Sustainability Report 2021

Höganäs

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Höganäs Group

The Höganäs vision is to inspire industry to make more with less. Metal powder technology is a resource-efficient alternative that provides endless opportunities for a wide range of industries. In our opinion, metal powders play an important role in creating a more sustainable world when manufactured and used responsibly. Höganäs aims to become the first green metal powder producer in the world, and our journey has already begun.

Welcome to the Höganäs Sustainability Report 2021.

Front page: The picture shows our site in Laufenburg, Germany, which runs on 100 percent fossil-free electricity. The powerplant in the picture is no longer in use as it has been replaced by a hydroelectric power plant further down the river.

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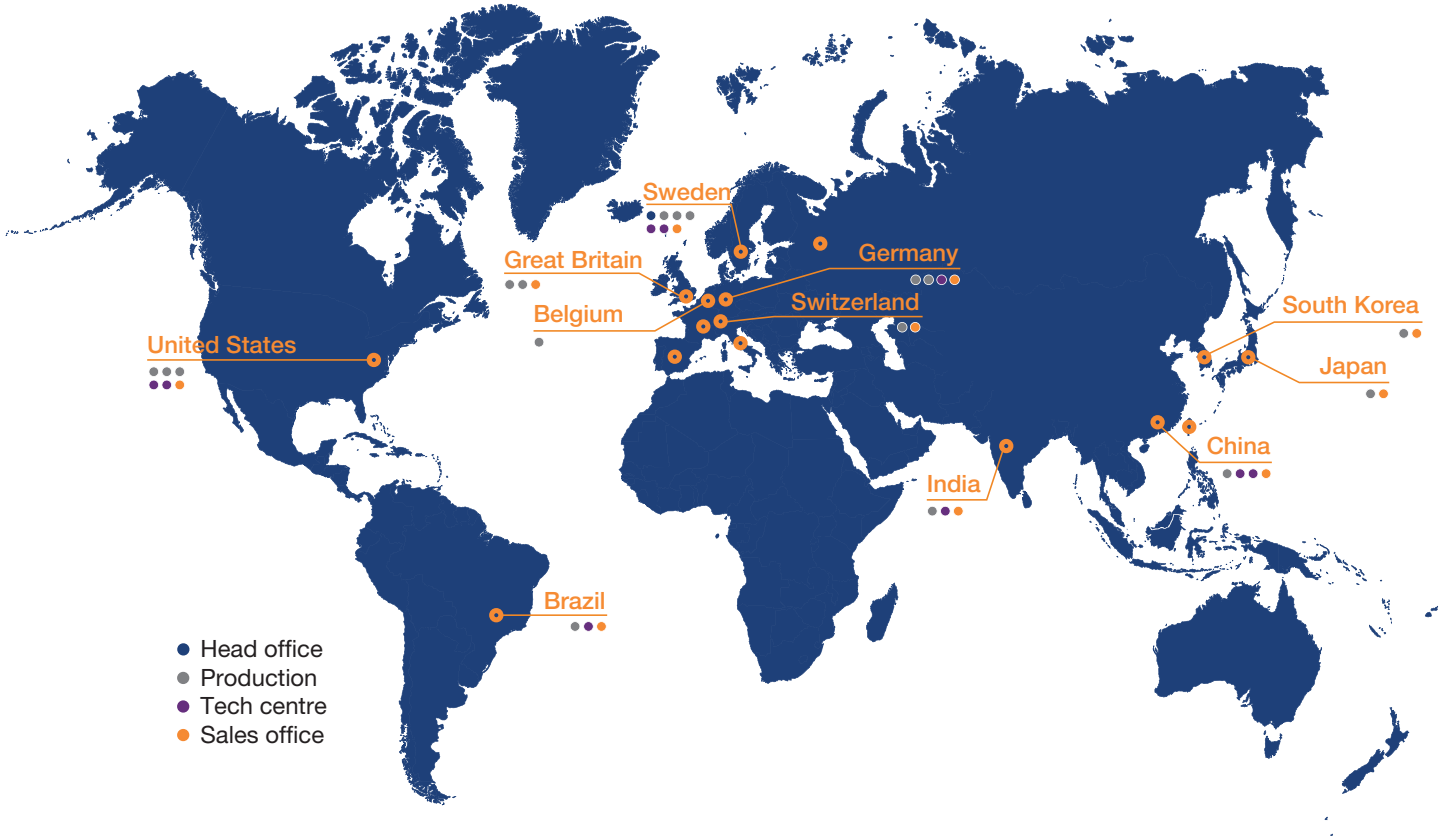
This is Höganäs

With an annual production capacity of over 500,000 tonnes, Höganäs is one of the leading global providers of metal powder solutions. We have 17 strategically located production facilities in 11 countries and are represented by tech-centres and sales offices close to our customers in all three of our regions: Americas, APAC and EMEA.

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



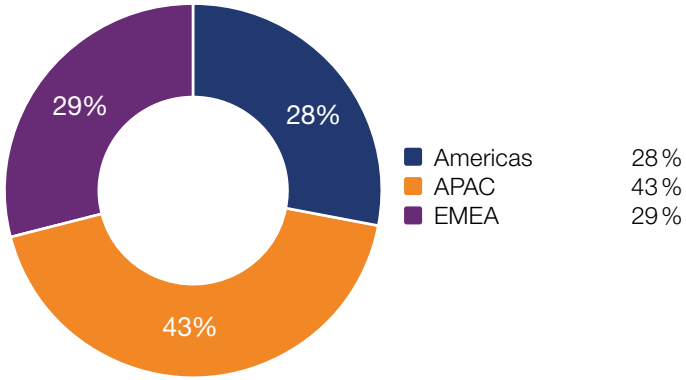
500,000
tonnes production capacity

2,300
employees

3,000
customers

800
granted patents

Sales per region



The role of metal powders in a more sustainable world

Powder metallurgy helps solve many of society's pressing challenges by facilitating the efficient manufacture of complex metal parts to promote greater resource utilisation, energy efficiency and reduced waste compared with welding or machining. Powder metal surface coatings can also increase a product's lifetime by providing improved wear and corrosion resistance.

In addition, metal powder is used in water treatment and soil remediation, as well as to produce inductors for renewable energy generation – to improve the lives of millions of people around the world.

Targets and results

The table below summarises our Group targets, the progress we made in 2021 and if we are on track to achieve each target.

Lost time injury frequency

5.0 (6.0)

Per million hours worked
Target: Zero accidents

Female co-workers

17% (17%)

Target: 25% female co-workers by 2026

Carbon intensity

0.71 (0.70)

Tonnes CO_2 scope 1 and scope 2 per produced tonne

Climate Roadmap workshops

44

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

Process residuals put to use

77% (80%)

Target: 95% by 2026

Key suppliers approval

80% (new)

Key suppliers rated as “good” or “excellent”
Target: 100% by 2024

Key

- *on track*
- *concern*
- *deviation*

= improving
= flat
= worsening

CEO Statement

"One of our ambitions is to pioneer our industry by being the first green metal powder producer in the world and to inspire others by setting the benchmark."

President and CEO, Fredrik Emilson

2021 was both a challenging and a successful year for Höganäs. Even though the Covid-19 pandemic continued to impact us all, I am impressed with the achievements and the resilience shown by our teams in how we have managed to address challenges. Our priority has been to ensure the health and safety of our employees, and to keep our facilities operational while maintaining customer deliveries with high quality and precision. Due to the efforts and dedication of everyone in our organisation, we managed to deliver significantly more metal powder solutions to our customers than in 2020 and achieved one of our best years ever in terms of business performance.

We continued to drive our ambitious sustainability agenda in support of the UN Global Compact and its ten principles on human rights, the environment, anti-corruption, and labour. The Global Compact is a guiding star for a future-proof Höganäs and is an essential and integrated part of our ongoing sustainable business transformation. One of our ambitions is to pioneer our industry by being the first green metal powder producer in the world and to inspire others by setting the benchmark. During the year, we took a big step forward in this ambition – not just in terms of the progress we made, but also in our overall approach to sustainability that will continue to shape our work in the years ahead.

During the year, our ambitious sustainability agenda focused on our climate transition, and we have detailed our Climate Roadmap. This sets out a clear direction and a well-defined

action plan for how to mitigate our emissions both in the short and medium term. Our internal process for the roadmap gave local ownership throughout the organisation, and I am particularly proud of our plan where we have identified activities to mitigate almost 90 percent of our scope 1 and 2 emissions.
We are confident that we will bring forward our first interim target to reduce our emissions in scope 1 and 2 by 30 percent by 2024 instead of 2026. This highlights that we are gaining traction in our climate journey. We have also mapped out our scope 3 emissions and will include these emissions in our target setting from now on. As a natural step following this, we decided to join the Science Based Targets initiative. This will better showcase our climate ambition and our commitment and progress will be more transparent to all stakeholders.

