lower carbon dioxide emissions is replacing coal with biochar, for example in the sponge iron process.
- CNetSS hopes to inspire others to set up similar regional projects on carbon dioxide infrastructure.
- CNetSS is a pilot study and continues until December 2023.

Workplace

Fostering a safe and inclusive culture

We aim to be at the forefront when it comes to good working conditions and employee development. By creating a meaningful, safe, and sustainable workplace, our co-workers will flourish both at work and in life in general.

Our people – the key to sustainable development

To succeed with our strategic ambitions and achieve our goals for a sustainable transition, we need to attract and retain the right talent.

Our transformation is dependent on the skills and competence of our co-workers, and it is essential that our co-workers are at the centre of driving real change throughout the organisation. To successfully move into a more sustainable future we will need to further develop and recruit a wide range of different occupational categories, such as engineers within electrification and

SDG target	Our objectives and what we do
TARGET 5·1 END DISCRIMINATION AGAINST WOMEN AND GIRLS	>20 percent female employees, ensuring equal treatment and career opportunities for women. **» See the "Diversity and inclusion" section in this chapter.**
TARGET 8·5 FULL EMPLOYMENT AND DECENT WORK WITH EQUAL PAY	Ensure fair working and wage conditions in all countries through the values and principles of More Höganäs, and by implementing the Code of Conduct. **» See the "Our people" section and the "Labour rights – fair treatment and equal pay" section in this chapter.**
TARGET 8·8 PROTECT LABOUR RIGHTS AND PROMOTE SAFE WORKING ENVIRONMENTS	The values and principles of More Höganäs, and systematic work with working environments and occupational health and safety (ISO 45001). **» See the "Health and safety – we work safely – or not at all" section in this chapter and the "Business ethics at Höganäs" section in the "Society" chapter.**
TARGET 10·2 PROMOTE UNIVERSAL SOCIAL, ECONOMIC AND POLITICAL INCLUSION	The values and principles of More Höganäs, Code of Conduct, anti-discrimination, equal treatment and diversity. **» See the "Diversity and inclusion" section in this chapter.**

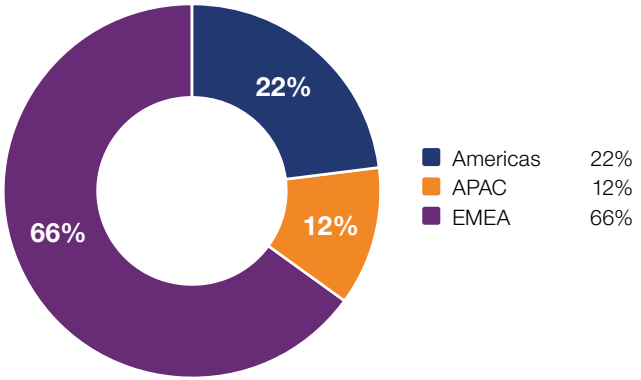
digitalisation, metallurgists, automation engineers, machine engineers and software engineers.

At Höganäs, we believe in the development of every individual and provide career opportunities within the company as well as the possibility to continuous learning.

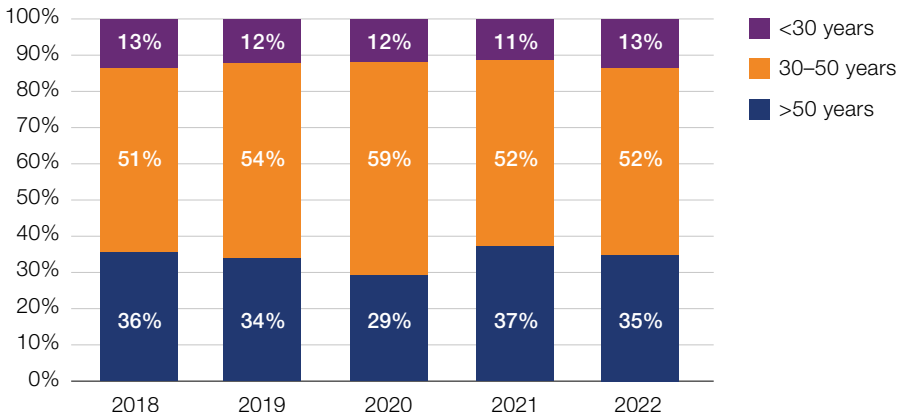
A guiding tool in our everyday work towards a more sustainable business and a meaningful workplace, is our management philosophy *More Höganäs*. It outlines our vision, our values, and our way of working. Since 2017, our business is aligned with the ten principles of the UN Global Compact in the areas of human rights, labour, environment, and anti-corruption.

In 2022, Höganäs had 2,360 (2,282) average full-time equivalent (FTE) co-workers and 237 consultants across 16 (16) countries. During the year 149 men and 48 women were recruited, while 171 men and 53 women left the company. The total employee turnover during 2022 was 9 (4) percent – an increase of 5 percentage points compared to 2021. This was mainly due to the divestment of Digital Metal and the closure of Höganäs Environmental Solutions. ›

Co-workers per continent percentage



Age groups



The distribution of employees between age groups is stable for the age group under 30 years, while the age group over 50 decreased by 2 percentage points compared to 2021.

Diversity and inclusion – fundamental success factors

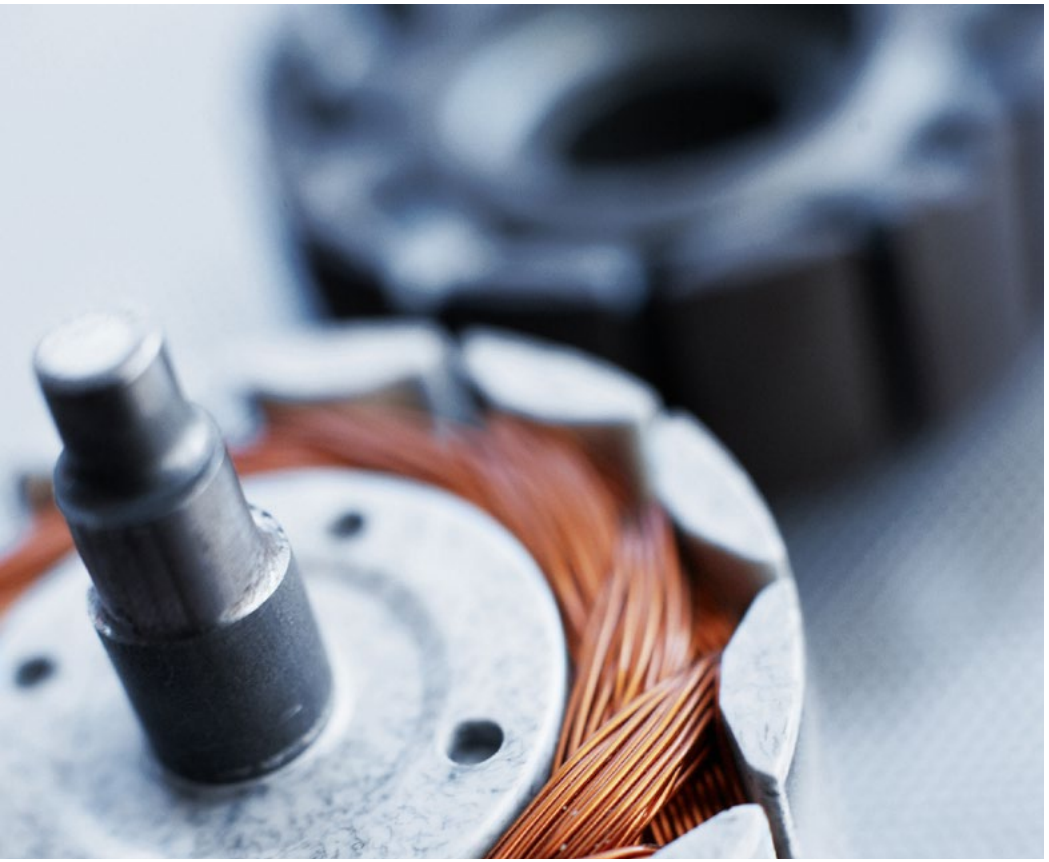
Respect, equality and equal treatment and opportunity, are fundamental to us. We strongly believe that diversity and inclusion are long-term success factors for being an attractive employer and a successful company. We strive to attract a more diverse workforce, since we know that diversity adds value to the business by bringing different perspectives to, for example, problem solving and decision making. By embracing diversity, we also gain access to a larger pool of talents and overall employee engagement is strengthened.

This year we have increased our focus and knowledge about diversity and inclusion by participating in the UN Global Compact's Target Gender Equality Programme. To increase the insight and awareness of the strength of diversity we have run leadership trainings that will continue during 2023.

Research shows that the language used in advertisments have a large impact on who will apply. To improve how we communicate to attract a more diverse workforce, we have run several language training sessions.

Co-workers per region according to gender and type of employment

Percentage	AMERICAS	APAC	EMEA	Total
Men	19%	9%	55%	**83%**
Women	3%	3%	12%	**17%**
Full-time position	21%	12%	63%	**96%**
Part-time position	0%	0%	4%	**4%**
Temporary employed	0%	0%	2%	**2%**
Permanently employed	22%	12%	64%	**98%**



In 2022, the number of training hours increased compared to 2021, as we have filled gaps that were built up during the pandemic and put more focus on competence development. In average our co-workers had 22 hours of formalised training.

During 2022, 18 percent of our co-workers had training in human rights and 3 percent had anti-corruption training. Our **anti-corruption policy** *was communicated to 18 percent of our total workforce during last year. The anti-corruption policy is undergoing an update and a new training package will be launched subsequently, which means some training is postponed till then.*

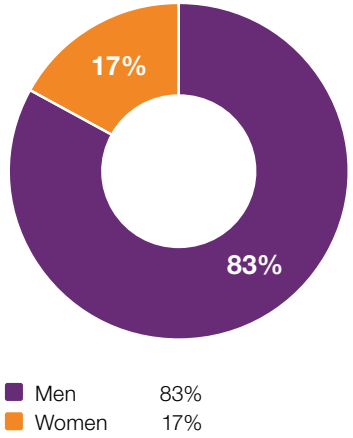
	2022	2021	2020	2019
Total number of hours training provided to Blue-collar	32,285	25,090	19,094	12,768
– whereof women	1,711	993	1,176	898
– whereof men	30,574	24,097	17,918	11,870
Total number of hours training provided to White-collar	18,765	8,541	7,185	12,469
– whereof women	5,568	2,030	2,081	4,913
– whereof men	13,197	6,512	5,104	7,556
Total number of hours training provided to co-workers	51,050	33,630	26,280	25,237
Number of training hours all female employee	7,279	3,023	3,257	5,811
Number of training hours all male employee	43,771	30,609	23,022	19,426
Total	51,050			

Anti-corruption, percentage av all employees				
Communication	18%	31%	58%	6%
Training	3%	20%	9%	2%
Total communication of anti-corruption:	21%	51%		

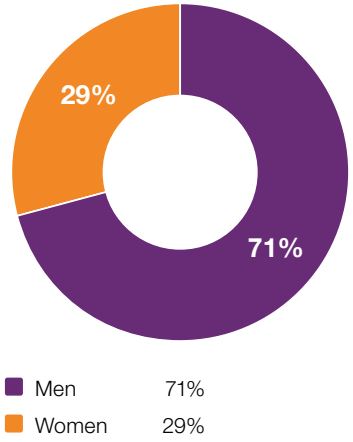
Human rights	
Part co-workers had training in human rights	18%

Number of co-workers (Headcount from HR 2022)	2,339	2,305	2,345	2,420
Number of training hours per co-worker (headcount)	22	15	11	10

Gender distribution, all co-workers



Gender distribution managers level 1 and 2



Gender is one important dimension of diversity. At the end of 2022, women made up 17 (17) percent of our workforce and 29 (27) percent of our managers. We aim to increase the proportion of female employees to 20 percent and female managers to 30 percent by 2026.

27% female Board members

18% female members in Group management team

In 2023, our focus will be on developing and implementing a Diversity & Inclusion roadmap. For the whole organisation to embrace diversity and inclusion, we will start by increasing awareness through a mandatory e-learning course. We will also develop and implement a global recruiting policy and communication guide on diversity and inclusion.

We encourage co-workers to report any form of discrimination, for instance based on race, disability, sexual orientation, or gender expression. During 2022, we had one incident of sexual harassment reported to the Höganäs Group. The case is handled and closed.

In addition to improving gender equality and succeeding with our transformation journey, we need to broaden the search for competence in other respects as well. In 2022, we have launched the Höganäs Student Programme in Sweden, and Höganäs Trainee Programme in Brazil. In North America we have our long-standing and successful Internship Programme, enabling us to recruit young talents directly after successfully completed internship period.

Ensuring the right competence to drive change

Access to the right competence is a challenge, not only for Höganäs, but for most industries globally. Since our industry is highly technical, it demands specialised expertise and a constant development of competence. Our co-workers receive performance and development talks quarterly or at least once a year and in 2022 a total of 67 percent of our co-workers had at least one individual talk. Most sites fulfil the obligation and cover more than 90 percent of the co-workers and nine sites reached 100 percent in 2022. The exceptions are the sites in Germany who has not reported any talks, and US who in agreement with the union, carry out talks only with white collars.

To ensure that the right competence is available at the right time and place, we run the Höganäs Academy. The Academy is our internal competence development platform, providing practical tools and learning resources to support our co-workers to improve and grow.

In 2022, our co-workers received a total of 51,050 hours, or 22 hour per person on average, of formalised training.

Case

Driving transformation demands specialised knowledge

Fredrik Vinnerborg

Finding and keeping the right competence is a challenge, not only for Höganäs, but for the entire industry. Therefore, Höganäs decided to develop an e-learning platform dedicated to the wonders of sintered components – the Höganäs Academy.

The platform is divided into two areas, one addressing co-workers at Höganäs and the other towards designers, engineers and purchasing decision makers.

"A truly sustainable organisation should promote and embrace lifelong learning. In a dynamic world where disruptive changes occur, we need to be agile. The Höganäs Academy is a platform where we share condensed, compiled, and structured knowledge," says Fredrik Vinnerborg, Competence Technology Leader.

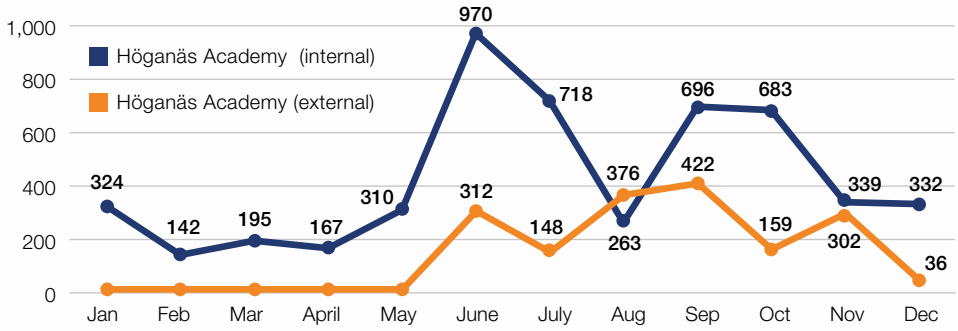
Höganäs' ambition with the courses on Powder Metal pressing and sintering (PM), is to make sure all co-workers understand what represents customer value, and how this value can be created and captured. For the external platform, the goal is to promote PM technology, showcasing inherent value such as light weight, resource efficiency and cost efficiency.

Both the internal and external platform have added new courses on pressing and sintering during the past year. The internal platform now has six courses, and the external offers five courses.

"The courses contain information on applications, how to design better components and offers insight on how to produce them," says Fredrik Vinnerborg. This is a constantly progressing effort, and Höganäs will continue to discuss how to better support component engineering activities.

"We have been working on establishing databases for material data, but ideally, we would have a tool that makes the engineering and cost assessment of new sintered components much easier," says Fredrik Vinnerborg. ■

Number of unique visits



The Höganäs Academy

- The Höganäs Academy is an e-learning platform for both internal and external use.
- The internal platform is an educational hub. Six of the courses are on pressing and sintering.
- The external platform consists of five courses on pressing and sintering.

Benefits provided to full-time employees that are not provided to temporary employees

	Benefits provided to all permanent employees			Benefits provided to temporary employees		
	AMERICAS	APAC	EMEA	AMERICAS	APAC	EMEA
Life insurance	x	x	x	x		
Health care	x	x	x	x		
Disability and invalidity coverage	x	x	x	x		
Parental leave	x	x	x	x		
Retirement provision	x	x	x	x	x	
Profit sharing plan	x	x	x		x	x

Labour rights – fair treatment and equal pay

Our **'Code of Conduct'** outlines our core principles and how they relate to labour standards and human rights in our workplaces around the world.

We follow national labour rights legislation and apply our principles of fair treatment and equal pay in all our operations. Emphasised in our *'Code of Conduct'*, Höganäs supports freedom of association and the right to collective bargaining.

Almost all our co-workers, 97 percent (97) have a full-time position, and 98 percent (98) have permanent contracts.

It is standard practice that our co-workers receive an individual employment contract in a language they understand, that is signed by both the employer and the employee. Our operations in the US are the only exception, where terms for blue-collar employees are set through a collective bargaining agreement. In 2022, 82 percent (84) of our co-workers globally were covered by collective bargaining agreements. Höganäs operates retirement and pension plans that vary at the local level, based on legal and market requirements and practices.

Minimum notice period given to employees before operational changes are in most cases stipulated in the collective agreement and is in average given six weeks in advance. The notice periods range from one week to six months, depending on nature of change and local praxis.

Since 2010, Höganäs has had a profit-sharing system with the aim of increasing motivation and commitment from the employees in Höganäs' operations. The program includes all employees. For the financial year 2022, the profit-sharing system activates when Höganäs AB and its subsidiaries' operating profit exceeds SEK 1.091 million (734). The maximum allocation is achieved when the result exceeds SEK 1.347 million (906), which corresponds to a profit-sharing of SEK 38.5 million (25.9) at an outcome of 100 percent. Thus, SEK 35.5 million (25.9) was reserved for 2022.

Under EU rules, male and female co-workers are, regardless of their type of contract, entitled to parental leave on the birth or adoption of a child. Co-workers can also take parental leave at any time until the child is 8 years old. However, this age limit may be lower in some countries according to national law.

For co-workers in India, where Höganäs employs around 80 people in management, sales, administration and operations, there is no statutory paternity leave, but ›

> **"When our employees retire, they should be in good shape, both physically and mentally, to be able to live a full life in retirement."**
>
> *Håkan Persson, Global Safety Manager Operations*

Health and safety performance, co-workers and other workers	2022	2021	2020	2019	2018	2017	2016	2015
Number of recordable injuries[1]	71	61	80	221	164	201	165	167
Number of lost time injuries[2]	30	22	24	34	37	39	34	41
Number of high-consequence work-related injuries	1[3]	0	0	0	1	0	2	0
Number of fatalities	0	0	0	0	0	0	0	0
Lost time injury frequency per million hours worked	6.9	5.0	6.0	7.6	8.2	9.7	9.8	11.9
Recordable injury frequency per million hours worked	16	14	20	49	36	49	47	48
Incident reporting frequency[4]	90	115	120	63.1	53.0	52.8	53.8	23.2
Sick leave rate	4.1%	3.7%	3.8%	3.7%	3.8%			

[1] Including all reported injuries with or without absence from work and commuting accidents. Figures for 2020 are corrected due to improved crieteria for recordable injuries.
[2] Including injuries and commuting accidents leading to absence from work.
[3] Pinch injury of finger during maintenance work.
[4] Reported risk observations, near misses and accidents per lost time accident.

since 2020 we offer 7 days of paternity leave and encourage all men to utilise this benefit. In 2022, there were 6 male co-workers on parental leave for 34 days.

Health and safety – we work safely – or not at all

Well-being is our number one workplace priority. Our objective is to reduce work-related injuries and cases of ill health to zero. By continuously ensuring decent and safe working conditions, we will strengthen our position as a preferred employer that attracts and retains the right competence and skills.

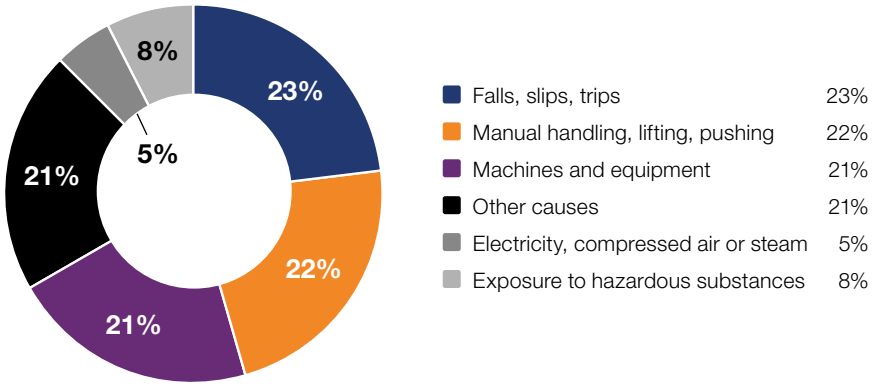
'Safety first' sums up our aim to create a solid safety culture, where dialogue and risk-elimination are key, and where the main rule is to never compromise on safety. As a way of improving our safety culture, we initiated Safety Maturity Assessments across our sites in Europe in 2022. So far, the assessments show that we are effective in our response after an accident but need to strengthen preventative measures. The assessments will continue in 2023, as well as the work to identify key activities to strengthen the safety culture at Höganäs.

A global incident and risk reporting system is used by all co-workers to report incidents including accidents, near misses and risk observations. The reporting system also logs root cause analyses, investigations and actions taken. Developing and sharing best practice within the Höganäs Group help to support local initiatives. In 2022, we completed a training for 16 'super users' of the reporting system at different sites. These 'super users' will continue to train managers and co-workers in the system.

During 2022, there were 30 (22) lost time injuries (LTI), resulting in an LTI frequency of 6.9 (5.0) per million hours worked. The safety performance has plateaued, and further actions have already been taken to strengthen the safety culture. The analysis of injuries shows that we have made improvements regarding falls, slips, and trips, but we also need to focus more on moving parts and equipment, and on improving routines for manual handling to make sure we reduce risks and prevent accidents.

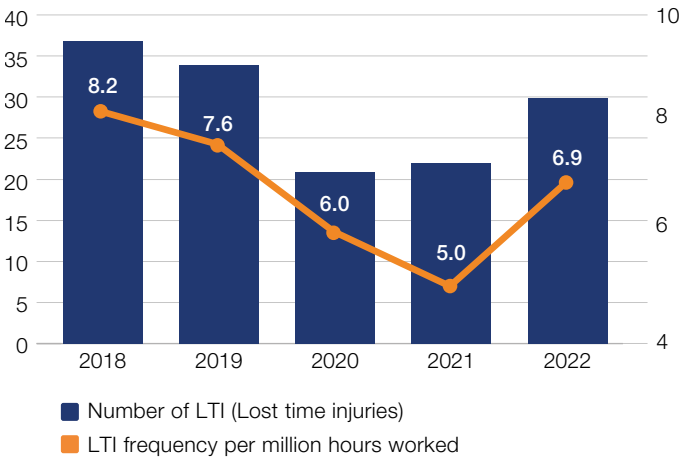
In 2022, our plants in China, South Korea and Japan were certified according to the ISO 45001 Occupational Health and Safety Standard (OH&S). This means all sites with production now have third party certified health and safety management systems covering all activities and employees.

Causes of injuries



The analysis of injuries shows that we have made improvements regarding falls, slips, and trips, but we also need to focus more on moving parts and equipment, and on improving routines for manual handling to make sure we reduce risks and prevent accidents.

Safety performance development



Our **'Health and Safety policy'**, available in eight languages, explains how to apply our principle "we work safely – or not at all" in the daily work. The policy also contains principles for managing psychosocial and stress-related risks.

To maintain high risk awareness among co-workers, job-descriptions include the typical risk exposure of that position. All co-workers receive mandatory health and safety trainings adapted to their individual work. A general safety training is also part of the introduction of new co-workers. In addition to mandatory trainings, we spread knowledge through our Best Practice Groups, thematic safety conferences, workshops, videos, booklets, and guiding tools.

Social impact assessments covering health and safety, and environmental risks are carried out locally at each production site. Seven out of 13 sites have also included other topics such as human rights risks, gender impact, economic and infrastructural impact and corruption risks

During 2022, face to face interaction with members of community was slowly getting back to normal after the pandemic. After mainly working and communicating via digital channels for two years Höganäs was able to co-organize and physically conduct an "Open house day" at the premises in Goslar.

Our health and safety committees exist at different levels in our organisation and

Safety Toolbox – increasing our safety behaviour

During 2022, we introduced the Safety Toolbox across all our production sites, and in ten out of 17 sites the toolbox is already implemented. Next year, we will continue implementation across all remaining sites.

The toolbox consists of:

- Safety walk – safety rounds where we scan every workstation for risks.
- Safety talk – we discuss and monitor risks on a daily or weekly basis.
- Human behaviour – analysing the root cause for safety incidents caused by human error.
- 'Take five' – a short moment of risk assessment before we perform a specific work task.

include both production and administration types of departments. The meeting frequency can vary between countries and sites, but the minimum frequency is to meet four times a year. The meeting frequency has been upheld via digital formats during the pandemic, and there has been no deviations from the normal level of engagement. We can now see a mix of digital, hybrid and physical meetings.

We work continuously to minimise exposure to hazardous substances at work. In 2022, we also implemented the Dusting Best Practice group. The aim of the group is to keep facilities clean and reduce any workplace exposure. To avoid health risks related to repetitive movements, our co workers undergo training in ergonomics.

For the third consecutive year, Höganäs organised the Global Safety Week. The ambition is to further create awareness and strengthen knowledge about how all employees can contribute to concrete improvements towards the goal of zero accidents. This year, the topics were ergonomics and manual handling, as these areas affect everyone in the company and where we see opportunities for improvements.

During Global Safety Week, a variety of activities took place at all Höganäs sites around the world, including training courses, safety walks, revisions of work instructions and safety talks. Also, all co-workers were encouraged to review their own and their colleagues' work environments.

Promoting healthy lifestyles and work-life balance

Höganäs actively promotes healthy lifestyles and work-life balance. Considering our business, we have a certain focus on avoiding physical work-related injuries, but our goal is to provide an overall healthy working life. Consequently, we also take a broader perspective on health, including mental wellbeing and non-work-related issues.

Depending on the type of work, medical health checks are carried out on a regular basis. Occupational health services are provided locally and adhere to national legislation. In line with local needs, we proactively offer lifestyle health promotion activities that range from rewards for cycling to work, step-counting competitions, weight-loss advice, access to stop smoking groups, contributions to wellness programmes and gym memberships, as well as offering healthy lunch options. ■

Case

A toolbox for a safer workplace

Håkan Persson

A safe working environment is Höganäs' number one priority when developing a sustainable workplace. We use our Safety Toolbox to build a strong safety culture. During 2022, the toolbox was implemented on all our sites.

Working with industrial production can be risky. Some of the risk factors are the use of heavy machinery, hot melted metal, and manual handling in some parts of the different processes. To minimise risks and create a healthy and safe workplace on all sites there is a need for systematic work and a culture of safety mindset.

"We work on safety in many ways. We regularly carry out prevention services and conduct risk assessments that are documented in a global system for the metal industry. Incidents and risk observations are closely analysed, and conclusions and measures are communicated throughout the organisation," says Håkan Persson, Global Safety Manager in Operations at Höganäs.

A crucial part of the systematic work is the Höganäs Safety Toolbox, developed by Håkan Persson and his team. During 2022, the Safety Toolbox was rolled out globally on all sites and will, in 2023, be thoroughly implemented.

"The toolbox contains safety walk, safety talk, human behaviour and "Take five". The goal is to strengthen our culture of safety and to create secure ways of working. It is impossible to create a safe workplace only through improving technical solutions at the sites, we must also have good ways of working to establish safe behaviour in daily work," Håkan explains.

Safety walks are carried out on a regular basis. Additionally, employees and managers conduct safety talks on a daily or weekly basis, depending on the process. Risk assessments are completed for most of the work tasks and "Take five" is a last-minute risk analysis you do before performing a task. The goal is to further decrease the number of incidents at Höganäs.

"The fact that employees are getting hurt when they are at work is a big challenge for us, and the Safety Toolbox is a way to meet that challenge. We want our employees to be as healthy or even healthier when they leave Höganäs, for retirement or another job, as when they started working with us. It is also important to be an attractive employer to the younger generation. Safety is a key in that," Håkan Persson concludes. ■

The tools in the Safety Toolbox

- Safety walk
  – analysing risks
- Safety talk
  – safety awareness
- "Take five"
  – preventing inattention
- Human behaviour
  – root cause analysis

Products

Do more with less

Within the metals industry, powder metallurgy is well known as a versatile production technology that offers unique possibilities with benefits for sustainability.

Besides being energy efficient and requiring less raw materials, the amount of waste generated is usually less than from conventional techniques. Metal powders are often made from recycled raw materials which make the products more circular. As a result, our technology and products provide efficient means in lowering emissions of carbon dioxide and other greenhouse gases.

Höganäs contributes to solving various sustainability challenges. Through our products, we assist in providing the market with solutions for the transition to renewable energy production and electrification, and help prolong product lifespan, thus decreasing the need for replacement. We also work with our customers in our Customer Development Centres to develop new products and applications, as well as iterate upon and improve our existing product portfolio, helping our customers in turn to reach their sustainability goals.

SDG target	Our objectives and what we do
TARGET 8·4 IMPROVE RESOURCE EFFICIENCY IN CONSUMPTION AND PRODUCTION	Resource efficiency and zero waste, responsible sourcing and process safety management. Product sustainability vision. **» See the "Material use" and the "Driving customer value" sections in this chapter and the "Our supply chain – a societal responsibility without borders" section in the "Society" chapter.**
TARGET 12·2 SUSTAINABLE MANAGEMENT AND USE OF NATURAL RESOURCES	Resource efficiency and responsible sourcing. Product sustainability vision. **» See the "Material use" and the "Sustainable product development" sections in this chapter.**
TARGET 12·5 SUBSTANTIALLY REDUCE WASTE GENERATION	Resource efficiency and zero waste. Product sustainability vision. **» See the "Material use" and the "Sustainable product development" sections in this chapter.**

Our large portfolio of products is divided into three product areas (PAs):

- Electro & Mechanical Technologies (EMT)
- Surface & Joining Technologies (SJT)
- Customization Technologies (CT).

These product areas offer solutions to our customers' sustainability challenges, for example, scarcity of raw materials and greenhouse gas emissions.

In **PA-EMT**; our products for sintered components and electromagnetic applications can support different industries (e.g., the automotive) to use less raw materials and energy during their production processes. This helps our customers decrease their overall emissions and increase their resource efficiency.

In **PA-SJT**; our products can support our customers to extend the durability of the final product they produce, and to improve the effectiveness of products such as turbines for example in applications within aerospace and energy generation.