In addition to our climate neutrality ambitions, metal powder within the steel making industry is already a more sustainable choice. For example, atomised iron powder is estimated to have approximately half the carbon footprint compared with the average for wrought steels*. As the automotive players increasingly turn their attention downstream, component suppliers will look for more sustainable alternatives. This is where the metal powder industry can really make a positive difference by promoting the solutions that not only reduce climate impact, but that also allow for a more circular approach.

Take the environmental aspect of an electric vehicle, for example. An electric motor made from our powders will not only have a lower CO_2 footprint but will also be recyclable, whereas materials from laminated steel motors are difficult to reuse. The low-carbon and circular trends really are tangible competitive advantages for us.
As the world-leading metal powder producer, we must take on the responsibility to inspire the industry to make more with less, i.e. to be the more sustainable option and to offer a reduced climate footprint. Being the sustainability leader will ensure we have a competitive advantage by offering the lowest emission footprint and the lowest total cost in the steel industry and being

*"Climate change and the production of iron and steel" - Public policy paper, World Steel Association 2021.

fully circular in terms of process residuals. This will enable us to support our customers in fulfilling their ambitions to be part of a more sustainable world.

Our sustainability and climate transition requires major changes to our manufacturing processes, raw materials and energy sources, while also requiring new technologies that are still being developed. This creates many complex, inter-dependent, costly and long-term decisions that we must get right. An additional layer of complexity is the ongoing disruption within some of the industries we serve, such as automotive and oil and gas, where we also need to forecast future capacity and capability needs. We have built strong foundations to overcome these challenges in recent years as we strive towards our ambitious sustainability objectives.

Sustainability is the opportunity driving both our short and long-term strategy. Going forward, we will maintain our momentum once the low hanging fruits have been addressed, and we will continue to be innovative and work in partnership on low-carbon and circular solutions and sourcing decisions.

Finally, I would like to thank all our colleagues, customers and partners that contributed towards our sustainability work during the year. I am looking forward to yet another exciting year as we continue our sustainability journey to move even closer to our ambition of being the first green metal powder producer in the world.

Fredrik Emilson
President and CEO, Höganäs Group

Governance

As the world's largest producer of metal powder, we aim to take sustainability leadership within our industry. To do so, we build a governance framework where commitment, accountability and alignment are key success factors.

Our values and principles are fully integrated into our company and everything we do. This includes our decision-making structures, responsibilities and accountability throughout our organisation. Good governance is also embodied in how we manage risk and emerging sustainability topics to ensure they are effectively governed.

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.

The SVP Legal Counsel & 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.

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

Our management philosophy

Sustainability governance at Höganäs is based on internationally agreed principles and objectives such as the UN Sustainable Development Goals and the ten principles of the UN Global Compact. We are guided how to act in different situations by our vision and our management philosophy, **More Höganäs**, as well as our **Code of Conduct**.

To enhance performance and build a sustainable company, we must equip ourselves with tools and ways of working that improve our collective ability to perform both individually and as a team. Höganäs has identified three key behaviours: grit, volition and candor. If implemented into our daily actions, these behaviours will help us to realise our strategic objectives sooner, reach our goals, and increase our competitiveness and ability to transform as a company.

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

Volition: I make sure things get done and I take accountability for mine and my team's results.

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

New Corporate Governance Framework

Corporate governance is essential to provide a clear, understandable structure for people at all levels of the business. Höganäs is now implementing an umbrella document, the Governance Directive, on a global level, which will clarify responsibilities and key principles for good governance. The goal is to give additional clarity and reassurance to decision-makers in every region and entity, and to ensure procedures for compliance management towards all our policies, as well as provide internal control mechanisms.

During 2021, Höganäs rolled out its new global Corporate Governance Framework, which is an important tool to ensure that our values and principles are adhered to in decision making. 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. Prior to the global roll-out of the new framework, there was extensive collaboration between the different functions and entities within Höganäs to align, simplify and identify common and efficient ways of working.

The framework consists of several new governance documents, with the Governance Directive as the new umbrella document. The Governance Directive will be reviewed annually to make sure it remains relevant to decision making and the Group in general.

Crisis management and communication

We have well-established emergency response teams at all of our production units and established ways of working preventatively to avoid damage. Evacuation drills are carried out at all sites on a regular basis and improvements are made. Inspections of emergency exits, as well as fire safety equipment and evacuation routes are conducted as part of weekly and monthly safety walks.

Local teams are responsible for managing local incidents, including events immediately after an incident, the following root cause analysis and the updating of routines to avoid similar incidents in the future.

Höganäs has a central crisis team with the purpose of supporting local teams if an incident develops into a crisis, either locally or globally, and to handle any type of event that is not connected to a local incident but could emerge as a crisis.

The team has clearly identified roles and responsibilities so that all aspects of a crisis can be addressed effectively. Procedures and tools are in place to facilitate incident assessment, action planning and communication to ensure an efficient process.

Strategy

Our sustainability agenda focuses on five areas – workplace, society, climate, environment, and products – and was shaped by our risk management, materiality assessment and stakeholder dialogue.

We regularly conduct risk analyses within the organisation, including an analysis each year at Board level. The Group level risk assessment also includes risks related to sustainability, such as strategic business risks driven by climate change, demands 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.

Risk: Climate transition risks.

- External factors such as legislation and market changes may require zero greenhouse gas emissions sooner than Höganäs can achieve.
- Increased demand or competition for low-carbon raw materials and secondary materials can lead to shortages with negative effect on production volumes.
- Price increases for raw materials, transportation, and energy.

Implications: Höganäs must step up its sustainability objectives to reduce emissions and make better use of residuals and secondary materials. Partnerships are very important.

Risk: Technical barriers and/or insufficient access to renewable energy, raw materials and fuels. For example, our climate transition is heavily dependent on the supply of biochar as an alternative to fossil metallurgical coke.

- Biochar may not be considered sustainable in the long-term.
- Third-party certification of the biochar is necessary.
- Supply of sustainably sourced biochar of the right quality may be insufficient.
- Technical obstacles may hamper full implementation
- Availability of sufficient sustainably produced biomethane/ biogas.

Implications: Höganäs is working to develop low-carbon process technologies and secure the supply of renewable energy and critical raw materials, as well as collaboration with key suppliers.

Risk: Internal capabilities.

- Unclear internal ownership concerning climate-related issues may hamper or slow down the decision process.
- Alternative technologies may not be developed in time due to a lack of agility and cutting-edge expertise.
- Risk of unprofitable investments if immature or insufficiently tested technology is chosen.

Implications: Höganäs works to attract and retain competence, empower the organisation, and implement clear strategies, targets and action plans to ensure progress and pace.

Risk: Product/business related risks.

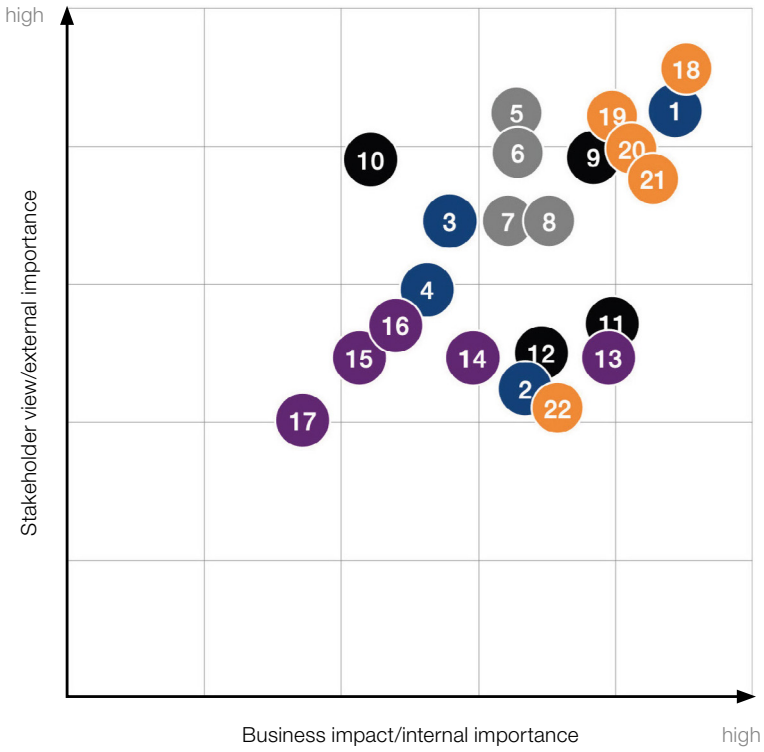
- Höganäs products contain substances of concern that might be subject to limitations in use based on legislation concerning non-toxic environments and exposure.
- Products containing copper are not seen as circular in iron-based metallurgy, which may put limitations on its use in powder formulations.
- Increased transition costs may not be met by customers' willingness to pay a green premium for low-carbon products.
- Increased competition for secondary materials (which are important to lower scope 3 emissions) may lead to higher prices and a lack of supply.
- Electrification is hampered due to insufficient renewable energy supply and volatile or increased energy prices.
- Risk that our suppliers choose other customers due to our insufficient climate transition.

Implications: Höganäs works closely with its customers and business partners to ensure we fully meet their expectations and requirements. We also position ourselves as a sustainability leader as a way to differentiate ourselves from the competition and anticipate future market needs.