In **PA-CT**; Customization Technologies are growing fields, where production methods such as Additive Manufacturing (AM) and Metal Injection Moulding (MIM), offer mass customization down to the production volume of one unit, and flexibility with very little waste where there is no other alternative production technology available.

Sustainable product development

We are striving to lower our products' total carbon footprint by transitioning to fossil-free production processes, using input materials with a lower carbon footprint such as secondary raw materials, and by creating circular material flows.

We base our product development on a life cycle perspective and four key principles:

1. Climate adapted
Eliminate dependence on fossil carbon sources.

2. Circular
Enable circular material flows throughout the value chain.

3. Resource productive
Effective and efficient solutions creating value for industry and society.

4. Safe and ethical
Cause no harm to people or the environment throughout the value chain.

Astaloy CrS – a fully recyclable metal powder

During 2022, we launched Astaloy CrS, a pre-alloyed and fully recyclable metal powder, based on recycled iron products. Astaloy CrS has the same mechanical properties as a Fe-Cu-C metal powder, high dimensional change stability and improved machining characteristics compared to Fe-Cu-C. Being a circular product Astaloy CrS has additional sustainability benefits compared with similar products on the market owing to the low foot-print of the energy we use in its production.

Requirements for product and service information and labelling	Required for product/service labeling
The sourcing of components of the product or service	Yes
Content, particularly with regard to substances that might produce an environmental or social impact	Yes
Safe use of the product or service	Yes
Disposal of the product and environmental or social impacts	Yes
Other (explain)	No

Percentage of significant product or service categories covered by and assessed for compliance with such procedures	100%

All products that Höganäs puts on the market or transports between markets are accompanied by a Materials Safety Data Sheet (MSDS), also known as a Safety Data Sheet (SDS). An MSDS is a factsheet developed by manufacturers describing the chemical properties of a product including brand-specific information such as physical data (solid, liquid, colour, melting point, flash point, etc.), health effects, first aid, reactivity, storage, handling, disposal, personal protection, and spill/leak procedures.

Höganäs MSDSs are available in the most common local languages used in the different geographical markets. All transport containers are also marked according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) together with other required transport documentation.

Each new product's pre-study, project or process includes a sustainability assessment. We also work to improve the sustainability performance of existing products, focusing on their full life cycle.

Our product sustainability guidance is intertwined with our entire sustainability agenda, including our Climate Roadmap, Responsible Sourcing Programme, sustainable production processes and reduced environmental impact.

Three key enablers

We have identified three key enablers for realising our sustainability product guidance:

1. Material selection using a life cycle perspective.
2. Sustainable business transformation for the metal powder industry.
3. Re-imagining partnerships for future applications and working with others to manage value chains.

Driving customer value

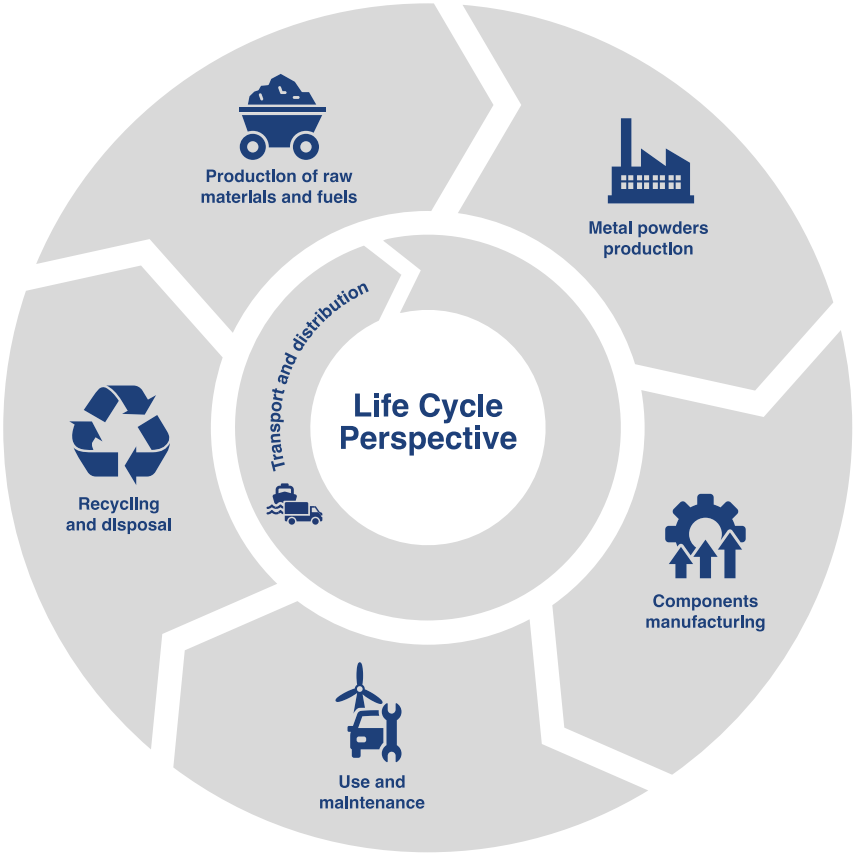
We work in close partnership with our customers offering application development capabilities, technical support, and logistics solutions. The overall goal is to drive transformation towards more sustainable metal powder solutions, and to maintain industry leadership in the long run.

Climate change, with its disruptive effect on many of the industries we serve, call for innovation and new solutions. The electrification in the automotive industry is one example. We adapt our product portfolio to ensure we meet the new and emerging needs of our customers, as well as facilitate their transition. By enhancing our product portfolio with low-emission and circular products, we aim to further assist our customers on their sustainability journey.

Achieving this demands that we have a clear understanding of both the needs of our customers and the sustainability requirements of their end users. Through cooperation with customers, and creation and sharing of knowledge and insights, we increase the opportunities of offering products beneficial for the entire value chain. ›

Life cycle thinking

To further strengthen our knowledge base in LCA, Höganäs joined the Swedish Life Cycle Center (SLC). We aim to foster life cycle thinking throughout the organisation and enable continuous improvement by developing skills and exchanging knowledge with other actors in academia, at research institutes, government agencies and other industry actors.



Life Cycle Assessment

Customers are increasingly requesting sustainability data, including carbon footprint of our products and production methods. We support and encourage this progress as it will promote stronger partnerships and facilitate product and production innovation. Hence, we have committed resources to provide high quality data on our products by using Life Cycle Assesment (LCA) as a method of choice.

We have focused our initial LCA activities on the products we produce at our plants in Halmstad and Höganäs in Sweden, and in Laufenburg in Germany. During 2022, as part of our stakeholder engagement commitment, we have also approached customers on all continents to initiate collaborative sustainability projects, for example customer focused LCAs.

We have adopted a holistic LCA perspective within our organisation, starting with our raw materials and the energy needed to drive our processes, to the transportation of our products and handling of waste and side streams. Our work with LCA tracks a high number of indicators to give an accurate and transparent description of our products' environmental footprint. This includes both positive and negative impacts.

LCA is a well-established tool to use and offers standardised way of working, without endangering efforts to lower the impact in one process and unintentionally leading to knock-on effects in other processes. Known as 'burden-shifting' along the value chain in the LCA community, this problem can be avoided through accurate and transparent LCAs, alongside innovative design and customer awareness efforts. Consequently, during 2022 we have in some cases extended the LCA scope beyond the 'cradle-to-gate' approach that covers the parts of our products' life cycle which we can influence directly and included activities downstream in the value chain.

Alongside our LCAs, we also use a qualitative sustainability assessment of a product's footprint based on the four key sustainability principles. This method is used in pre-studies to ensure that all sustainability aspects are covered in future development work. A total of four such assessments were completed during the year.

Case

LCA to accelerate the sustainability transition

Yang Cao *Babak Kianian*

Höganäs uses Life Cycle Assessment (LCA) as a tool for improving its processes and products environmental sustainability performance. Our LCA studies can also be performed in collaboration with our customers and based on data from their specific applications of our products.

A very fruitful partnership has been with NBTM New Materials Group Co., Ltd, one of the largest powder metal structure parts manufacturers in China.

"The partnership with Höganäs has been important to identify where we can improve our manufacturing processes and reduce carbon dioxide emissions. We have also improved our understanding of how to collect relevant data to make these assessments," says Yang Cao, Vice President of NBTM.

LCA studies and outcomes are important in many ways. They can identify how to further improve in our aim to reach net-zero from cradle to gate by 2037, and they help our customers understand how our sustainability offer can support them to reach their commitments.

"We are now leading the whole industry to be more sustainable," says Yang Cao regarding how NBTM can use the LCA to lead by example.

Höganäs and NBTM have approached development of LCAs for certain NBTM products as a joint project.

"Collecting data is very time consuming, and some of the numbers needed are simply not reachable for Höganäs. The collaboration with NBTM gives us a broader perspective and the shared knowledge is the prerequisite for finding improvement potentials in both our products and processes," says Simon Tan, Tech director at Höganäs China.

Information on environmental impacts from processes and products have become increasingly more crucial, both from a regulatory and customer standpoint.

"Some customers are already requesting LCA data, and we believe this interest will increase," says Yang Cao.

When choosing cooperating on LCAs it has been important to Höganäs that the partner organisation has high ambitions and a strong sustainability agenda.

"We can already see great benefits of using LCA in production processes (process level LCA) and product development (product level LCA). We plan to continue to work with players like NBTM, which will hopefully result in a faster transition of the entire industry," says Babak Kianian, Life Cycle Assessment Specialist in Group Sustainability at Höganäs Sweden. ■

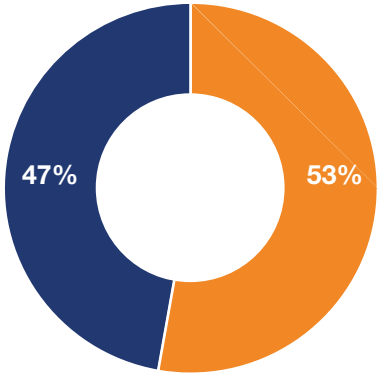
Leading with LCA

- NBTM is market leader in manufacturing powder metallurgical (PM) automotive components.
- Höganäs performed LCA and communicated carbon footprint results of four metal powders (customer mixes) and four automotive components selected by NBTM.
- The results from the study can support both product and production development processes with identifying scenarios in which the negative environmental impact from a process or product can be reduced.

Raw materials, tonnes	2022	2021	2020	2019	2018
Secondary materials, metal scrap	314,000	332,000	267,000	294,000	359,000
Ferrous and ferroalloys	185,000	242,000	191,000	222,000	248,000
Graphites, coke and anthracites	53,000	65,000	46,000	55,000	59,000
Slagforming agents and minerals	28,000	33,000	26,000	29,000	36,000
Non Ferrous metals	12,000	15,000	12,000	12,000	13,000
Organic	2,000	3,000	3,000	3,000	4,000
Total	**594,000**	**690,000**	**545,000**	**615,000**	**720,000**
Part secondary materials	**53%**[1]	**48%**	**49%**		

[1] Process gases are not included in calculation

Share of primary and secondary raw materials



Secondary materials 53%
Primary materials 47%

Material use

We work to limit our environmental impact regarding our material use through our guidance for sustainable products, our principles for responsible sourcing and through our sustainable production processes.

During 2022, we directly handled 594,000 (690,000) tonnes of materials creating around 440,000 (490,000) tonnes of products, and 133,400 (154,100) tonnes of process side stream materials.

The primary raw materials used were extracted from the earth's crust and have a large environmental impact. These materials are mainly iron ore, limestone and fossil process coal or coke.

Using secondary or recycled materials limits our negative impact on the environment, including improved resource efficiency and lower greenhouse gas emissions. Our largest secondary material by weight is iron-based scrap, which amounted to more than 314,000 (332,000) tonnes in 2022. Our ambition is to increase the share of secondary and recycled materials in our production. In 2022 we reached a share of 53 percent secondary and recycled materials in total. In some processes the share is as high as 95–99 percent.

In 2022, we used 3,100 (3,000) tonnes of packaging materials. 94 percent was plastic, and the remaining part is cardboard and metal. Some of our sites have stopped using plastic pallets and shifted entirely to steel pallets, which have a longer life span and are fully recyclable. ›

Packaging materials, tonnes	2022	2021	2020	2019	2018
Cardboard & Paper	20	50	30	130	170
Metal & Fiber	150	180	220	190	220
Plastic	2,910	2,720	2,100	1,840	1,950
Total	**3,080**	**2,950**	**2,350**	**2,160**	**2,340**

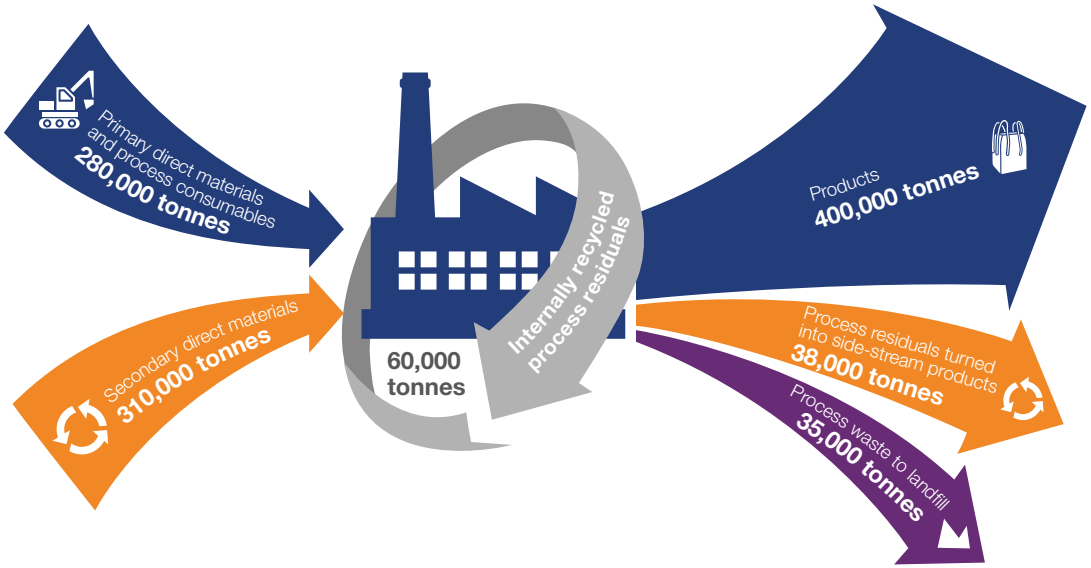
Packaging materials consist of 94 percent plastics such as flex bags and pallets. In recent years, we have switched from wooden pallets to plastic or metal pallets. The reason is that plastic or metal pallets last longer and therefore reduce waste. They can also be recycled at their end of life.

Circular solutions for zero waste

Our long-term vision is zero waste, with a target for 2026 of at least 95 percent of process residual materials produced during the reporting period to be converted into useful side stream products. In 2022, 74 (77) percent of our process residuals were put to use.

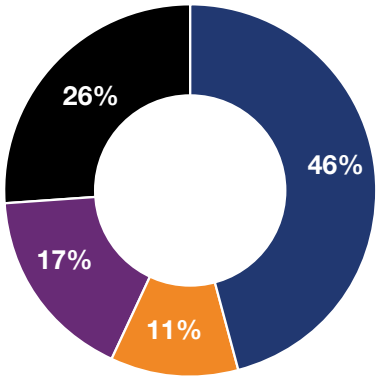
Finding new uses for residuals requires innovation, investment, and co-operation with our partners. It is also important for us to have a thorough understanding of our processes and material flows.
We divide our process residuals into three categories depending on their end use:

1. Process residuals as side stream materials or products that are used, recycled, reclaimed, reused, or repurposed by a third party.
2. Process residuals as side stream materials that are internally used, recycled, reused, reclaimed, or repurposed at the site of origin.
3. Process residuals as waste for internal or external landfill.