Other trends related to risk

- EU taxonomy will have an impact on what economic activities are considered "green" or "environmentally sustainable" and together with the revised Corporate Sustainability Reporting Directive (CSRD) it will also increase the focus on transparent reporting.
- The increasing pace in the establishment of new and stricter climate-related legislation based on international agreements may lead to changes in the business landscape.
- Even though climate change is the topic highest on the agenda, other topics such as human rights and biodiversity are increasingly important.

Material matrix



Materiality analysis

We regularly assess the impact our activities have on the outside world in terms of the environment, society, and stakeholders. Our sustainability agenda, with its five themes, is based on our materiality analysis that identifies and prioritises the most important sustainability topics to our business.

Among all the identified topics, within each of the five themes in our sustainability agenda, we have found that our most strategic sustainability topics are:

- **Zero accidents and healthy workplaces** (Workplace)
- **Climate change adaption** (Climate)
- **Resource efficiency and zero waste** (Products)
- **Responsible and ethical business** (Society)
- **Environmental impact mitigation** (Environment)

The matrix shows our most prioritised topics. As in previous years, there is still a strong focus on topics related to "climate", especially from stakeholder groups such as owners, the finance sector, and customers. We also see increased customer focus on "products", especially within areas related to climate impact and circularity. Other trends are increased focus on "human rights" and "biodiversity" both concerning our own activities and in the value chain.

Workplace
1. Zero accidents
2. People development
3. Human rights
4. Healthy workplaces

Society
5. Responsible sourcing
6. Anti-corruption
7. Ethical business behaviour
8. Profitability and taxes

Products
9. Sustainable products
10. Circularity
11. Low carbon materials
12. Zero waste

Environment
13. Process safety
14. Environmental impact mitigation
15. Chemicals use and exposure
16. Biodiversity
17. Water use

Climate
18. Net-zero strategy
19. Reduced value chain emissions
20. Fossil free energy
21. Low carbon technologies
22. Energy efficiency

Stakeholder dialogue

Our stakeholders give us valuable input that helps us to shape our sustainability agenda.

Our owners emphasise that we continue to demonstrate responsibility as a company, where climate transition is among the top priorities. Other important aspects that are emphasised by all stakeholder groups include improving safety, gender equality, environmental performance and ethical supply chains.

"Höganäs has cared for its co-workers throughout its 220-year history, which I believe is one reason for its success. Within the company, there is an appreciation that no one should be injured while working at Höganäs – neither physically nor mentally. The company's work with sustainability and transparency is also important to continue to ensure co-workers feel proud and motivated in their roles."

Co-worker representative, Nils Carlbaum

"Since metal powder is used to create more sustainable products than traditional methods, it is important to further intensify the work with Höganäs' sustainability transition in order to be able to deliver products with a significantly lower environmental impact. Through a dedicated focus on both a customer and production perspective with the necessary investments, it will be possible to drive the transition."

Chief Sustainability Officer, representative of SEB, Hans Beyer

"As one of Höganäs' stakeholders, we embrace their ambition to increase the pace to reach climate neutrality, and to fully integrate climate related targets in their internal business plan and strategic process. The journey to reach climate neutrality and to eventually comply with the objectives of the Paris climate agreement is one of the most important and maybe one of the most challenging for Höganäs in the coming years. Höganäs' systematic work to improve energy efficiency and replace fossil coal in the production process are key to further establishing its position on climate neutrality. The journey will not be without its challenges and will require both innovation and investment. However, for a company founded in year 1797 this is nothing new."

Owner/Board representative of FAM, Kristian Sildeby

"Höganäs' climate work will have major positive impacts in the value chains where the company's products are used. For us as an owner, their work with the sustainability transition is of the highest priority. While there are great technical challenges ahead, their progress can have a great impact. To drive development with their own innovations is crucial, along with strengthening customer perspectives on what can be achieved."

Owner/Board representative of Lindéngruppen, Paul Schrotti

Co-workers

Examples of dialogue	Key interests
Team check-ins, performance and development talks, and input from formal forums with union representatives.	Fair and equal treatment, good labour terms, responsible employer, personal development and satisfaction, safety, social security, and good leadership.

Customers

Examples of dialogue	Key interests
Customer surveys, complaints, interviews and R&D projects, where we participate together with customers, end-users and universities/research institutes.	Competence, highest quality, safe and good working conditions, stable processes, low-carbon products, climate strategy, efficiency, and innovation.

Owners/Board

Examples of dialogue	Key interests
Board meetings and owner inquiries.	Risk/opportunity management, an ambitious climate transition agenda, financial results, and business ethics.

Financial institutions

Examples of dialogue	Key interests
Individual meetings and surveys.	Risk/opportunity management, transparency, climate strategy, and ethics.

Authorities

Examples of dialogue	Key interests
Inquiries.	Legal compliance, integrity, and open dialogue.

Suppliers

Examples of dialogue	Key interests
Meetings and evaluations.	Reliability, good supply chain partnerships, fair business behaviour, and timely payments.

Industry organizations

Examples of dialogue	Key interests
Participation in working groups and respond to requests for information.	Good role model for the industry, knowledge sharing, and innovation.

Neighbours

Examples of dialogue	Key interests
Public consultation meetings at production sites, website, social media, and various local channels.	Honesty, consideration, responsible member of society, and good employer.

Local communities

Examples of dialogue	Key interests
We devote time and resources to several non-profit projects and contribute hands-on where we see the opportunity.	Building communities by contributing where we operate, reliability, open dialogue, and responsible member of society.

The Höganäs Sustainability Agenda

Our sustainability agenda comprises of five main areas where we focus our efforts:

Workplace – By creating good and safe working conditions and promoting gender equality, Höganäs becomes a preferred employer that attracts and retains the right competence and skills.

Climate – We work proactively to minimise the greenhouse gas emissions generated in our own operations and in the value chain towards our long-term net-zero target.

Products – We work to enhance the properties of the products in our portfolio, such as low-carbon footprint, circular, and resource and energy efficiency, to help customers overcome their challenges and contribute towards a more sustainable society.

Environment – We minimise the environmental impacts from our production and from the materials and chemicals we use by having systems and controls in place to monitor performance and ensure stable production processes.

Society – We are a responsible member of society committed to high ethical standards in everything we do, including our sourcing, financial reporting, and our responsibility towards external stakeholders and the local community.

Our five sustainability areas – Workplace, Climate, Environment, Products and Society – are detailed in the following chapters of this report. We summarise why each area is important to us, how we work with the area, the connection to the SDGs, and the progress we made during 2021.

Workplace

By creating good and safe working conditions where co-workers can flourish, Höganäs will become a preferred employer that attracts and retains the right competence and skills. In 2021 we continued our work with health and safety, diversity, and people development.

How we work

Our ambition is to create a great and meaningful workplace for all our co-workers. The Höganäs **Code of Conduct** and our management philosophy **More Höganäs** are fundamental in these efforts. Our Code of Conduct outlines our principles and how they are related to labour standards and human rights in our workplaces around the world. We launched a new version of our Code of Conduct in 2019, and despite challenges due to the coronavirus pandemic during 2020 and 2021, an implementation programme with workshops and trainings was successfully carried out.

Our management philosophy “More Höganäs” includes our vision, our values, and our principles for how we lead and how we work. The philosophy guides us in our everyday work towards a sustainable business and in our ambition to be a great and meaningful workplace. We are firm believers in the capacity of the individual and we are certain that everyone, regardless of their position or background, has the ability and willingness to develop both professionally and personally.

Health and safety is our number one workplace priority, and our objective is to reduce work-related injuries and cases of ill-health to zero. We take our employees’ health seriously and actively promote healthier lifestyles and a work-life balance.

We also work to attract competent, skilled people and make sure they can develop to their full potential and thrive at Höganäs.

SDG target	Our objectives and what we do
TARGET 5·1 END DISCRIMINATION AGAINST WOMEN AND GIRLS	**>25 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 "Diversity and inclusion" 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 – towards industry best practice" section in this chapter and the "Human rights and business ethics within 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.**

Our business is aligned with the ten principles of the UN Global Compact in the areas of human rights, labour, the environment, and anti-corruption, of which we have been a signatory of since 2017.

Labour terms

We apply our principles for fair treatment and equal pay, and follow national legislation for labour terms in all our operations. As stated in our Code of Conduct, Höganäs supports freedom of association and the right to collective bargaining. Employees are free to join organisations of their choice in accordance with local law. If employees in a location do not want to appoint representatives, we promote direct and open communication between employees and management.