Process residuals, tonnes	2022	2021	2020	2019	2018
Process residuals directed to disposal (Waste)					
– to external landfill (96% non-hazardous)	11,700	13,400	6,800	7,200	9,400
– to internal landfill (100% non-hazardous)	23,200	22,400	16,800	17,100	24,200
– to incineration with energy recovery		100	100		
Process residuals directed to disposal (99% non-hazardous)	34,900	35,900	23,700	24,300	33,600
Process residuals diverted from disposal (Sidestream products)					
– to external recipient for recycling	12,300	9,700	19,900	25,500	33,800
– to external recipient for reuse	25,400	31,900	15,700	16,700	12,200
– to internal recipient within Höganäs Group	2,500	13,100	4,000	3,800	12,700
– to internal reuse	54,700	63,400	52,300	54,000	50,700
– to internal use	3,100				
– to internal recycling	500				
Process residuals diverted from disposal (86% non-hazardous)	98,500	118,100	91,900	100,000	109,400
Part process residuals put to use	**74%**	**77%**	**80%**	**80%**	**77%**
Part put to use incl. internal landfill mining	95%				

Destinations of process residuals



Used internally	46 %
Used externally	11 %
Sold	17 %
Landfill and incineration	26 %

In 2022, we diverted 74 (77) percent of our total amount of process residuals from disposal, with the remaining 26 (23) percent sent to landfill. The part of process residuals put to use has decreased with 17 percent compared to last year. As soon the environmental authorities in Brazil have administrative capacity to issue the environmental permit needed for our customer to handle the material, we will be able to get back to normal levels again.

During 2022 we have extracted 27,900 tonnes of process residuals from our internal landfill to be used by external recipient, so called land fill mining.

Valuable side stream products

Three examples of valuable side stream products developed at Höganäs are Petrit® E, Petrit® T and Petrit® L. All of these are REACH-registered.

Petrit® E can be used as a filler material in road construction, as an aggregate for asphalt and as construction material. We are also developing the material to be used as a water treatment method, using its ability to bind phosphorus and dissolve metals. Our side stream products can help decrease stress on ecosystems caused by eutrophication.

Petrit® T can be used as a lime replacement to improve soil quality for agriculture as well as soil stabilisation, and we see further potential for cement substitution.

Petrit® L can be used as an alternative to sand or gravel in the production of for example mineral wool or cement.

Furnace dust is sent to zinc recovery and other forms of dust are processed for iron recovery.

Destination	Domestic waste		General plant waste		Packaging		Total
	Hazardous	Non-hazardous	Hazardous	Non-hazardous	Hazardous	Non-hazardous	
(Re)use		62				137	199
Incineration with energy recovery		169	33	172		306	681
Incineration without energy recovery			1	1	12	51	65
Landfill		210	8	376	1	26	620
Other disposal or destruction		4	15	3			22
Other recovery operation		2	4	6			11
Recycling	6	23	28	428		488	973
Total, tonnes	**6**	**470**	**89**	**986**	**12**	**1,007**	**2,571**

Non-process waste is waste that is not related to our production processes and 40 percent comes from packaging materials. The waste consists of plastics, paper, wood, food left-overs from canteens, and residues from maintenance work and is mainly non-hazardous materials and 46 percent is diverted from disposal. Of the 4 percent that is classified as hazardous waste the main part in 2022 was general plant waste like building materials, chemicals and filters that was sent to recovery or incineration with energy recovery.

Used refractory materials can be reused as slag formers in metal production.

We see significant market potential for these applications. Customers view them as a resource efficient and cost-effective raw material and a method to decrease their own environmental footprint.

During 2022, 38,000 (42,000) tonnes, or 28 (27) percent, of Höganäs' total residual materials were repurposed by external partners.

Non-process waste

In 2022, non-process related waste amounted to 2,571 (3,043) tonnes, or 2 (2) percent of our total waste and side streams. This included general plant waste, domestic waste, and waste from packaging materials.

Packaging makes up 40 percent of our non-process waste, and we work continuously to map our waste generated from packaging to look for improvements. We have increased the amount of packaging sent for reuse or recycling to 62 (47) percent. ■

Case

(Re)turning waste into resources

Bianca Santos

To recycle materials from our production is an important measure to lessen the need for virgin materials and to decrease the amount of waste stored as landfill. At Höganäs Brazil, the team designed a reverse logistics plan which contributes to returning waste into the supply chain.

Höganäs is commited to reducing the amount of waste sent to landfill. The team at Höganäs, Brazil started the project "The reverse logistics plan" to contribute to avoid landfilling. The reverse logistics plan returns waste that usually would be discarded back to the supply chain.

"Assertively, reverse logistics as a whole is a sustainable initiative. Today, in Brazil as well as the rest of the world, waste disposal is a critical issue. Our challenge is to start this work within the company and gradually impact our community and surroundings," says Bianca Santos, Environment, health and safety Technician, Safety and Environment Department.

The strategy was designed in 2022 and when the project was launched it started with a specific type of general plant waste, cardboard tubes, as a test. The cardboard tubes are used to support the plastic that packs some of Höganäs' products during transportation.

"We are still in a trial phase together with the supplier. Since our waste generation is small, we need a long period to accumulate enough waste to send for recycling," says Bianca Santos.

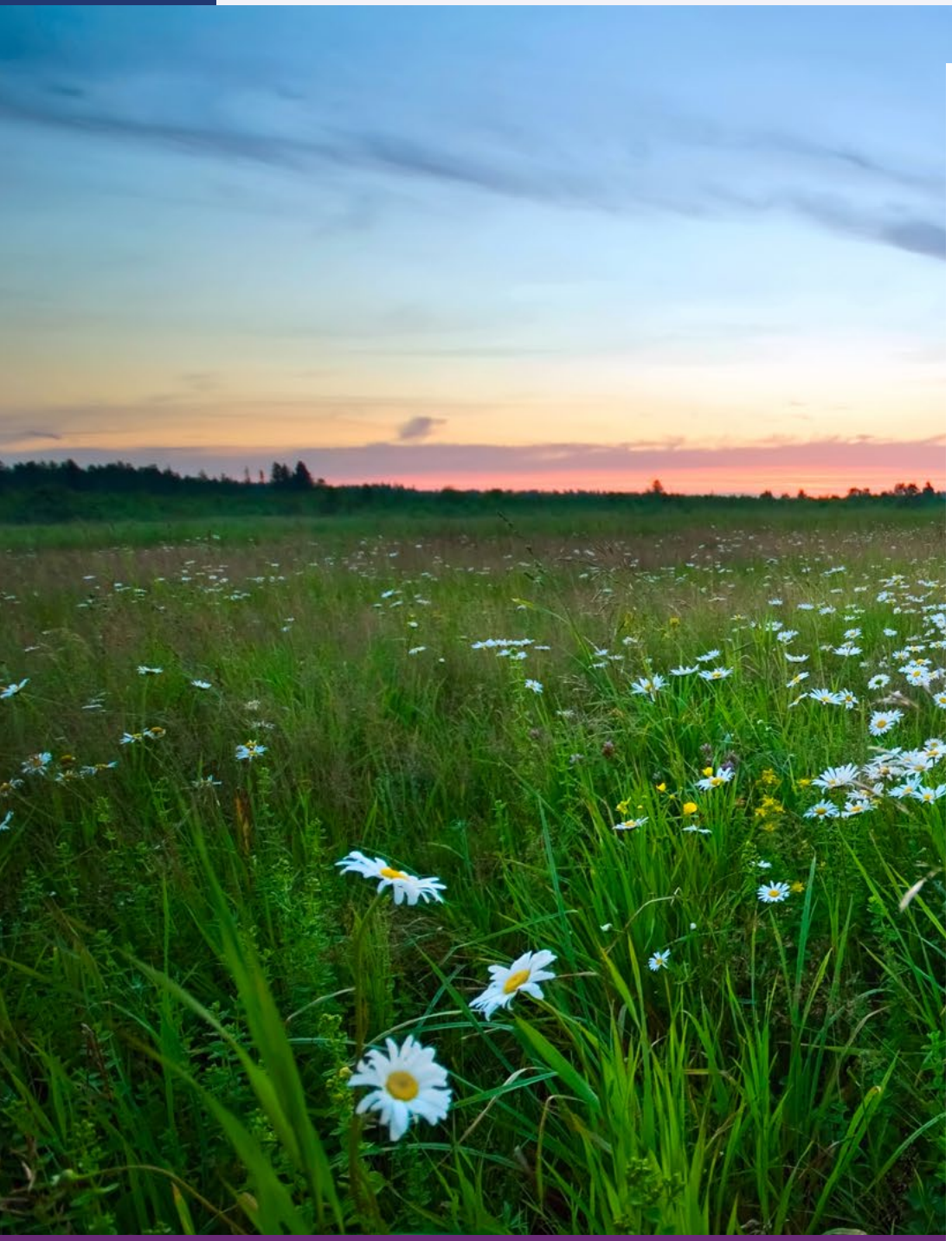
The cardboard tubes are collected manually and stored in a warehouse in a specific waste collector. When there is enough material in the waste collector it is returned to the supplier to be used again for the same purpose.

The reverse logistics plan is a tool to help both Höganäs and its suppliers to create circular loops within the supply chain. It contributes to the reduction of costs with disposal, and with the reuse in the production of other products. To reach the plan's full potential, the entire company must be involved, and the suppliers need to be engaged.

"The teams involved are environment, purchasing and logistics, and the intention is to map all the waste that is subject to Reverse Logistics with current suppliers. By the end of 2023, we want to leverage waste management and produce as little waste as possible," says Bianca Santos. ■

Reverse Logistics Plan

- The project started in 2022 aiming to return more waste material into the production process and decrease the amount of material disposed to landfill.
- Cardboard tubes are the first materials in the project, which are collected and then shipped back to the producer to go back into the production to create a circular loop.



Environment

Enable balance with nature

The steel and metals industry provides essential materials for many basic needs and is a vital part of the global economy and societal development

At the same time, our industry faces substantial sustainability challenges, primarily by being one of the largest emitters of carbon dioxide emissions. We also use finite resources, and our processes can harm the environment through pollution of air, water and soil.

We strive to minimise any harm to the environment from our operations and aim to strengthen our understanding of both ecosystem impacts and services, and to have a positive impact where possible.

Höganäs has identified negative environmental impact risks related to both production and other activities. These include carbon dioxide emissions, water and air pollution, and increased land and water pressure. By applying the precautionary principle, using the best available technologies, and creating ›

SDG target	Our objectives and what we do
	Monitoring water intensity and striving to promote water efficiency and avoiding the use of freshwater at local level. **» See the "Water use" section in this chapter.**
	Continuously upgrading and optimising equipment at the local level. **» See the "Stable processes key to mitigating environmental impact" section in this chapter.**
	Resource efficiency and zero waste, responsible sourcing and process safety management. **» See the "Stable processes key to mitigating environmental impact", "Air emissions" and "Water discharge" sections in this chapter and the "Material use" section in the "Products" chapter.**

well-functioning and stable processes, we aim to minimise these negative impacts.

Long term Höganäs' objective is not to minimise environmental harm at all costs, but rather to contribute to building ecosystem resilience.

Stable processes key to mitigating environmental impact

Well-functioning and stable processes are key to avoiding unplanned production disruptions that can result in increased emissions, spills, leakages, and other events that could cause harm.

Our systematic work includes:

- Daily routine maintenance conducted by operators.
- Scheduled maintenance by local teams.
- Our *'Loss Prevention Manual'* is the policy document outlining the loss prevention and risk management procedures and is part of our overall management system.
- Conducting comprehensive risk analyses concerning molten metal and reactive chemicals for each type of chemical and piece of equipment being used.

Certified environmental management systems

All our production sites have environmental management systems and all are third-party certified according to the ISO 14001 standard except for 2 smaller units. In addition, all production sites have obtained environmental permits and are subject to authority control. These permits differ between countries and are renewed at fixed intervals, ensuring environmental protection requirements are updated and relevant. Höganäs adheres to the limitations set out in environmental permits and regards them as minimum requirements for environmental management.

Air emissions, tonnes	2022	2021	2020	2019	2018
Nitrogen oxides (NOx)	120	120	100	120	120
Sulphur oxides (SOx)	40	30	30	40	40
Carbon monoxide (CO)	150	140	100	120	140
Non-methane volatile organic compounds (NMVOC)	10	10	8	8	9

Metal and dust emissions to air, kg	2022	2021	2020	2019	2018
Iron (Fe)	6,960	8,680	8,500	9,800	11,570
Chromium (Cr)	7,270	7,630	6,500	7,600	9,000
Zinc (Zn)	1,280	1,170	1,400	1,100	1,500
Nickel (Ni)	610	680	500	600	100
Copper (Cu)	100	90	70	80	60
Lead (Pb)	70	60	60	70	70
Cadmium (Cd)	10	10	10	10	10
Mercury (Hg)	10	-	2	2	2
Total dust, including metals to air (tonnes)	64	68	60	60	80
PM10 (tonnes)	36	39	30	40	50

Hazardous air pollutants (HAP), Tonne	8,0	8,4

Air emissions are calculated based on local monitoring carried out to cover the needs for function control and compliance with environmental permit limits. As a result, not all sites report on all substances and the consolidated figures may therefore not cover all actual emissions. Some emissions to air, like mercury and copper, have seemingly increased during 2022 in our facility in Höganäs, Sweden. As no operational change or filter malfunctions have occurred during the year that could explain this, these increases most likely is a result of change in the monitoring method. Further monitoring will be carried out during 2023 to establish a new baseline and ensure correct measurements in the future.

Chemicals are only used on site after being approved through internal risk assessments. The process also involves publishing safety data sheets (ESD-sheets) on the Höganäs' intranet and conducting necessary training of users. A regular inventory of chemicals is made as part of our internal audit programme. We have procedures in place to replace chemicals with less harmful alternatives. Our certified environmental management systems help us to work systematically to prevent spills and other accidents. Minimising negative impacts on water, air and soils are part of our environmental mitigation. We monitor discharges and emissions according to local environmental control programmes to ensure we do not exceed environmental permit limits.

During 2022, three cases of environmental non-compliances were reported. In Höganäs, Sweden a reporting error was made in 2018 regarding use of cooling agents. The authorities decided on a fine of 5,000 SEK. The case is now closed. The other two cases are related to water discharge and further explained on page 61.

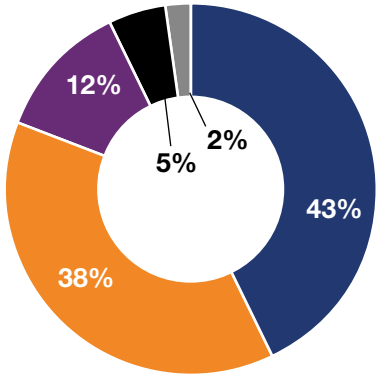
Air emissions

Our production processes generate air emissions, both through stack and fugitive emissions. Stable production processes and the preventive maintenance of process equipment are key to avoiding dust releases and other air pollutants.

To minimise stack emissions, all large point sources are equipped with filters. Local environmental control programmes typically include monitoring emissions such as nitric oxides (NOx), sulphur oxides (SOx), metals residues and other substances of concern, depending on the type of process. Read more about our carbon dioxide emissions here: **Climate**.

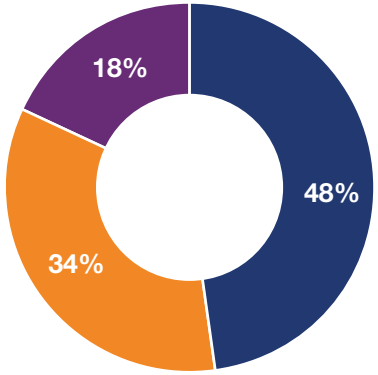
To prevent fugitive emissions, raw materials and products (metal powders) are handled in closed processes whenever possible. In-house material storage and sealed transport containers are used to prevent particles from spreading. While slag handling, including sorting and transporting to internal landfills, is generally carried out in open air at all slag production sites, procedures such as watering, and road sweeping are used to minimise dust emissions.

Water withdrawal by source



Seawater	43%
Third party, surface water	38%
Surface water	12%
Third party, groundwater	5%
Groundwater	2%

Water discharge by destination



Seawater	48%
Third party, surface water	34%
Surface water	18%

Water use

At Höganäs we monitor water use and availability in all locations where we operate, to identify and mitigate negative impacts. Water is mainly used for cooling in closed systems through heat exchange and we mostly use sea water for this purpose. During 2022, we used 3,293 (4,365) thousand cubic metres of seawater for cooling. No significant environmental impact is expected since the seawater is returned in the same condition as it was taken, or even cleaner.

Water is also used when molten steel is atomised into desired particle sizes in a controlled “water jet” process. The water is treated, cooled, and mostly recycled within this process. Water for dust binding and slag quenching is evaporated, treated on site, or sent to external water treatment plants.

Our production sites are generally located in areas where fresh water supply is relatively stable. The exception is our Indian site in Ahmednagar, where seasonal fluctuations cause water stress like flooding or drought. To optimise the use and storage of water during dry periods Höganäs has installed a roof rainwater catchment and storage system for use on the premises. We acknowledge that climate change and changing weather patterns calls for regular assessment of the freshwater situation to be able to act swiftly on signs of water stress.

In 2022, Höganäs built a water treatment station in Brazil able to store and treat both rainwater and process water through ozone treatment. The unit will be able to reuse 43,000 cubic metres of water annually. Höganäs Brazil built the storage system, and an external company installed the ozone treatment.

Last year, Höganäs began a study to investigate the potential of partially replacing municipal water supply with industrial wastewater from a neighbouring industrial facility in Halmstad, Sweden. Significant additional savings in both process and cooling water were also identified, and during 2022 Halmstad invested in a new reversed osmosis unit. This is expected to save approximately 20,000 cubic meters of municipal fresh water per year. Also, an upgrade of the ladle furnace transformer will save 30,000 cubic meters municipal tap water per year.

Discharges of substances to water, kg	2022	2021	2020	2019	2018
COD (Chemical Oxygen Demand)	4,310	8,040	7,650	10,770	9,230
O&G (Oil and grease)	500	430	350	700	170
N-tot (Nitric nutrients)	370	380	270	390	380
TS (Total Solids (TSS+TDS))	11,100	6,470	8,140	4,630	5,370

Metal discharges to water, kg	2022	2021	2020	2019	2018
Iron (Fe)	2,140	1,030	550	460	600
Zinc (Zn)	100	110	70	130	290
Nickel (Ni)	60	60	110	50	90
Copper (Cu)	70	50	10	20	20
Chromium (Cr)	20	20	50	20	20
Lead (Pb)	10	10	10	10	2
Cobalt (Co)	10	4	20	20	1
Arsenic (As)	1	1	1	2	< 1
Cadmium (Cd)	1,0	< 1	< 1	< 1	< 1

Total water discharges are calculated on local monitoring results based on site specific circumstances and demands for compliance to environmental permit limits. As a result, not all sites report on all substances and the consolidated figures may therefore not cover all actual discharges. The significant increase of iron in water discharges compared to last year is explained by more exact monitoring methods at our facility in Stony Creek, US.

Water discharge

Water used in production is mainly uncontaminated cooling water and to a large degree circulated many times prior to discharge. We monitor discharges of metals into the water and measure other substances of concern according to our control programmes and local environmental permits. In many cases monitored substances are below the detection limits. During the year there were two incidents of breaching environmental permits regarding water reported.

Pyle, UK reported an effluent bund containment failure, where approximately 1 cubic metre of effluent (mixture of water and ethylene diamine) leaked from the bund, into a nearby storm drain and into the nearby river system. The incident was regarded as a minor breach by the environmental authorities with no legal consequences. A number of improvement actions have been carried out and the case is closed. In Ath, Belgium a case of exceeded limit values of Chromium and Wolfram in water discharges has been reported. Investigations are still ongoing.

Contaminated water is treated in wastewater treatment facilities operated by us or third party, to meet environmental quality standards before being discharged.

Water withdrawal, CBM	2022	2021	2020	2019	2018
Total volume of water withdrawn	7,653	8,216	6,294	6,865	6,261
– of which Seawater	3,293	4,365	3,758	4,140	4,160
– of which Freshwater	4,361	3,850	2,535	2,726	2,100
Total water discharges	6,930	7,590	5,742	6,233	5,587
Total water consumption	**723**	**626**	**552**	**632**	**674**

Water withdrawal has been on a higher level the last two years, mainly due to more precise monitoring of water flows. Water consumption has increased due to a shift in product mix to larger volumes in more water demanding processes.

Case

Turning rainwater into a resource

Julio Carmazen

The team at Höganäs Brazil saw an opportunity to turn rainwater into a resource and thus decrease the need for fresh water in the production processes. The solution was to develop and build a water treatment plant which returned almost 300 cubic metres of filtered water during the first months of operation.

Fresh water availability is a critical issue globally and according to the World Health Organization (WHO), two billion people live in water-stressed countries.

Since fresh water is a basis for thriving societies and healthy ecosystems, we must use it responsibly. At Höganäs we aim to minimise our use of fresh water. Therefore, we use sea water for cooling in our processes when possible.

But there are other ways of decreasing fresh water use. On World Water Day, Höganäs inaugurated a water treatment plant at our plant in Mogi das Cruzes, Brazil. It will collect, store and filter rainwater to make it usable in our production processes.

"Since responsible consumption of water resources is a challenge, we saw this as a way of using rainwater, filter it and make available for the process in our plant. Our factory area is extensive, with large buildings and roofs, and rainwater would simply go away without recovery. We found this as a waste of resources," says Julio Carmazen, Industrial Director, Safety and Environment Department.

The water treatment plant is formed by a cistern and two tanks. It uses ozone generation and zeolite filtration, besides automated absorption, to filter the water. It has the capacity to store 300 cubic metres and will be able to reuse approximately 43,000 cubic metres annually. This will lessen the demand for fresh water use as well as saving energy equivalent to up to 2.5 tonnes of carbon dioxide emissions from the ground water pump.

"The project was completely done in-house; our process engineering team was responsible for dimensioning the structure and treatment method was developed together with homologated suppliers," says Julio.

The results from the operation of the water treatment plant have been very positive. In the very first months, it had a return of almost 300 cubic meters of water, and the demand for water from the ground water well has decreased significantly. ■

Saving fresh water

- The water treatment plant filters rainwater and by cleaning it, the rainwater can be used in production processes instead of fresh water.
- It has a capacity to filter 118 cubic meters of water per day.
- In the first couple of months the water treatment plant has returned 300 cubic metres of water.
- The water treatment plant was inaugurated on World Water Day in 22 March this year.

Understanding the ecosystem services and impact on biodiversity

To ensure we do not contribute to the depletion of ecosystems, we aim to identify the most important ecosystem services and learn how we can monitor and manage them.

Following the initial work done by the Swedish operations on biodiversity management, see case on page 64, we are reading-up on the possibilities to monitor our impact on ecosystems so that we can manage the ecosystem services they possess, without depleting them.

Among the methods available to monitor environmental impact e.g. identifying and tracking ecosystem key organisms, bio-diversity inventory and others, we find remote sensing using satellite photos to be the most promising. Remote sensing can be used to cover small and large territories and can thus scope the full impact area of an emission. Remote sensing fulfils the need for repeatability and standardisation of monitoring method. Biotope inventories, like the one carried out at the Swedish site in Höganäs can be used to 'train' the 'remote data-set' and enhance interpretation.

For reasons of evaluating remote sensing a pilot project will start in 2023 and cover Höganäs site in Sweden.

In the coming period we will keep focus on this topic and share experiences in our internal Best Practice Group for Air, Soil and Water Management.

Case

Boosting ecosystems to counter climate change

Frida Lindbladh

On top of climate change the loss of biodiversity are immediate and intertwined threats to our planet. To fully understand how we affect surrounding habitats and biodiversity near our plants we started mapping the local environment. The aim is to contribute to strengthened biodiversity and healthy ecosystems.

Healthy ecosystems provide us with clean air, clean water, and healthy soils for food production. They can also help counteract climate change, which is one of the reasons focus on biodiversity has grown significantly in the last couple of years. In December 2022, the UN Biodiversity Conference (COP15) wrapped up in Canada with a historic agreement, which includes goals to protect a third of the world's biodiversity by 2030.

In 2020, Höganäs started a project to map the biodiversity and ecosystem services close to the plant in Höganäs, Sweden. The goal was to find out more about the species of animals and plants surrounding us, their wellbeing and how our business affects them.

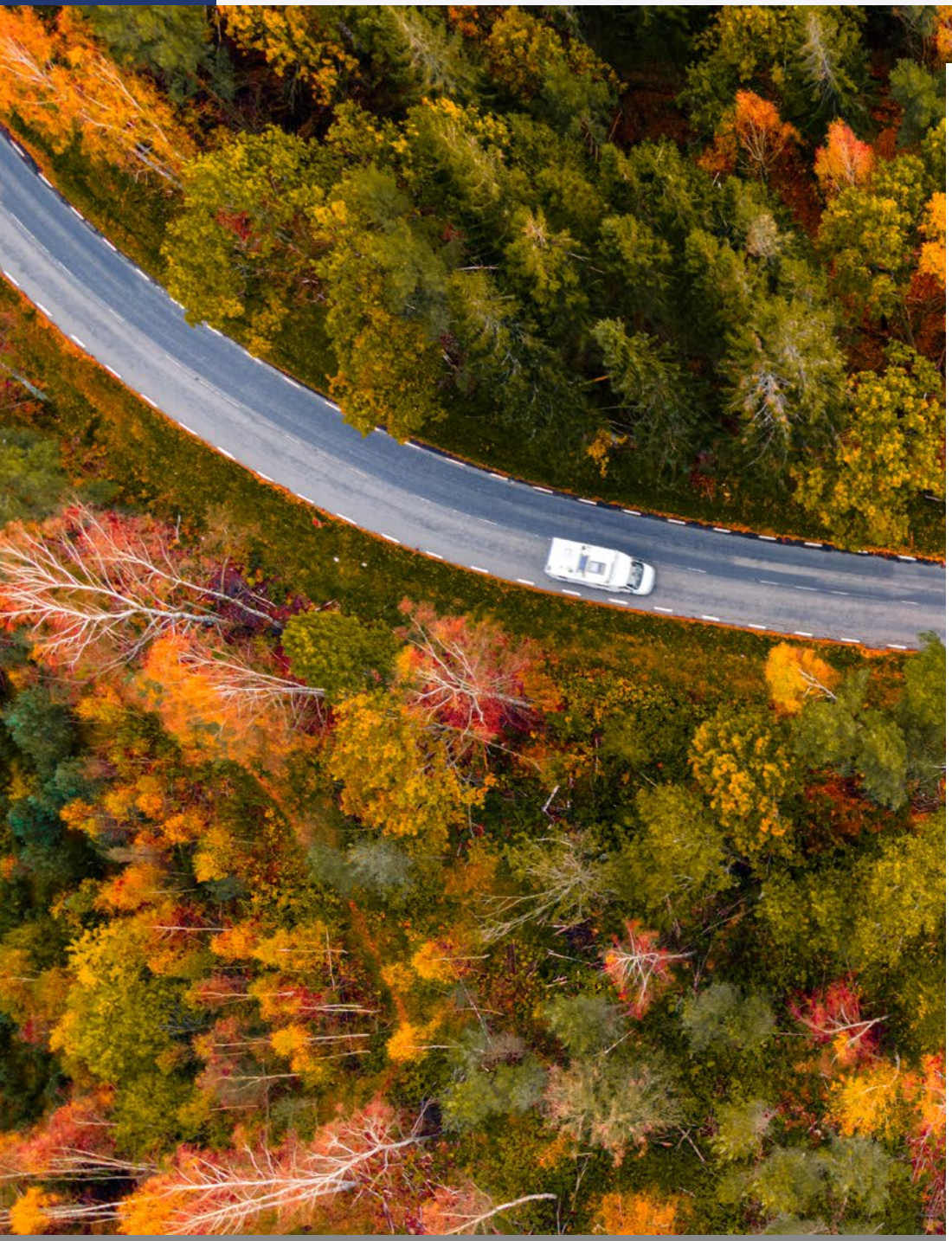
"By mapping the biodiversity and ecosystem services, we understand how our company affects the surrounding environment. By knowing this, we can prioritise to lower the emissions that significantly impact the recipients. We can also work with different stakeholders to improve the robustness of ecosystems," says Frida Lindbladh, Environmental Engineer, Environment and Safety.

The biodiversity mapping continued in 2021, with an in-depth study conducted at the Höganäs site in Höganäs. In 2022, we have progressed this work by searching for effective ways to monitor the changes over time. Since we are mostly searching for long term impacts on nature, and short time variations will occur, it makes some monitoring methods harder to use.

"We are now looking at the possibility of establishing a baseline for biodiversity in Höganäs Sweden. As a possible next step, we could use remote sensing and satellites to help us track the changes in the vegetation around the plant in Höganäs. If trials are successful, I have good hopes of using the technique at all plants, globally," says Frida. ■

Understanding ecosystems

- Höganäs mapped biodiversity and ecosystem services around the plant in Höganäs Sweden during 2020 and 2021.
- The pilot study looking at the most effective way to track changes in the nature was conducted in 2022.
- The next step is to use remote sensing and satellites to track changes in, for example, the on-site vegetation.
- The aim is to create a deeper understanding of how we impact ecosystems close to us and be able to take effective action to minimise harm and increase our positive impact.



Society

Build long-term partnerships

As the world leader on the iron and metal powders markets, our business touches millions of people, either through our activities, by using our products or because of our business relationships at any level of our value chain.

Höganäs has a strong commitment to sustainability and to high ethical standards in everything we do, including our sourcing, financial reporting and our responsibility towards external stakeholders and the local community.

When established in 1797, Höganäs played a significant role in the local community. Back then, in the small municipality of Höganäs in Sweden, business operations included building all necessary infrastructure. Höganäs constructed roads, founded the local school, and set up housing for the employees. This heritage is carried through today, as Höganäs continues to contribute to society, especially in the local communities around the world where we operate.

SDG target	Our objectives and what we do
	Responsible Sourcing Programme. **» See the "Responsible Sourcing" section in this chapter.**
	Responsible Sourcing Programme. **» See the "Responsible Sourcing" section in this chapter.**
	Responsible Sourcing Programme. **» See the "Responsible Sourcing" section in this chapter.**
	Höganäs' internal work to increase competence and capability, and the work in our sphere of influence such as supply chain, customers and other stakeholders in society. **» See the "Responsible Sourcing" section in this chapter.**
	Höganäs' internal work to increase competence and capability, and the work in our sphere of influence such as supply chain, customers and other stakeholders in society. **» See the "Responsible Sourcing" and the "Business ethics at Höganäs" sections in this chapter.**

Business ethics at Höganäs

Our vision, 'Inspire industry to make more with less', permeates every aspect of our business and therefore also includes contributing to a sustainable and thriving society. We do this by ensuring that we source responsibly, that human rights are upheld, and that we conduct ourselves ethically in all our doings.