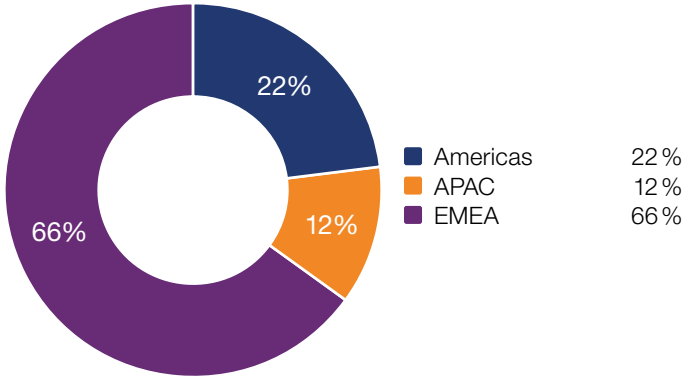
Our co-workers receive an individual employment contract in a language they understand, signed by both the employer and employee as a standard. The exception is the operations in the US, where no individual contracts are written for blue collar employees, but terms are set through the collective bargaining agreement. At the end of 2021, 83 (84) percent of our co-workers were covered by collective bargaining agreements.

The minimum notice period given to employees before operational changes are typically stipulated in the collective agreement and range from two weeks to six months depending on the nature of change and local praxis.

Our people

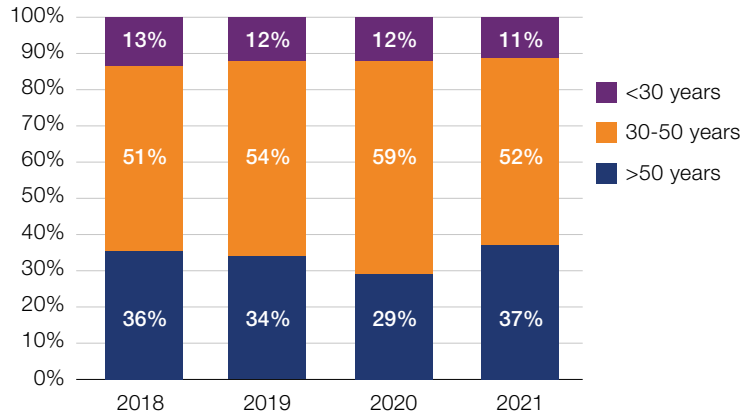
In 2021, Höganäs had 2,282 (2,300) co-workers in 16 (16) countries, counted as average FTE. During the year, 222 men and 67 women left the company, whereas 224 men and 82 women were hired. The total co-worker turnover during 2021 was 4.0 (9.5) percent, which is a decrease of 5.5 percentage points compared to 2020. We made organizational changes in 2020 that increased staff turnover, but no corresponding changes were implemented in 2021 and therefore turnover returned to “normal” levels.

Co-workers per continent percentage



Co-workers per region according to gender and employment type

Percentage	AMERICAS	APAC	EMEA	Total
Men	19%	10%	54%	**83%**
Women	3%	3%	11%	**17%**
Full-time position	22%	12%	63%	**97%**
Part-time position	0%	0%	3%	**3%**
Temporary employed	0%	0%	2%	**2%**
Permanently employed	22%	12%	64%	**98%**



The distribution of employees between age groups is stable for the age group under 30 years, while the age group over 50 increased by 8 percentage points compared to 2020 after decreasing by 2 to 5 percentage points per year since 2018.

Health and safety – towards industry best practice

We strive to achieve industry best practice in health and safety, including a preventative approach to health and a zero-accident culture where behavioural change is key.

We work safely – or not at all

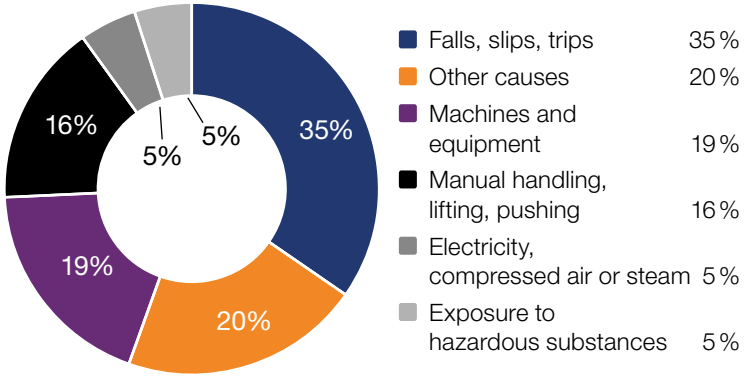
Our long-term objective is zero accidents, which some of our production units are approaching. In order to work systematically in a way that reduces risks and prevents accidents, our operations have health and safety management systems that cover all activities and co-workers.

Zero accident targets are broken down to each workplace to manage risk reporting and work with risk reduction. We are working towards certifying all our production plants to the ISO 45001 occupational health and safety standard before the end of Q1 2022. Our production plants in Sweden, Belgium and the UK were certified during the year. In 2022, the plants in China, South Korea and Japan will be certified.

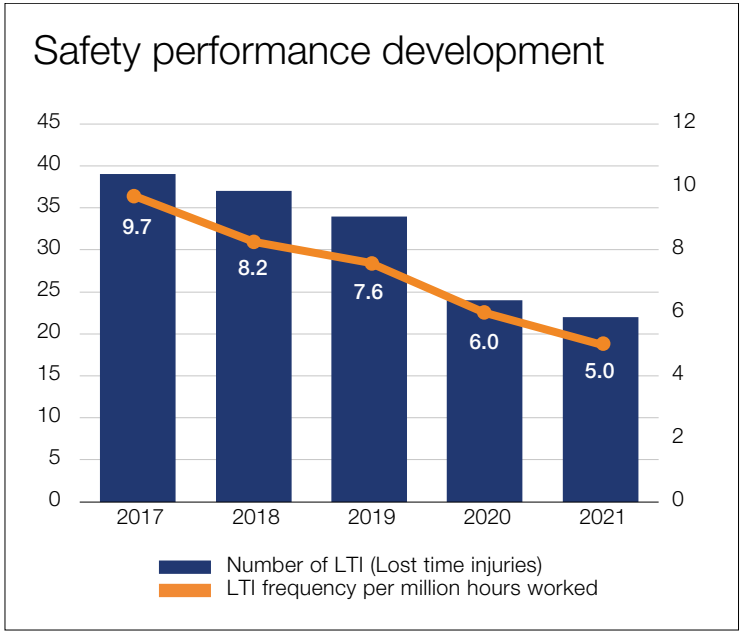
The updated version of our Health and Safety policy in eight languages has increased focus on the management of psychosocial and stress-related risks. During the year, we also continued to roll-out our "Safety toolbox", which consists of four practical tools to promote safe behaviour. The toolbox has been rolled out at our plants in Sweden, Belgium, the UK, Germany, Japan and India and will continue around the world in 2022.

During 2021, there were 22 lost time injuries compared to 24 in 2020, resulting in a LTI frequency of 5.0 (6.0) per million hours worked. The decrease follows various activities and measures to increase safety awareness in recent years. We will ramp up our work and focus more on total recordable injuries to make sure we continue to make progress.

Causes of injuries



The cause analysis of injuries shows that we have made improvements regarding machines and equipment as well as manual handling, but that we need to focus more on falls and slips.



Health and safety performance, co-workers	2021	2020	2019	2018	2017
Number of recordable injuries [1, 4, 5]	61	80			
Number of lost time injuries [2, 4]	22	24	34	37	39
Number of high-consequence work-related injuries	0	0	0	1	0
Number of fatalities	0	0	0	0	0
Lost time injury frequency per million hours worked [1, 4]	5.0	6.0	7.6	8.2	9.7
Recordable injury frequency per million hours worked [5]	14	20			
Incident reporting frequency [3]	115	120	63	53	53
Sick leave rate	3.7%	3.8%	3.7%	3.8%	-

1: Including all reported injuries with or without absence from work and commuting accidents.
2: Including injuries and commuting accidents leading to absence from work.
3: Reported risk observations, near misses and accidents per lost time accident.
4: Figure for 2020 corrected.
5: Definition for recordable injury was updated to better reflect current best praxis in 2020, therefore no comparable data for previous years is available.

Building safety culture

"Safety first" sums up our aim to create a solid safety culture where dialogue and risk-elimination are key, and where the rule is to never compromise on safety.

In September, Höganäs arranged the re-occurring annual "Global safety week" with a focus on forklifts and heavy traffic on site. Our plants around the world conducted a broad range of activities such as safety rounds concerning traffic and visibility, improved floor markings and safe pedestrian pathways, forklift operator trainings and awareness trainings for office workers.

A global digital workshop on warehouses was performed with 25 employees around the world. The purpose was to create global standards such as speed limits for forklifts, high-visibility workwear and routines for the inspection of pallet racks. The Group will continue to share best practice in 2022 and the Global safety week planned for 2022 will focus on manual handling and ergonomic risks.

Increasing competence is important for building safety culture. Besides mandatory trainings, we use all channels available to spread knowledge, for example through our Best Practice groups, thematic safety conferences, workshops, videos, booklets, guiding tools, and daily follow-up and discussions in connection to team meetings.

Our health and safety committees exist at different levels in our organisation and include both production and administration departments. The meeting frequency can vary between countries and sites, but the minimum frequency is to meet four times a year. Their scope covers all co-workers in all parts of the organisation. The committees create an additional formalised level of collecting knowledge from all levels of the organisation by creating a forum where improvements can be discussed and decided upon.

Promoting health

Occupational health services are provided locally and according to national legislation. Medical health checks are carried out on a regular basis based on the type of work, and at production sites employees have on-site access to health services.

We continue to proactively offer lifestyle health promotion activities based on local needs. These range from rewards for cycling to work, step counting competitions, weight-loss and stop smoking groups, contributions to wellness programmes and gym cards, and healthier lunch alternatives.

We work continuously to minimise exposure to hazardous substances at work, and co-workers undergo special training

to avoid health risks, such as repetitive movements. In 2021 a new Dusting Best-Practice group was formed, and will be implemented during 2022. The aim of the group is to keep facilities clean and reduce any dust-related risks.

We encourage the reporting of any suspected ill-health cases in our health and safety reporting system, which may go unreported if co-workers only choose to report their cases to external healthcare providers.

Diversity and inclusion

We foster a culture that welcomes new co-workers from all backgrounds to quickly become a part of our global organisation, and this includes common employment standards and ways of working that promote diversity and inclusion. Respect, equal treatment, and equal opportunity are fundamental for us, both for being an attractive employer but even more so because we truly believe that diversity is a long-term success factor for our business. Our respect for diversity and inclusion is also expressed in our global Code of Conduct.

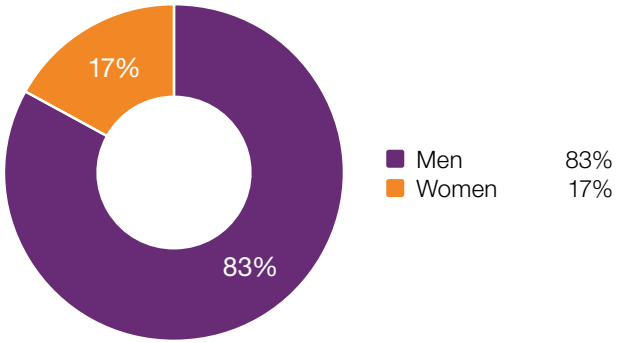
At Höganäs, we strive to attract more women to our workforce. This helps us to access a larger pool of talent, and to become a more modern and attractive company to work for. We work with the principle of having an even split between women and men on the short list of candidates in recruitment. We will under 2022 increase our focus on the recruitment process and hold trainings in the importance of having a diversified workforce. We will also participate in the UN Global Compacts Target Gender Equality Programme.

Our target is to increase the proportion of female co-workers to 25 percent and for managers to 35 percent by 2026. At the end of 2021, women made up 17 (17) percent of our workforce and 27 (28) percent of managers.

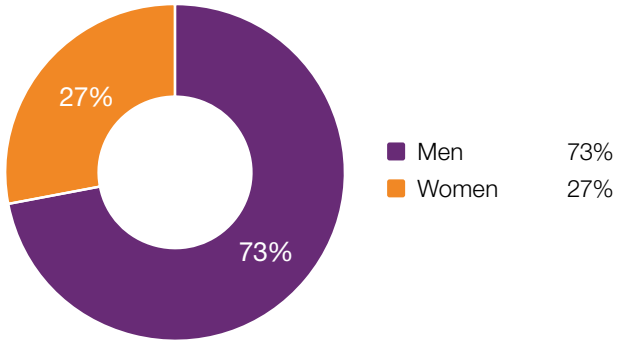
We do not discriminate on the basis of race, ability, sexual orientation, or gender expression. During the year, there were no instances of discrimination reported to the Höganäs Group.

25% women in Board of Directors
9% women in Group management team

Gender distribution, all co-workers



Gender distribution, managers



People development

Our industry is highly technical and demands specialised expertise that must constantly be developed in line with our business transformation.

In 2021, we launched several initiatives with the aim of supporting a stronger performance and feedback culture to drive our sustainable business transformation. Particular focus in 2021 has been on developing our leaders and creating a greater understanding of, and clarity on, what their roles are on this journey. We developed a set of tools to do so, and the initiatives rolled out during 2021 include:

- Global Leadership programmes
- New performance behaviours
- Introduction of Quarterly Team Check-ins
- An upgraded performance Management Process

The implementation of these activities will continue in 2022.

Through our annual People and Competence Review, we identify competence gaps based on business needs to ensure that the right competence is available at the right time and place. During the year, the Höganäs Academy continued to provide practical tools and learning resources to support our co-workers to improve and grow. The academy is our internal competence development platform that facilitates upskilling and onboarding processes. More online trainings and e-learnings have been used during the pandemic. In 2021, the Höganäs Group provided 33,630 (26,280) hours of formalised training worldwide in total, which is 15 (11) hours per co-worker on average.

Our aim is that all our co-workers should have at least one individual performance and development talk per year to ensure they have the right competence and understand their roles and ability to contribute to our overall success. In 2021, 68 (66) percent of our co-workers globally had individual performance and development talks.

15 hours of formalised training per employee

On average, our co-workers had 15 hours of formalised training in 2021. 44 percent of our co-workers had training in human rights and 20 percent had anti-corruption training. Our anti-corruption policies were communicated to more than half of our total workforce during last year and to all our Board of Directors and members of Group Management team.

Sustainable business transformation through people

As Höganäs transforms into a more sustainable business, it is essential that employees are at the centre of driving real change throughout the organisation.

Our people – the key to sustainable transformation

"We are reshaping our business by building a sustainable company with five strong product areas – to ensure we remain competitive and sustainable in the future. The only way this transformation will happen is through people," says Lovisa Bergendal Lindstedt, Vice President Competence and Leadership Development. "It simply won't happen unless we bring our people along on this journey. Every employee needs to understand where we're heading, what it means for them, and how they can contribute to this transformation."

Consequently, Höganäs is changing how it interacts with employees, for example in how it receives feedback from employees and how to nurture their development. This people-centric approach is reshaping the company's performance management and feedback processes to ensure co-workers feel that they can be the drivers of change throughout the company.

Greater clarity, feedback, and accountability

"In 2021, we have particularly focused on providing our leaders with greater understanding and clarity on what their roles are in our transformation journey along with some of the necessary tools," says Bergendal Lindstedt. "We have also introduced three new performance behaviours for the entire organisation and a number of workshops have been held during Q4 throughout the organisation."

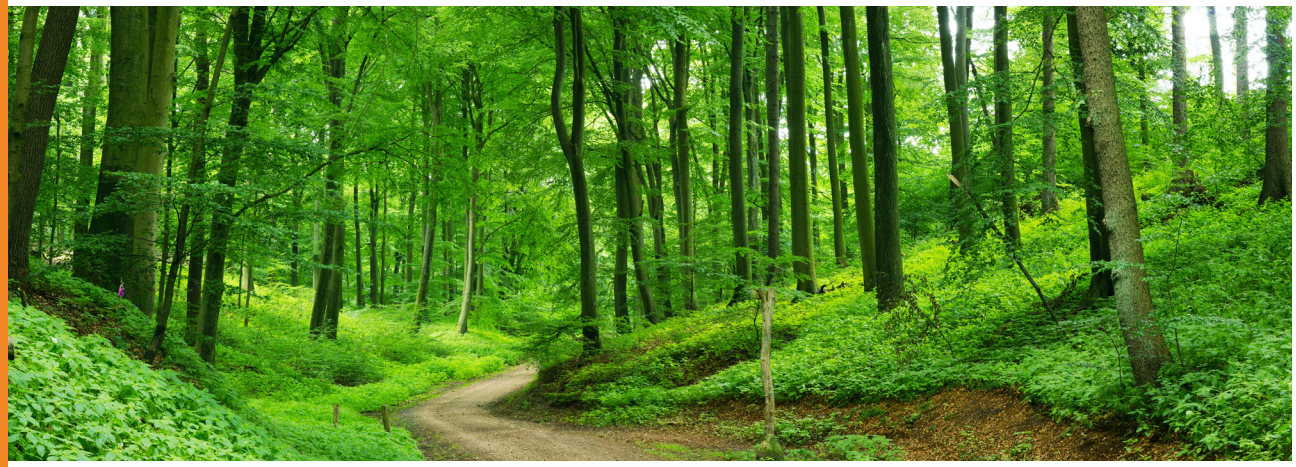
Another significant development in 2021 was the launch of Quarterly Team check-ins that began in December. Each employee responds to six simple questions before they have a quarterly team meeting together with their manager to go through and discuss the results. The focus of the Team check-ins is to hold the entire team accountable and identify what everyone can do to improve team performance.

"The Team check-ins questions replace our previous annual employee surveys and promote agile team discussions that can drive real change," says Bergendal Lindstedt. "In the coming years, we will continue to build a more inclusive mentoring and coaching culture as our organisation transforms together with all our people."

Lovisa Bergendal Lindstedt, VP Competence & Leadership Development

Climate

We work proactively to minimise the greenhouse gas emissions generated in our own operations and in the value chain as we aim towards our long-term net-zero target. In 2021, we initiated our Climate Roadmap, which is an in-depth plan on how to achieve our objective to take sustainability leadership.