The Höganäs' **'Code of Conduct'** outlines how we interact with our business partners, shareholders, co-workers and the surrounding community. It reflects our respect for human rights principles, our zero tolerance on corruption and applies to all co-workers and all people acting on behalf of Höganäs, for example board members and agents.

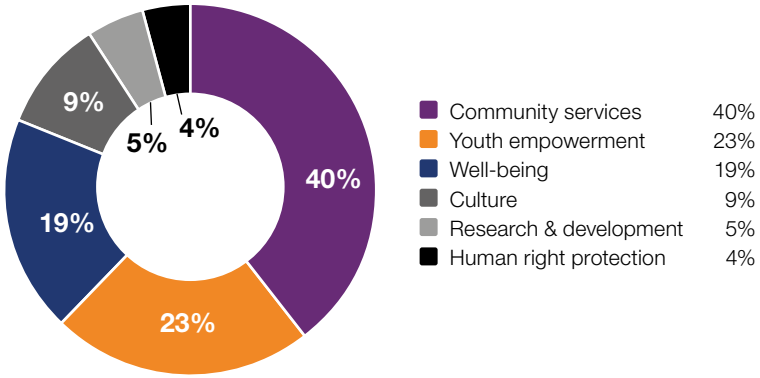
In 2022, we had 28 (27) active contracts, many long-term, with agents, i.e., representatives acting on behalf of Höganäs, covering activities in 33 (37) countries. During the year we signed 3 (3) new contracts.

Prior to signing new contracts with an agent, an integrity audit is conducted, looking specifically at bribery or other corruption risks. Besides the requirement to comply with applicable anti-bribery ›

Value created, MSEK	2022	2021	2020	2019	2018
Turnover	12,256	10,527	8,645	10,343	10,361
Supply chain	9,976	8,075	6,613	8,177	7,753
Tax payments	162	226	206	210	175
Salaries, other benefits and social security expenses	2,109	1,935	1,832	1,934	1,810
Investments excluding acquisitions	656	339	351	701	671
Equity	11,544	10,476	9,886	9,806	9,046
Net debt	**36,690**	**31,578**	**27,533**	**31,171**	**29,816**

> **“By showing that we honour and follow rules and regulations in all business activities, we set an example that is also strengthening democracy”**
>
> *Anders Bergman, Manager Group Environment and Climate*

Community contributions



Voluntary community contributions and sponsorships are decided by each local operation according to our guidelines for sponsorships and donations. The largest parts were directed towards community services and youth empowerment. To support the ongoing humanitarian work to the people in Ukraine and those that have been forced to flee to neighbouring countries, Höganäs AB donated 75,000 € to Médecins Sans Frontières (MSF) and 75,000 € to the Red Cross. This is not included in the diagram.

laws and Höganäs *anti-corruption policy*, these agreements also include permission for us to request an audit of the agent’s financial records by an independent auditor to verify compliance.

The societal responsibility of Höganäs is also manifested through our transparency and our non-negotiable compliance with legislation as well as our standards for financial and non-financial reporting.

Paying fair tax and salaries are an important part of our contribution to society. In 2022, we paid MSEK 162 (226) in taxes globally. Our salaries and social security expenses amounted to MSEK 2,109 (1,935) during the year. We always strive to ensure compliance with transparency requirements and avoid any transactions or arrangements that may be considered tax evasion.

Our group’s approach to tax

The Höganäs Group acts as a responsible global corporate tax citizen in compliance with applicable tax law and regulations. It is our primary objective to act in accordance with the respective tax laws in the countries in which we operate. We make tax part of every important business decision and report and disclose our tax positions in accordance with applicable regulations and requirements. As part of a multinational group we maintain our commitment to the highest ethical standards and transparent business practices through a *Code of Conduct*, group tax directives and wider group guiding principles. Each individual is aligned with and follows the Group’s policies and principles.

We are convinced that by being a responsible citizen and contributing to just and inclusive societies, we also contribute to democracy. An important part of our work is to regularly evaluate that our governance framework is effective, and that our values and principles are adhered to and integrated into all our business activities.

Community engagement

Even though Höganäs is an international company with a global supply chain, it also serves as a hub for local business as a significant part of our raw materials are sourced locally or within the region. We prefer to source maintenance, consultancy, and entrepreneurial services near our operations whenever possible, with a few exceptions. In this way we contribute to job opportunities and

economic growth in the local communities where we operate.

To maintain active and transparent communication with local communities, we welcome and appreciate feedback, promote dialogue during "open-house-days" and engage in other community engagement activities. All our sites have designated communication channels and grievance mechanisms in place, where local representatives respond to questions and complaints. During 2022 we recieved 11 complaints from neighbours regarding noise, smell, dust and deviating working procedures. In three of the cases, there were technical failures that could be fixed and cases closed. In three other cases, contractores had not followed procedures. Corrective measures were taken, and cases are now closed. In five cases the complaints could not be verified as connected to Höganäs' activities. These cases were closed without action after follow-up with the informant.

Additional communication with local communities includes publishing news and operational changes on our website and on social media.

Local contributions

We encourage all of our production sites to engage with local communities according to our '*Group Framework for Community Engagement and Donations'* and make prioritisations according to local circumstances. We also have a '*Sponsorships and Donations Directive'* to ensure that all funds are used ethically and according to the intended purpose. In 2022, some examples of initiatives were delivering food baskets to families in need and collecting winter clothes to the local community in Brazil, participation in a soup kitchen in Taiwan, pre- ›

Whistleblowing – encouraging everyone to speak up

All co-workers are encouraged to report incidents, for example non-compliances of our **'Code of Conduct'** or increased risks concerning corruption, conflict minerals or child labour. Reports are primarily managed within the line organisation, or alternatively reported to the Human Resources Department or Corporate Legal.

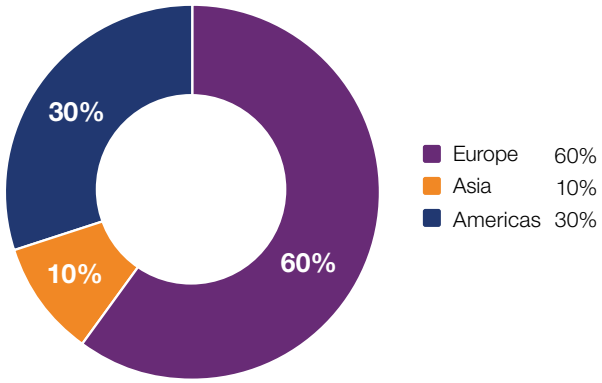
If this is not possible or appropriate, Höganäs provides a group-wide reporting system, operated by a third party. It enables our co-workers to report anonymously and confidentially in any language via phone or a website.

Our suppliers, customers, partners and neighbours may also report suspected violations of laws or the '*Code of Conduct*' in accordance with local procedures or through **the whistle-blower function on our website**.

When a case or incident is reported, a transcript is sent by the third party to a designated external lawyer and the chairman of the audit committee. These recipients will then assign the investigation to a person with sufficient mandate, who is not involved in the reported matter.

During 2022, 5 (3) new cases were reported, regarding questioning appropriate behaviour in leadership and dissatisfaction of training and benefits. All cases have been handled according to procedures and are now closed. One of the cases lead to actions and improvements within local management. None of the reports led to further consequences for individual employees.

Spend per continent



At the end of 2022, Höganäs had 405 (607) suppliers of direct materials and approximately 3,800 (6,400) suppliers of indirect materials, transportation and other services. Our total spend on external suppliers was 10,887 (9,111) MSEK, 63 (62) percent which was spent in Europe, 29 (32) percent in the Americas and 8 (6) percent in Asia. Approximately 35 percent of our spend in raw material is sourced through distribution channels or traders.

preservation of German forests and a donation to Ukraine.

The main part of our voluntary financial support, around 77 percent, goes towards children's rights initiatives, promoting education and scholarships. The remaining 23 percent goes to organisations focusing on vulnerable groups working to promote well-being and healthy lifestyles, as well as improved access to culture and leisure activities.

Our supply chain – a societal responsibility without borders

Our suppliers and contractors play a vital role in our business, and we expect them to demonstrate the same high standards that we hold ourselves to.

Our supply chain involves raw material suppliers located around the globe, ranging from mining companies to highly technical lubricant suppliers. Höganäs prioritises local suppliers, and more than half of our raw materials are sourced locally within the country of operation.

Only suppliers that can ensure that they themselves and their suppliers adhere to internationally agreed principles and relevant legal frameworks are approved by Höganäs. In 2022, we onboarded 14 (44) new suppliers of direct materials and 469 (682) new suppliers of indirect materials and services.

Before onboarding a new direct material supplier, they are evaluated through a self-assessment, a so-called Base Questionnaire, that covers our **'Supplier Code of Conduct', 'Code of Conduct'** and **'Anti-Corruption Policy'**. Suppliers comply by answering the questionnaire and by signing and guaranteeing adherence to our policies, or by presenting their own code of conduct that fulfils the same criteria.

For the Base Questionnaire, our target is that 100 percent of our around 300 key suppliers shall be rated as "good" or "excellent". In 2022, 82 (80) percent of our suppliers achieved these ratings.

All our suppliers are bound to our policies and obliged to continuously provide correct and up-to-date information as well as adequate assistance. In 2022, we had 4 (6) cases of insufficient supplier responsiveness, where suppliers failed to respond to our request for self-assessment, performed poorly in an assessment or failed to show willingness to improve.

In case of non-compliances, Höganäs will, in dialogue with the supplier, deter- ›

Responsible Sourcing Policy

Supplier Code of Conduct | **Conflict Minerals and Cobalt Policy**

Our Responsible Sourcing Programme encompasses steering documents that guides Höganäs and our suppliers to stay compliant towards international principles such as UN Global Compact and its related conventions, and legal frameworks related to human rights, anti-corruption and conflict minerals.

mine whether there are opportunities to improve performance, or if there is reason to end the collaboration. Following in-depth dialogues, all 4 cases during 2022 were closed, and we could continue business relations.

Responsible sourcing – a broad perspective on sustainability performance

In 2020 and 2021, we updated our responsible sourcing governance framework into a Responsible Sourcing Programme consisting of internal instructions, tools, directives, and policies. We also enhanced communication with our suppliers regarding our **'Responsible Sourcing Policy'** and **'Supplier Code of Conduct'**. Both documents are based on applicable legislation, internationally agreed principles, and relevant frameworks such as the UN Global Compact and the OECD Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

Our '*Supplier Code of Conduct*' stresses the importance of the right to freedom of association and collective bargaining, as well as no child labour or forced labour. Our suppliers are evaluated on this when onboarding. In 2022 there were no suppliers with risks identified related to the former mentioned areas.

Through our '*Responsible Sourcing Programme*', we continuously work with suppliers to improve sustainability performance to protect human rights, labour standards, health and safety, and peoples' right to clean air, water, and soil. The programme includes a governance structure and a compliance organisation, with clearly defined roles and responsibilities, as well as procedures for escalation to senior management. This is our way of managing and mitigating risks in our supply chain and the aspects are covered in the **'Supplier Code of Conduct'**, **'Anti-corruption Policy'** and **'Conflict Minerals and Cobalt Policy'**.

Non-compliances in the social and economic area

In 2022, there were no reported claims or incidents concerning:

- Corruption
- Product health and safety
- Marketing
- Loss of customer data

Conflict minerals

Conflict minerals include the metals tantalum, tin, tungsten, and gold which are natural resources extracted in a conflict zone where armed groups sell the minerals to finance conflicts.

The most prominent contemporary example has been the eastern provinces of the Democratic Republic of the Congo (DRC), where armies, rebel groups and outside actors have profited from mining while contributing to violence and exploitation in the region.

Artisanal mining

Artisanal mining is small-scale mining of metals, minerals or stones carried out independently by enterprises or individuals. They generally employ workers using manually intensive methods, work with hand tools and without the necessary safety precautions or social responsibility.

As a result, artisanal mining is typically associated with human rights risks as well as substandard and unsafe working conditions. Child labour and many fatal accidents have been reported in artisanal mines.

Conflict minerals, cobalt, and human rights

In response to EU regulations on conflict minerals that came into effect starting January 2021, we published the **'Conflict Minerals and Cobalt Policy'**, which includes our stance on human rights risks within the cobalt industry.

The suppliers relevant to conflict minerals and cobalt are evaluated on an annual basis by submitting an in-dept questionnaire. The framework of this questionnaire is based on the Responsible Mining Initiative (RMI).

We engage metal suppliers that are listed as responsible by the European Commission, the Responsible Minerals Initiative or have had their due diligence practices audited by third party against a standard aligned with OECD Guidance, which means they can prove that their material originates from responsible smelters.

Conflict minerals legislation is applicable to 30 of our direct suppliers. So far, we have made a due diligence investigation regarding the requirements on all 25 of our suppliers in the regions Europe, the Middle East and Africa (EMEA). Out of the 25 suppliers assessed for conflict minerals, six provide 100 percent recycled materials (scrap metal). Five suppliers gave a warning of Conflict Minerals Questionnaires. One was discontinued and five were approved after review in 2022.

Industry memberships of importance for our business Höganäs holds a position on the governance body for:

- European Powder Metallurgy Association (EPMA)
- Metal Powder Industries Federation (MPIF)
- Powder Metallurgy Association of India (PMAI)
- Additive Manufacturer Green Trade Association (AMGT)
- Swedish Life Cycle Center (SLC)

Höganäs participates in projects and committees in:

- Japan Powder Metallurgy Association (JPMA)
- Jernkontoret (Swedish steel producers' association)
- Eurofer (European steel association) represented by Jernkontoret
- Korean Powder Metallurgy Institute (KPMI)
- American Water Works Association
- China Powder Metallurgy Alliance (CPMA)

Höganäs is a signatory of the UN Global Compact.

Case

Contributing to equal parenthood

Vinay Shende

Taking care of a new-born child is a joint responsibility of both parents. But conditions for parents to take equal part in caring for a new family member varies greatly between countries and there are still many countries where only the mother has the right to paid leave. Höganäs India wanted to change that and decided to contribute to gender equality.

In India, maternity leave is regulated by law and gives the mother six months of paid leave. However, there is no regulated paternity leave, even though there are several benefits of staying at home with the new-born child, such as a stronger bond between father and child and a better understanding of the needs of the baby and the mother. Höganäs India saw an opportunity to contribute to gender equality by introducing paid paternity leave for seven days. "Patriarchy is still a big challenge in Indian society. Hence, the main challenge was to bring about change in mindset for employees, People Managers and Leadership Teams. This initiative helps to bridge the gap in gender equality and create a safer and more engaging work environment for both men and women," says Vinay Shende, Director, Human Resources, Administration and Communications at Höganäs India.

After benchmarking some external organisations, Höganäs involved both male and female employees in discussions regarding parental leave and gender equality to better understand both needs and attitudes.

"The policy was also extended to same sex partners, considering the Principle of Inclusivity and with the changing law of acceptance of LGBT in India," Says Vinay.

The policy of paternity leave was launched internally through a series of communication sessions with employees to explain the rationale and benefits. It was introduced in 2020 and in 2022, 6 men have used the opportunity of paternity leave.

Höganäs India also takes other aspects of family life into account, such as becoming a parent through adoption and miscarriage.