How we work

Our objective to achieve net-zero value chain emissions includes our emissions in scope 1, 2 and 3*, and involves a shift to using fossil-free materials and energy instead of fossil-based materials and energy, both by making gradual operational improvements and by investing in new technology to make improvements beyond what is possible today.

In scope 1 and 2, we focus on improving energy efficiency, transitioning to fossil free energy in production and transport, and replacing solid fossil-based carbon used in our processes. In scope 3, we focus on mitigating the carbon footprint connected to our raw materials, which accounts for around 80 percent of our scope 3 emissions cradle to gate.

Our carbon footprint

Our industry's type of production processes have inherently emitted carbon dioxide for hundreds of years, and it requires a great deal of effort to transform well-established production technologies into completely new ways of doing things while maintaining product performance and efficiency, but we are determined to do so.

Our direct carbon dioxide emissions from our own activities (scope 1) derive from two main sources: process materials and fuels. When process materials such as metallurgical coke, slag formers and other carbon-containing raw materials are heated

** Scope 3 includes 7 of the eight categories, within the "cradle-to-gate" approach at this stage, and more details will be published in next year's report.*

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.

up and the carbon reacts with oxygen, carbon dioxide is formed and released into the air.

Natural gas used for heating our processes contributes to more than 95 percent of our emissions from non-renewable fuels, while the remaining emissions are generated from LPG (liquefied petroleum gas), diesel and petrol.

Indirect emissions from our use of purchased electricity, heat, and steam (scope 2) occur where the energy generation is not completely fossil free. We have a goal to become fossil free in our scope 2 emissions, and to achieve a total emission reduction of at least 30 percent in our scope 1 and 2 emissions by 2026. Our next interim target in 2030 will take us to a 50 percent reduction in scope 1 and 2, compared to 2018.

Indirect upstream emissions (scope 3) are mainly generated when the materials that we use are produced and transported. In the years to come, we will specify our scope 3 emissions further and focus on reducing our carbon footprint from raw materials.

Restatement on carbon dioxide emissions 2018-2020
As part of our work with continuous improvements, we have developed our methods and system support concerning the monitoring and calculating of greenhouse gas emissions in recent years. We have access to more qualified data including from acquired sites for 2018. This means that figures might differ from previous reports.

See Appendix Methodology for Greenhouse gas emission calculations for more details on the recalculations.

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

Emissions from fuels and raw materials have increased due to higher production-volumes. Carbon intensity is slightly higher at 0.71 (0.70) per produced tonne as a result of lower energy utilisation in our production processes.

Biogenic carbon emissions and climate impact

Biogenic carbon emissions are carbon dioxide (CO_2) emissions released when biofuels, biomass or organic materials are combusted. Biogenic CO_2 emissions are comprised of carbon that is part of the biogenic carbon cycle and is constantly captured and released by biomass. In comparison, when fossil fuels are combusted, carbon is released from deposits that took millions of years to form. While bioenergy systems operate within the carbon cycle, the combustion of fossil fuels increases the total amount of carbon in the atmosphere. The climate impact of biogenic carbon emissions must be put in the context of the biogenic carbon cycle.

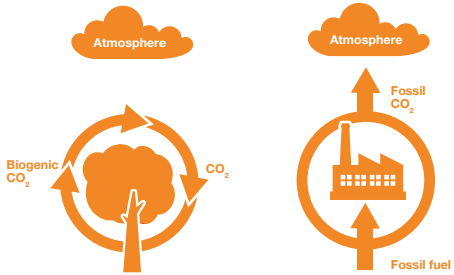
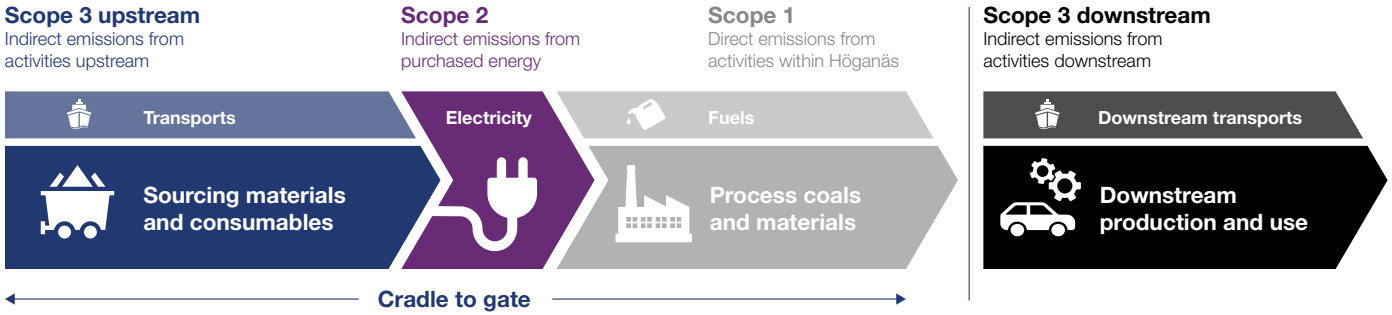
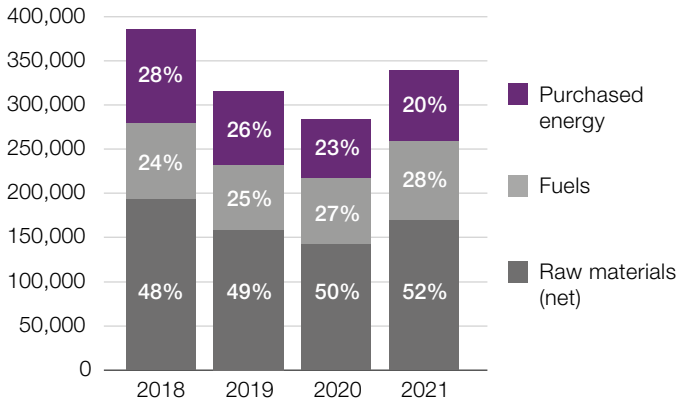


Illustration of the "cradle to gate" scope for Höganäs' Climate Roadmap. Upstream scope 3 emissions are mapped and quantified and will be reported in next year`s report. Downstream scope 3 emissions are not yet included in our quantification.

Cradle to gate



GHG emissions
Scope 1 and 2, tonnes CO_2



Direct emissions from raw material such as coke, anthracite and electrodes, and from fuels, mainly natural gas, together amount to 80 percent of our total emissions. Indirect emissions from purchased energy account for 20 percent.

Indirect carbon dioxide emissions from purchased energy, Scope 2, tonnes CO_2	**2021**	**2020**	**2019**	**2018**
Market based (own choices)	67,900	65,200	84,400	103,500
Location based (residual mix)	90,000	92,500	112,700	141,400
Avoided CO_2 emissions by choosing renewable energy	22,100	27,300	28,300	37,800
Total CO_2 emissions (Scope 1 and Scope 2)	**343,100**	**285,100**	**318,600**	**375,100**

In 2021, the proportion of fossil free electricity more than doubled compared to the previous year. However, the increase of 19 percent in electricity consumption, resulted in an 7 percent increase in carbon dioxide emissions from purchased electricity, compared to last year.

Climate Roadmap – our plan to reach net-zero emissions

In 2021, Höganäs made significant progress on implementing its roadmap towards net-zero climate emissions – by developing bottom-up action plans with its operations and integrating climate action into its overall business plan.

"We took our climate work to the next level in 2021 by working internally with our Climate Roadmap implementation project," explains Nicklas Lång, Senior Vice President Legal & Sustainability at Höganäs. "The purpose of the project was to get a clear view on how we can become climate neutral and reach net-zero emissions in our supply chain. We also saw a need to concretise the roadmap on a local level to ensure progress towards our targets."

Integrating climate action throughout the business

In the spring, a series of workshops with Höganäs sites were held to systematically, source by source, look at how and when it is possible to mitigate the company's scope 1 and 2 emissions. The outcome was a detailed plan with a defined timeline of activities and costs.

"This bottom-up process resulted in the identification of 170 different emission reduction actions throughout our business," says Catharina Nordeman, Director Group Sustainability at Höganäs who managed the work with the company's operations. "We calculated that these combined activities correspond to the mitigation of almost 90 percent of our direct and indirect emissions by 2040. We will monitor our progress on a regular basis and challenge our pace"

Actions for 2022 to 2024 have now been integrated into local business plans to coordinate the different activities, and future actions will gradually be added. This approach helped the operations understand how they contribute towards the overall Höganäs climate neutrality objective and built local ownership around their own climate action.

"Our cross-departmental project group included representatives from our Global Technology team, which supports sites around the world with projects that reduce environmental impact and cost, was a key partner in this process," says Nordeman. "Their expertise with solving the technical challenges ahead will be crucial for accelerating our transition journey."

Stakeholder collaboration is key

The work in 2021 included a stakeholder analysis that highlighted the importance of collaborating with our internal and external partners. Customers are a key stakeholder group that must be brought onboard to identify business opportunities to charge green premiums for low-carbon products, which would help finance the necessary low-carbon investments throughout Höganäs.