"There is no regulated paid leave in case of miscarriage or adoption. But owing to the changing social landscape, this is becoming something we need to address. I am proud of how we are contributing to better gender equality. This will have positive effects on society," says Vinay. ■

Paternity leave in India

- The project was launched in 2020. In 2022 six men have used the opportunity of paternity leave.
- Höganäs India provides fathers of new-born children seven days of paternity leave.
- The aim is to bridge the gender gap and create a safe and engaging work environment for both men and women.
- The policy also applies to same sex partners.
- Höganäs also provides paid leave in case of miscarriage (up to 6 weeks) and adoption (up to 26 weeks). In 2022, one employee availed the leave for miscarriage.

Appendix

About this report

This report presents the sustainability performance of Höganäs Holding AB (Höganäs Group hereinafter defined as the Group) in 2022. The report has been approved by the Höganäs Board of Directors.

The previous report was published on March 23, 2022, and the reporting is annual. Significant changes in our business in 2022 was the closing of Höganäs Environment Solutions, LLC in May and the divestment of Digital Metal in July. Read more on this on page 6. Due to the war in Ukraine, we ceased all operations in Russia in 2022. There are no significant changes in reporting content.

As the operational responsibility for the Höganäs Group is delegated to Höganäs AB's Board of Directors, the Sustainability Report focuses on Höganäs AB and its subsidiaries. Höganäs Group is privately owned by FAM (50 percent) and Lindéngruppen (50 percent) and the owners are represented on Höganäs AB's Board of Directors.

The data presented includes all companies within the Group, i.e., Höganäs AB, with its headquarters located in Höganäs, Sweden, and its subsidiaries. The list of entities included in the consolidated financial statements is found in the Höganäs Holding AB's Annual Report 2022. Any exceptions are commented on.

The report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards 2021 and in accordance with the Swedish regulation (Årsredovisningslag) regarding the disclosure of non-financial information.

Management approach, boundaries, omissions, and additional explanations are found in connection to each topic. The report consists of a descriptive part and a GRI index with references. The digital publication published on **hoganas.com/sustainabilityreport** is the main publication and the official appendix to the Annual Report.

This report has not been audited by a third party except for a limited assurance engagement with regards to the consolidated carbon footprint from Scope 1, 2 and 3 for 2022 performed by KPMG. See appendix Auditor's limited assurance statement on Höganäs Holding AB's climate footprint Scope 1, Scope 2 and Scope 3.

Governance

As the world leader in metal powders, we aim to take sustainability leadership within our industry. In our governance framework; commitment, accountability, and alignment are three key success factors that guide us in driving the transition towards a sustainable society.

Our values and principles are fully integrated into our company and everything we do. Good governance is also embodied in how we manage risk and emerging sustainability topics to ensure they are effectively governed. Any risk of non-compliance with our values and principles, or with the applicable laws and regulations, will be carefully considered and escalated to the relevant decision maker.

Sustainability management

The Board has ultimate responsibility and decision-making authority for our sustainability performance and compliance with statutory and regulatory requirements. The execution of the sustainability agenda is delegated through the CEO to Group Management and further into the organisation. All members of the Group Management Team have the responsibility for sustainability within their respective area.

Queries

Please send any queries or feedback on the report to Vice President Group Sustainability, Catharina Nordeman. **catharina.nordeman@hoganas.com**

Höganäs is a signatory to UN Global Compact since 2017 and support the Sustainable Development Goals. For information regarding which targets Höganäs are focused on, see each chapter covering the Sustainability Agenda.

The Vice President Group Sustainability has the overall responsibility to drive and co-ordinate our sustainability agenda, together with the Group Sustainability Function. The Group Sustainability Function hosts several cross-functional and international working groups to ensure knowledge sharing and best practice, compliance of policies and progress towards set targets.

Sustainability objectives and performance are regularly communicated internally. Identified activities to achieve our targets are agreed on and integrated as part of the business plan.

The progress on these activities and targets is followed up and reported to the Board and sustainaibilty performance is discussed at every board meeting.

Relevant policies, certifications and legal statements are available at **www.hoganas.com**.

New Corporate Governance Framework

To give additional clarity and reassurance to decisionmakers in every region and entity, and to ensure procedures for compliance management towards all our policies, as well as provide internal control mechanisms, Höganäs has during 2021–2022 implemented a Governance Directive, as part of its Corporate Governance Framework. The Directive sets out authority and authority limits, as well as key principles for good governance within the Höganäs Group and will be reviewed annually to make sure it remains relevant. The Directive and the Framework are important tools to ensure that our values and principles are adhered to in all decision making.

The Nomination Committee consisting of owner representatives is responsible for the nomination and selection of the highest governance body. The Nomination Committee meets annually, or as needed, to evaluate the board work and make changes to the board composition.
As a part of this process the Nomination Committee receives input from Chair of the Board and the board evaluation.

The Board of Directors is responsible for setting the principles of the selection of candidates for the recruitment of the company CEO.

The performance of the Board of Directors is evaluated annually through a process managed by the Chair of the Board.

According to the Board's Rules of Procedure, a Board member is obliged to inform the Chair of the Board about circumstances that may affect either ›

Ways of working to transform as a company

To enhance performance and build a sustainable company, we have identified three key behaviours to help us realise our strategic objectives, reach our goals, and increase our competitiveness:

1. Grit: I show passion, perseverance, and engagement towards long-term success.

2. Volition: I make sure things get done and I take accountability for my own, and my team´s, results.

3. Candor: I voice my honest opinion and convictions to ensure the best course of action.

their personal interests or those of a company with which they have an affiliation, and not to participate in handling of such matters. This obligation to refrain from involvement has no influence on the requirements for a quorum when passing resolutions. A Board Member is also obliged to inform about engagements in any other Company than Höganäs.

Business dealings between the company and governing bodies or related parties are subject to the principle of conclusion at conditions as with independent third parties.

Our management philosophy

Our sustainability governance is based on internationally agreed principles and objectives such as **the UN Sustainable Development Goals** and the ten principles of **the UN Global Compact**. In addition, Höganäs vision and our management philosophy, **More Höganäs** as well as our *Code of Conduct* guide us on how to act in different situations.

Reported non-compliance

In 2022, there were no reported claims or incidents concerning corruption nor concerning loss of customer data.

During 2022, three cases of environmental non-compliances were reported. These are described in more detail on page 61 and 59. One case of shipping from Sweden to Brazil was reported, as the container was held in customs in Brazil, due to materials with partly origin from Russia. Investigation established that the shipment and documentation was done according to sanctions and legislation. Case is handled and closed.

Risks and risk management

We regularly conduct risk analyses within the organisation, including an analysis each year at Board level. The Group level assessment also includes risks related to sustainability, such as strategic business risks driven by climate change, requirements related to circularity and biodiversity, environmental regulatory compliance risks and supply chain risks. In this report, we have limited the scope of our risk management to direct risks with business impact.

Risks related to products and business

- Increased costs for climate transition are not levelled by customers' willingness to pay green premium for low carbon products.
- Disruption of markets due to electrification of automotive industry and rapid changes in other legacy industries.
- Increased competition for secondary raw materials.
- Our customers choose other suppliers due to our insufficient climate transition.

Implications: Höganäs works closely and proactively with our customers to ensure we anticipate and respond to new customer demands and fully meet their expectations and requirements. We also position ourselves as a sustainability leader to differentiate ourselves from the competition and anticipate future market needs. We work to improve our understanding of our customers business partners, to recognise how we can be a part of their path to a more sustainable business.

Risks related to technical challenges in connection with climate transition

- Electrification hampered due to volatile or steeper electricity prices or insufficient fossil free electricity supply.
- Carbon leakage due to unintended consequences of political incentives.
- High dependency on bio-based process materials that potentially could be unsustainable in the long-term (need for a third-party certification).
- Bio-based alternatives to fossil process materials fail due to process-related technical limitations or lack of supply.
- Carbon Capture and Storage (CCS) and negative emission tradings might be difficult to implement due to scaling and availability.
- Unprofitable investments if immature technology is chosen.

Implications: Höganäs mitigates climate related risks through systematic implementation of the Climate Roadmap. Investing in biochar production to replace fossil coal in core processes, electrification of processes and transportation, investing in fossil-free energy and participation in research projects on CCS are part of this implementation.

Risks related to internal capabilities

- Challenge recruiting enough staff with the necessary skills.
- Unclear internal ownership concerning climate-related issues may hamper or slow down the decision-making process.
- Alternative technologies may not be developed in time due to a lack of agility and cutting-edge expertise.

Implications: Höganäs work to attract, retain, and develop competence within the organisation. Our way of working with a clear ownership structure regarding the Climate Roadmap and other key strategies, mitigates the risks concerning internal capabilities.

Risks related to geopolitical development

- Climate change consequences, such as drought or floods, freshwater scarcity and soil degradation, create humanitarian crises and a growing number of refugees. It contributes to heightened tensions and creates new geopolitical instabilities.
- An uncertain geopolitical landscape creates logistical challenges regarding sourcing raw materials and ensuring access to materials in time.
- Disruption of markets and trading leading to a price increase for raw materials, transportation and energy owing to political restrictions. The disruption of the energy market in 2022 is an example of this.

Implications: Höganäs work proactively with sourcing to establish reliable and sustainable raw material suppliers. We assess both environmental and social risks concerning conflict minerals when looking at risks in our supply chain and mitigate them according to established routines and policies.

Risks related to legislative development

- Increased or changing legislation concerning sustainability provide challenges for Höganäs to ensure compliance.
- Legislation or market changes may accelerate the demand for net-zero emission products and processes faster than Höganäs can deliver them.
- As a global company, varying legislation between regions create a higher complexity in business activities and a risk of not being compliant in every market.

- Substances, used in our processes, can become classified as substances of very high concern (SVHC) and subject to limitations due to their toxicity, as well as limitations to use of certain materials related to their environmental impact.

Implications: Höganäs addresses legislative risks by making sure we have the right resources to monitor legislation and ensure compliance. Through participation in industry associations, we support harmonised rules that promote and enable sustainable business practices. Being proactive and working towards our own sustainability goals reduces the risk of non-compliance regarding stricter or more comprehensive legislation.

Risks related to non-ethical business behaviour

- Unethical business behaviour damaging the company's reputation due to someone acting unethically on behalf of Höganäs, for example a co-worker or an agent.
- Unethical activities by business partners, such as customers or in the supply chain, making the company complicit.

Implications: Höganäs has thorough procedures for internal control and screening of business partners, such as contractual agents. Mandatory trainings in anti-corruption and ethical business behaviour are arranged for all employees to create awareness and work preventatively. We always strive to ensure compliance with transparency requirements and avoid any transactions or arrangements that may be considered tax evasion.

Crisis management

At all our production units we have established ways of working preventatively to avoid damage as well as well-established emergency response teams. Local teams are responsible for managing local incidents with support of the Höganäs Global Crisis team.

The Höganäs Global Crisis team is responsible for supporting local teams if an incident develops into a crisis, either locally or globally, and to handle any type of event that is not deemed a local incident. To ensure that all aspects of a crisis can be addressed effectively, the team has clearly identified roles and responsibilities. There are also procedures and tools in place to facilitate incident and crisis assessment, action planning and crisis communication. ■

Methodology for Greenhouse Gas emission calculations

Höganäs AB (Höganäs) reports its Greenhouse Gas (GHG) emissions according to the organisational control approach. This includes operations at all Höganäs' sites (including head-quarters, warehouses, production units, R&D, laboratories and offices). Höganäs consolidates emissions for public reporting on a Group level.

Only carbon dioxide (CO_2) emissions are reported in scope 1. Based on estimations, emissions from the gases CH_4 and N_2O, HFCs, PFCs, SF_6 and NF_3 are considered insignificant, and therefore excluded. They are however included in scope 2 and 3, and expressed as CO_2e.

Scope 1 and 2 are calculated according to the GHG Protocol – Corporate Accounting and Reporting Standard. Scope 3 is calculated according to the GHG Technical Guidance for Calculating Scope 3 Emissions. Table 1 shows the reporting categories included in the calculation, and the type of emission factors and data used.

Reporting categories included in Höganäs' GHG calculations

	Reporting categories	Calculation method and emission factors used
Scope 1	**Fuels for production, internal transports by company-controlled vehicles and directly controlled auxiliary use.**	Combustion emissions. Calculated based on consumption. Emission factors are local or default emission factors from ENS (the Danish Energy Agency). We use emission factors from ENS because we buy a big part of our natural gas for the Swedish operations from Denmark and ENS updates their emission factors yearly.
Scope 1	**Material used in furnace processes**	Emissions calculated based on carbon content and mass balance where the remaining carbon content in output materials are deducted from the carbon content in incoming materials.
Scope 2	**Electricity**	**Location based** Regional 2021 International Energy Agency (IEA) CO_2e emission factors. **Market based** Supplier-specific emission factors if available. Where no supplier-specific emissions factor is available, regional residual fuel mixes have been used. For markets where residual fuel mix factors are not available, emission factors for regional production mixes are used. Emission factors in scope 2 do not include emissions associated with transmission and distribution losses. These are reported in scope 3.
Scope 2	**Heating and Cooling**	Emissions are calculated on activity data and supplier-specific emission factor if available. Where no supplier-specific emission factor is available, emission factors from DEFRA Conversion Factors 2021 or alternatively Swedenergy (Energiföretagen) Environmental values district heating, 2020 (Sweden)3) are used.
Scope 3	Category 1 **Purchased goods and services**	Cradle-to-gate emissions for purchased goods, services not included. Emission factors from Ecoinvent 3.7.1, DEFRA conversion factors 2021 and Exiobase 3. Where possible, supplier-specific data is used. Otherwise, global average data is used. The Scope 3 emissions for our raw materials and consumables are calculated on a volume basis, using the amounts consumed annually during production. The emissions originating from other items (representing less than 20% of total spend of total purchased goods) are calculated according to the spend-based method.

	Reporting categories	Calculation method and emission factors used
Scope 3	Category 2 **Capital goods**	Cradle-to-gate emissions for capital goods. Emissions have been calculated from spend, with an Inflation factor of 11.3% applied to the 2011 emission factor values related to the Construction Process in Exiobase 3.
Scope 3	Category 3 **Fuel and energy related activities**	Upstream emissions of purchased fuels and energy. Calculated using average upstream emission factors for fuels and energy from DEFRA. T&D losses included.
Scope 3	Category 4 **Upstream transportation and distribution**	Calculated according to the distance-based method. Life cycle emission factors from DEFRA, EFDB, EPA, EcoTransIT, NTM and CCWG.
Scope 3	Category 5 **Waste generated in operations**	Calculated according to the waste-type-specific method using emission factors from DEFRA.
Scope 3	Category 6 **Business travel**	For 2018-2021 emissions related to business travel are allocated based on a study done by Höganäs in 2010 and extrapolated for further years based on pro rata basis on actual travel expenses. For 2022, compiled business travel data from the Swedish and North American travel agencies for air, rail and car rentals have been used. The volume of business travel in private vehicles are collected from 'Aditro' travel expenses. The combined US and Sweden data is extrapolated pro rata to estimate the Group emissions in category 6 using emission factors from DEFRA 2020.
Scope 3	Category 7 **Employee commuting**	Emissions related to employee commuting are calculated on the basis of the number of employees commuting to work, weeks worked per year (47), days worked per week (5), commuting distance covered (30 km) and using a reference EF from DEFRA database.
Scope 3	Category 9,10, 11 and 12 **Downstream transportation and distribution, Processing of sold products, use of sold products, and end of life treatment**	In line with the GHG Protocol Scope 3 standard for intermediate products with various end uses (Section 6.4), categories 9, 10, 11 and 12 are excluded from the GHG inventory and the target boundary.
Scope 3	Category 8, 13, 14 and 15 **Upstream leased assets, Downstream Leased Assets, Franchises and Investments**	Höganäs does not have any leased assets, nor any Downstream Leased Assets or Franchises, nor do have investments or otherwise act as financial provider outside the value chain, meaning that the categories 13, 14 and 15 are not applicable.