Suppliers are another important stakeholder group and supply chain emissions were mapped in more detail in 2021. "Following our mapping of upstream value chain emissions, we now understand much more around the complexities, not only concerned with calculating supplier emissions, but also in terms of how changes in raw materials can impact our carbon footprint from products and processes," says Nordeman. "Our suppliers have similar or even greater challenges to us, so we need to work closely together to reduce our value chain emissions."

(Continues on the next page)

Group management team and board engagement

The Höganäs Group management team has been heavily involved at every step of the way and in December, the Board decided on the company's interim climate target for 2030, which also includes supply chain emissions. (Read more about our new target under Our climate targets).

"The management team have been instrumental in integrating our climate objectives into our overall business plan, which has been essential in improving our understanding of the challenges ahead and how we need to allocate our resources," says Lång. "We look forward to working toward net-zero emissions in the years ahead – and to taking our entire organisation, suppliers and customers along on this journey."

Catharina Nordeman, Director Group Sustainability

Nicklas Lång, SVP General Counsel & Sustainability

Our core processes

Höganäs has five core processes to produce iron powders, which is where the majority of our direct emissions occurs. We also have processes for ceramic powders including products such as metal oxides, nitrides, and carbides. Our 17 production sites around the world can each have one or several of these processes depending on what products they produce. (Read more about our **products**.

Each process has its unique features that lead to different sources of emissions and consequently to different types of mitigation activities. A summary of the different sources and mitigating activities for our core processes for iron powder production can be found on the next page.

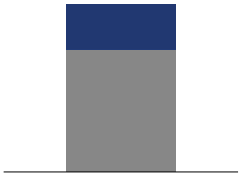
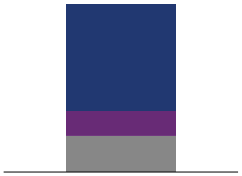
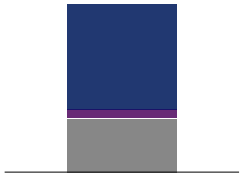
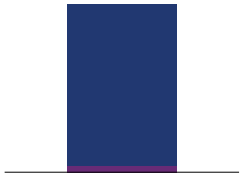
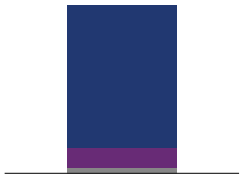
Transportation

During the year, we continued to work systematically to reduce our climate impact generated by transportation. We try to match our inter-company transport with outgoing transport to customers so we can use the same container to avoid an additional journey back and forth to the port. Locally in Höganäs, we have renewed and expanded our High-Capacity Transport (HCT). We have doubled our capacity of HCT vehicles, so we now have two, on the section between the Höganäs site and the port in Helsingborg where the containers are loaded onto ships. We have also commissioned one HCT vehicle that will be used on the road between the two sites in Höganäs and Helsingborg. All HCT vehicles, as well as the internal transports in our harbour in Höganäs, use partly renewable HVO100 diesel.

We have completed a pilot of a transport booking system that will improve our ability to monitor carbon dioxide emissions. The system calculates the emissions for modes of transport for a specific shipment. This provides opportunities to track our transport emissions and evaluate what modes of transport to use in the future for specific routes. The system will also give our customers the possibility to compare emissions for different transport options for their orders. We have started tracking our sea transport with this system.

The pandemic has meant that we have had to resort to alternative logistic solutions. The sea transport market has had a complicated period with delays and shortages of containers and space on ships as a result. To mitigate this, we have used rail transport between our factories in Sweden/Belgium and China, and we have conducted a pilot in Belgium stacking two pallets of brazing paste in order to optimise space in the container. The extended lead times on sea transport have also led to an increased utilisation of air transport in 2021 for time critical deliveries.

High-capacity vehicles may weigh a total of 74 tonnes instead of the normal 64 tonnes. For Höganäs, this means that we can drive with a double chassis and load two containers instead of one.

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. CCUS or compensation for remaining emissions from raw materials	Fossil-free electricity. Use of biochar
 Water Atomisation	Iron Powder Atomising	High indirect emissions from HBI (hot briquetted iron) and alloying elements. Some 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. Natural gas for process heating and furnace atmosphere	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. Some use of electricity	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

Key *Scope 1* *Scope 2* *Scope 3*

The graphs in the far-left column show the proportions of the emissions within each scope.

Climate targets

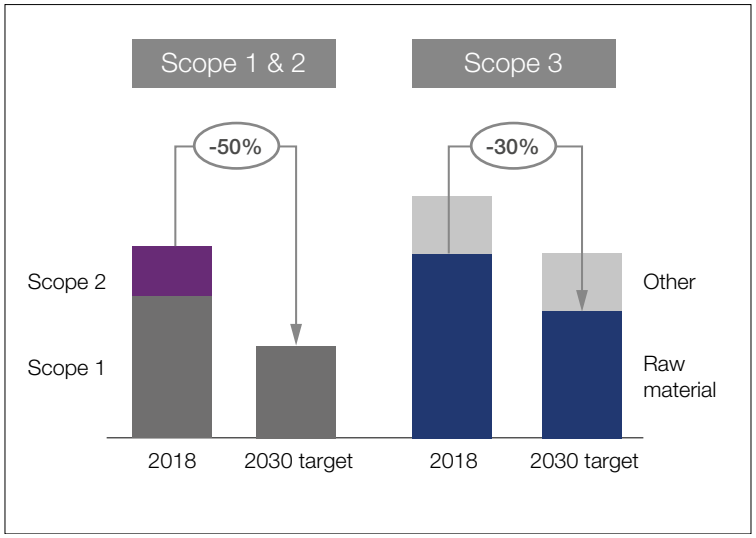
We have committed to the Science Based Targets initiative (SBTi) and have set our new interim targets to 2030 in alignment with the updated “Near-term SBT” criteria with the minimum ambition level of a 1.5°C pathway in scope 1 and 2 and well-below 2°C in scope 3. This corresponds to a decrease of 4.2 percentage points per year for scope 1 and 2, and 2.5 percentage points for scope 3.

Our target for 2030 is to achieve a 50 percent reduction of Scope 1 and 2 emissions and 30 percent reduction of Scope 3 raw materials emissions (approximately 80 percent of total scope 3), compared with 2018. This is in line with the SBTi criteria and we are now in the process of submitting our targets for validation.

To accomplish our goal within scope 1 and 2 by 2030, we have identified three main areas:

1. Replacing parts of our fossil-based coke and anthracite with biochar
2. Replacing natural gas with biogas and switching to electrified vehicles or renewable fuels
3. Buy all our electricity from fossil-free sources

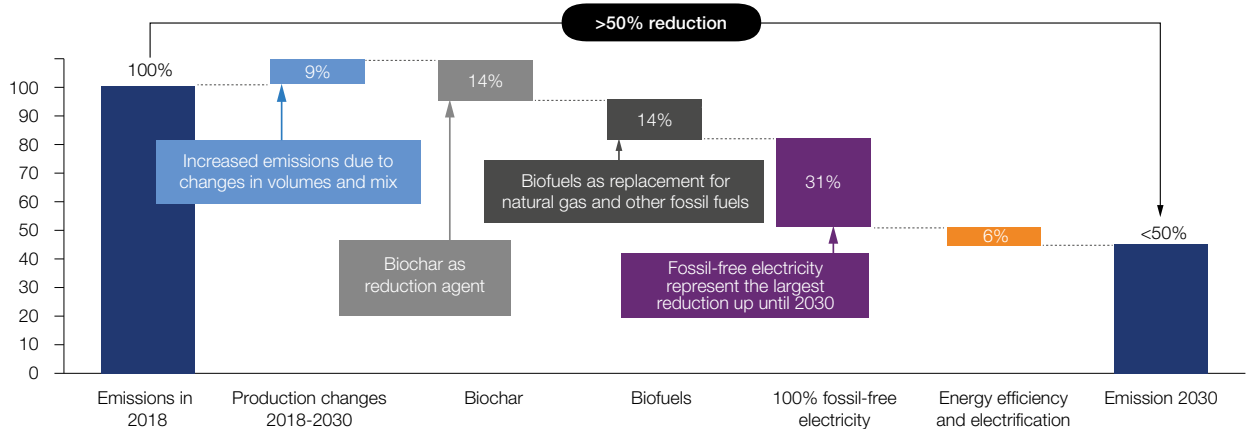
We have ongoing activities and development projects within all these areas. We will also continue our work to increase our energy efficiency, produce our own solar energy and electrify both process equipment and vehicles.



Our targets mean a total reduction of 35 percent by 2030 for all quantified emissions in scope 1, 2 and 3, relative to 2018.

Our climate targets

Identified initiative for the reduction of scope 1 and 2 emissions to reach our 2030 target



To achieve an emissions reduction of 30 percent in scope 3 related to our raw materials, we are now setting up new ways of working with our supply chain. It is necessary for us to co-operate with suppliers that have the objective to reduce their emissions. We will also follow our action plan to systematically inventory and replace all materials that we have identified as high emitters with low-carbon alternatives whenever available.