Biogenic CO_2 emissions

Scope 3	**Emissions from the use of biobased fuels and materials**	Biogenic CO_2 emissions from use of biogas. Calculated based on supplier-specific emission data.

1. The GHG Protocol Corporate Accounting and Reporting Standard, **https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf**
2. Miljövärdering av fjärrvärme": **https://www.energiforetagen.se/statistik/fjarrvarmestatistik/miljovardering-av-fjarrvarme/**
3. The GHG Protocol – **https://ghgprotocol.org/sites/default/files/standards/Scope3_Calculation_Guidance_0.pdf (ghgprotocol.org)**

GRI index

GRI indicator		Reference	Omission reason	Page
GRI 2:	**General Disclosures 2021**			
Organisational profile				
2-1	Organizational details	This is Höganäs, About this report		4, 74
2-2	Entities included in the organization's sustainability reporting	This is Höganäs		4
2-3	Reporting period, frequency and contact point	About this report		74
2-4	Restatements of information	About this report		74
2-5	External assurance	About this report		74
2-6	Activities, value chain and other business relationships	This is Höganäs, Our supply chain		4, 69
2-7	Employees	Our people		36
2-8	Workers who are not employees	Our people		37
2-9	Governance structure and composition	Governance		75
2-10	Nomination and selection of the highest governance body	Governance		76
2-11	Chair of the highest governance body	Governance		76
2-12	Role of the highest governance body in overseeing the management of impacts	Governance		76
2-13	Delegation of responsibility for managing impacts	Governance		75
2-14	Role of the highest governance body in sustainability reporting	Governance		75
2-15	Conflicts of interest	Governance		77
2-16	Communication of critical concerns	Governance		75
2-17	Collective knowledge of the highest governance body	Governance		76
2-18	Evaluation of the performance of the highest governance body	Governance		76
2-19	Remuneration policies	Our people, Labour rights – fair treatment and equal pay		36, 42
2-20	Process to determine remuneration	Labour rights – fair treatment and equal pay		42
2-21	Annual total compensation ratio	Labour rights – fair treatment and equal pay		43
2-22	Statement on sustainable development strategy	CEO statement		7
2-23	Policy commitments	Labour rights – fair treatment and equal pay, Society – Business ethics, Our Supply Chain		42, 66, 69

GRI indicator		Reference	Omission reason	Page
2-24	Embedding policy commitments	Our people – fair treatment and equal pay, Society - Business ethics, Our supply chain - a societal responsibility without borders		42, 66, 69
2-25	Processes to remediate negative impacts	Risk and risk management		77
2-26	Mechanisms for seeking advice and raising concerns	Society – Business ethics, Whistleblowing – encouraging everyone to speak up		66, 68
2-27	Compliance with laws and regulations	Environment (Reported non-conformities towards the Höganäs Code of Conduct in 2022.)		59
2-28	Membership associations	Industry memberships of importance for our business		72
2-29	Approach to stakeholder engagement	Stakeholder dialogue		21
2-30	Collective bargaining agreements	Labour rights – fair treatment and equal pay		42
GRI 3:	**Material Topics 2021**			
Organisational profile				
3-1	Process to determine material topics	Materiality analysis		13
3-2	List of material topics	Materiality analysis		16-20
Economic performance				
3-3	Management of material topics	Materiality analysis – table		16-20
GRI 201:	**Economic Performance 2016**			
201-1	Direct economic value generated and distributed	The year in short		5
201-2	Financial implications and other risks and opportunities due to climate change	Risk and risk management		77
201-3	Defined benefit plan obligations and other retirement plans	Labour rights – fair treatment and equal pay	Höganäs operates retirement and pension plans that vary at the local level, based on legal and market requirements and practices.	42
201-4	Financial assistance received from government		Information unavailable/incomplete	
Market presence				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20

GRI indicator		Reference	Omission reason	Page
GRI 202:	**Market Presence 2016**			
202-1	Ratios of standard entry level wage by gender compared to local minimum wage		Linked to human rights. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
202-2	Proportion of senior management hired from the local community		Linked to human rights. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
Procurement practices				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20
GRI 204:	**GRI 204: Procurement Practices 2016**			
204-1	Proportion of spending on local suppliers	Supply chain		69
Anti-corruption				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20
GRI 205:	**Anti-corruption 2016**			
205-1	Operations assessed for risks related to corruption	Risk and risk management		77
205-2	Communication and training about anti-corruption policies and procedures	People development		36
205-3	Confirmed incidents of corruption and actions taken	Our supply chain – a societal responsibility without borders		69
Tax				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20
GRI 207:	**Tax 2019**			
207-1	Approach to tax	Business ethics at Höganäs		66
207-2	Tax governance, control, and risk management	Business ethics at Höganäs, Risk and risk management		66, 77
207-3	Stakeholder engagement and management of concerns related to tax	Stakeholder dialogue		21
207-4	Country-by-country reporting		Business related secret	
Materials				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20

GRI indicator		Reference	Omission reason	Page
GRI 301:	**Materials 2016**			
301-1	Materials used by weight or volume	**Material use**		52
301-2	Recycled input materials used	**Material use**		53
301-3	Reclaimed products and their packaging materials		Business related secret	
Energy				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	**Materiality analysis – table**		16-20
GRI 302:	**GRI 302: Energy 2016**			
302-1	Energy consumption within the organization	**Energy use and management**		30
302-2	Energy consumption outside of the organization	**Energy use and management**		31
302-3	Energy intensity	**Energy use and management**		30
302-4	Reduction of energy consumption	**Energy use and management**		30
302-5	Reductions in energy requirements of products and services		Höganäs do not have access to data on energy requirements of end products and services due to the nature of Höganäs' products.	
Water and effluents				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	**Materiality analysis – table**		16-20
GRI 303:	**Water and Effluents 2018**			
303-1	Interactions with water as a shared resource	**Water use**		60
303-2	Management of water discharge-related impacts	**Water discharge**		61
303-3	Water withdrawal	**Water use**		60
303-4	Water discharge	**Water discharge**		61
303-5	Water consumption	**Water use**		60
Biodiversity				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	**Materiality analysis – table**		16-20

GRI indicator		Reference	Omission reason	Page
GRI 304:	**Biodiversity 2016**			
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas		Linked to biodiversity. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
304-2	Significant impacts of activities, products and services on biodiversity		Linked to biodiversity. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
304-3	Habitats protected or restored		Linked to biodiversity. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations		Linked to biodiversity. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
Emissions				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis, Climate, Environment		13, 24, 57
GRI 305:	**Emissions 2016**			
305-1	Direct (Scope 1) GHG emissions	Direct emissions from our processes		26
305-2	Energy indirect (Scope 2) GHG emissions	Direct emissions from our processes		27
305-3	Other indirect (Scope 3) GHG emissions	Working with customers and suppliers		31
305-4	GHG emissions intensity	Direct emissions from our processes		26
305-5	Reduction of GHG emissions	Energy use and management		30
305-6	Emissions of ozone-depleting substances (ODS)		N/A	
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Air emissions		59
Waste				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Products		16-20

GRI indicator		Reference	Omission reason	Page
GRI 306:	**Waste 2020**			
306-1	Waste generation and significant waste-related impacts	Circular solutions for zero waste, Valuable side streams, Non process waste		53, 54, 56
306-2	Management of significant waste-related impacts	Circular solutions for zero waste, Valuable side streams, Non process waste		53, 54, 55
306-3	Waste generated	Circular solutions for zero waste, Non process waste		53, 56
306-4	Waste diverted from disposal	Circular solutions for zero waste, Valuable side streams, Non process waste		53, 54, 55
306-5	Waste directed to disposal	Circular solutions for zero waste, Valuable side streams, Non process waste		53, 54, 55
Supplier environmental assessment				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Society		16-20
GRI 308:	**Supplier Environmental Assessment 2016**			
308-1	New suppliers that were screened using environmental criteria	Business ethics		66
308-2	Negative environmental impacts in the supply chain and actions taken	Business ethics		66
Employment				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Workplace		16-20
GRI 401:	**Employment 2016**			
401-1	New employee hires and employee turnover	Our people		36
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Our people		42
401-3	Parental leave	Our people		42
Labor/management relations				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Workplace		16-20

GRI indicator		Reference	Omission reason	Page
GRI 402:	**Labor/Management Relations 2016**			
402-1	Minimum notice periods regarding operational changes	**Labour rights – fair treatment and equal pay**		42
Occupational health and safety				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	**Materiality analysis – Workplace**		16-20
GRI 403:	**Occupational Health and Safety 2018**			
403-1	Occupational health and safety management system	**We work safely – or not at all**		43
403-2	Hazard identification, risk assessment, and incident investigation	**We work safely – or not at all**		43-44
403-3	Occupational health services	**We work safely – or not at all**		45
403-4	Worker participation, consultation, and communication on occupational health and safety	**We work safely – or not at all**		43-45
403-5	Worker training on occupational health and safety	**We work safely – or not at all, Safety toolbox**		44
403-6	Promotion of worker health	**Promoting Healthy Lifestyles and Work-Life Balance**		45
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	**Responsible sourcing – a broad perspective on sustainability performance**		70
403-8	Workers covered by an occupational health and safety management system	**We work safely – or not at all, Safety toolbox**		44
403-9	Work-related injuries	**We work safely – or not at all**		43
403-10	Work-related ill health	**We work safely – or not at all**		43
Training and education				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	**Materiality analysis – Workplace**		16-20
GRI 404:	**Training and Education 2016**			
404-1	Average hours of training per year per employee	**Ensuring the right competence to drive change**		40
404-2	Programs for upgrading employee skills and transition assistance programs	**Ensuring the right competence to drive change**		40
404-3	Percentage of employees receiving regular performance and career development reviews	**Ensuring the right competence to drive change**		40

GRI indicator		Reference	Omission reason	Page
Diversity and equal opportunity				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Workplace		16-20
GRI 405:	**Diversity and Equal Opportunity 2016**			
405-1	Diversity of governance bodies and employees	Diversity and inclusion		38
405-2	Ratio of basic salary and remuneration of women to men	Our people	Data handling system is under development.	
Non-discrimination				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Workplace		16-20
GRI 406:	**Non-discrimination 2016**			
406-1	Incidents of discrimination and corrective actions taken	Diversity and inclusion, Whistleblowing – encouraging everyone to speak up		38, 68
Freedom of association and collective bargaining				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Workplace, Society		16-20
GRI 407:	**Freedom of Association and Collective Bargaining 2016**			
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Responsible sourcing – a broad perspective		70
Child labor				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20
GRI 408:	**Child Labor 2016**			
408-1	Operations and suppliers at significant risk for incidents of child labor	Responsible sourcing – a broad perspective		70
Forced or compulsory labor				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – table		16-20

GRI indicator		Reference	Omission reason	Page
GRI 409:	**Forced or Compulsory Labor 2016**			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Responsible sourcing – a broad perspective		70
Security practices				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Society		16-20
GRI 410:	**Security Practices 2016**			
410-1	Security personnel trained in human rights policies or procedures		Linked to human rights. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
Rights of indigenous peoples				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Society		16-20
GRI 411:	**Rights of Indigenous Peoples 2016**			
411-1	Incidents of violations involving rights of indigenous peoples		Linked to human rights. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
Local communities				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Society		16-20
GRI 413:	**Local Communities 2016**			
413-1	Operations with local community engagement, impact assessments, and development programs	Local contributions		68-70
413-2	Operations with significant actual and potential negative impacts on local communities		Linked to human rights. Data is not available for 2022. Höganäs will report on this topic starting with 2023.	
Supplier social assessment				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Society		16-20
GRI 414:	**Supplier Social Assessment 2016**			
414-1	New suppliers that were screened using social criteria	Responsible sourcing – a broad perspective		70
414-2	Negative social impacts in the supply chain and actions taken	Responsible sourcing – a broad perspective		70
Public policy				

GRI indicator		Reference	Omission reason	Page
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Society		16-20
GRI 415:	**Public Policy 2016**			
415-1	Political contributions	Anti-corruption Policy		69
Customer health and safety				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Products, Governance		16-20
GRI 416:	**Customer Health and Safety 2016**			
416-1	Assessment of the health and safety impacts of product and service categories		N/A	
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Governance		75
Marketing and labeling				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis – Products, Governance		16-20, 75
GRI 417:	**Marketing and Labeling 2016**			
417-1	Requirements for product and service information and labeling	Driving customer value		49
417-2	Incidents of non-compliance concerning product and service information and labeling	Governance		75
417-3	Incidents of non-compliance concerning marketing communications	Governance		75
Customer privacy				
GRI 3:	**Material Topics 2021**			
3-3	Management of material topics	Materiality analysis, Governance		16-20, 75
GRI 418:	**Customer Privacy 2016**			
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Governance		75

Auditor's limited assurance statement on Höganäs Holding AB's climate footprint Scope 1 and Scope 2 and Scope 3 for 2022.

To the management of Höganäs Holding AB.

We have undertaken a limited assurance engagement of the consolidated Carbon Footprint from Scope 1, Scope 2 and Scope 3 for the reporting period 2022-01-01 – 2022-12-31 that will be reported to Höganäs Holding AB's stakeholders. The CO_2 emissions that were the subject of our limited assurance engagement are found in the Sustainability Report for 2022 on page 26 and 33.

Höganäs Holding AB's reporting entities' responsibility for the Carbon Footprint

Höganäs Holding AB are responsible for the preparation of the Carbon Footprint in accordance with the applicable criteria "The Green House Gas Protocol". This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of a Carbon Footprint that is free from material misstatement, whether due to fraud or error. Quantifications related to the Carbon Footprint are also subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

Our Independence and Quality Control

We have complied with the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

In accordance with International Standard on Quality Control 1, KPMG AB maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Carbon Footprint based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410"), issued by the International Auditing and Assurance Standards Board. That standard requires that we plan and perform this engagement to obtain limited assurance about whether the Carbon Footprint is free from material misstatement.

A limited assurance engagement undertaken in accordance with ISAE 3410 involves assessing the suitability in the circumstances of Höganäs Holding AB's use of "The Green House Gas Protocol" as the basis for the preparation of the Carbon Footprint, assessing the risks of material misstatement of the Carbon Footprint whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the Carbon Footprint. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. Our review has, based on an assessment of materiality and risk, among other things included the following procedures:

- Assessment of suitability and application of criteria in respect to stakeholders' need of information.
- Analytical review of the reported Carbon Footprint from the reporting entities in scope.
- Evaluation of routines used for the collection, calculation and reporting of the Carbon Footprint from the reporting entities in scope.
- Review of the calculation of the Carbon Footprint from the reporting entities in scope.

- Review of underlying documentation, on a test basis.

The procedures performed in a limited assurance engagement vary in nature from, and are less in extent than for, a reasonable assurance engagement. As a result, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether Höganäs Holding AB's Carbon Footprint have been prepared, in all material respects, in accordance with "The Green House Gas Protocol".

Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Höganäs Holding AB's Carbon Footprint for the reporting period 2022-01-01 – 2022-12-31 for Scope 1, Scope 2 and Scope 3 are not prepared, in all material respects, in accordance with the above stated criteria.

Stockholm, March 30th 2023

KPMG AB

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