Energy use

Höganäs' energy use consists mainly of fuel consumption and purchased electricity and district heating. Natural gas is the largest source of non-renewable fuel energy used in our production processes. We also use diesel and petrol for vehicles and other engines, as well as LPG.

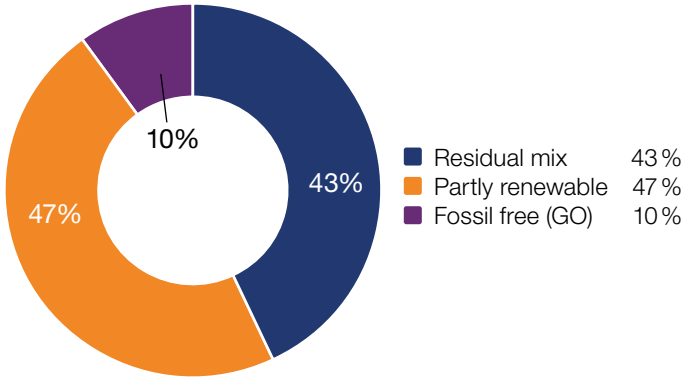
Surplus energy from our processes is converted into residual heat, which we deliver to external parties. In 2021, we delivered 66,000 (60,000) MWh in the form of surplus heat to district heating and municipal treatment plants in the Swedish cities of Höganäs and Halmstad, which avoided an equivalent of 13,000 tonnes of carbon dioxide emissions compared with natural gas combustion.

In 2021, we purchased 487,900 (411,700) MWh of electricity of which 57 (51) percent was from renewable or partly renewable sources. We produced 590 (490) MWh of renewable electricity at our own facilities through solar panels.

Total energy consumption was 21 percent higher compared to the previous year, mainly due to increased production volumes. The energy consumption per produced tonne (energy intensity) is 1.5 percent higher compared to last year. This is mainly due to more energy demanding raw materials and processes running on a higher or slower pace than optimal.

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

Electricity sources, percentage



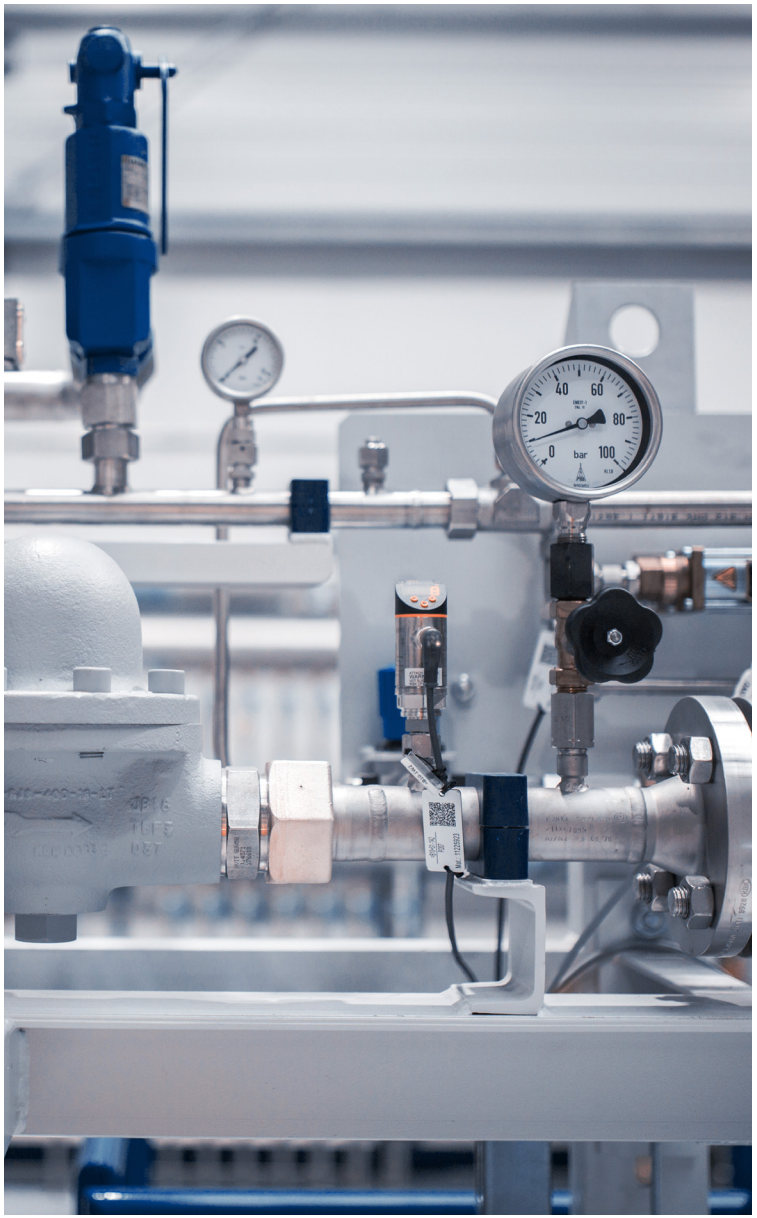
Energy use within the organisation in MWh	2021	2020	2019	2018
Non-renewable fuels	495,200	392,600	405,700	464,200
Renewable fuels	730	4,000	5,100	2,600
Total energy use from fuels	**495,930**	**396,600**	**410,800**	**466,800**
Purchased electricity, residual mix	210,800	176,400	208,100	249,400
Purchased electricity from renewable or partly renewable sources	276,800	235,100	263,100	309,800
Purchased heat, steam or cooling	5,800	6,900	5,600	4,100
Total purchased energy	**493,400**	**418,400**	**476,800**	**563,300**
Self-generated energy from renewable sources*	594	492	189	77
Total energy use	**989,900**	**815,500**	**887,800**	**1,030,200**

Energy management and efficiency

We are working towards our goal to certify the most energy intensive units within the Group, such as melting operations, to the ISO 50001 energy management system by the end of 2021. Five out of our ten production sites were certified as of the end of 2021. Our major Swedish production sites are already certified, and Laufenburg and Goslar in Germany were certified in 2020 despite challenges due to the pandemic. The remaining five sites in US (3), Brazil (1) and Belgium (1) will be certified as soon as possible considering the coronavirus situation.

Our target is to increase our energy efficiency by at least 1.0 percent per year*. In 2021, we did not manage to increase our energy efficiency due to several factors, such as more energy demanding raw materials and processes running on both a higher and slower pace than optimal due to fluctuations in demands, which had a negative effect on energy efficiency.

We will increase our focus on energy efficiency and frequently follow this as a KPI in all operations.



*Measured year-on-year on the specific energy MWh/produced tonne

Implementing the Höganäs Climate Roadmap in the US

In 2021, Höganäs operations around the world developed local action plans for emission reductions that contribute towards the Group's overall Climate Roadmap. The local action plans around the world are expected to avoid around 30,000 tonnes of carbon dioxide in the next five years.

Höganäs has identified a list of investment projects at its operations in North America. These projects promote energy efficiency and reduce costs, and will also reduce their climate footprint.

Realising energy and cost savings

"We started with energy efficiency investments that were low-hanging fruit for us to implement, such as replacing halogen lights with LED lighting that use a quarter of the electricity," explains Jacob Maruschok, Project Engineer at Höganäs in the US. "In another project, we have cut our use of natural gas at our Stony Creek facility by around 5 percent by lowering the heating in our furnaces during weekends and holidays."

At the Johnstown facility, the team managed to decrease the amount of nitrogen used in its processes. This has reduced the electricity used in its nitrogen generation system and has allowed them to use less liquid nitrogen that is delivered by truck from as far away as Canada.

Upcoming energy efficiency investments

"We are currently investigating the economic viability of various investments in the next five years that can further reduce our energy use and give us a reasonable financial payback," says Maruschok. "One large investment that we are looking into would involve installing energy-efficient Variable Frequency Drives on our baghouse fans to collect the fumes from our electric arc furnace. We are also analysing the potential to find a low-carbon material to replace the Hot Briquetted Iron (HBI) we currently use."

Jacob Maruschok, Project Engineer

Products

We work to enhance our product portfolio to correspond to the increasing demands for low-carbon and circularity. Our objective is to support our customers' sustainability journey, and their efforts to become more resource and energy efficient.

How we work

Our business approach is to offer products that create value for our customers and contribute to a more sustainable society. We want to lower our climate footprint and preserve natural resources as much as possible by increasing our use of secondary raw materials, aiming for closed resource loops and zero waste in our production processes.

We aim to minimise the life cycle impact of our products by continuously working with product design to reach climate neutrality, and by improving our environmental performance as well as that of our suppliers and customers. We do this in partnership with customers and offer application development capabilities, technical support and logistics solutions to drive the transformation towards more sustainable solutions involving metal powders.

Read more about our **products** and **services** on our webpage.

Besides the Sustainability Assessment made during the development of new products to ensure best possible sustainability performance, we also review the progress in the climate footprint for existing products when improvements in Scope 1, 2 and 3 emissions are achieved at our production sites.

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" section in this chapter and the "Our products create customer value" and the "Responsible Sourcing" sections 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 "Responsible Sourcing" 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 "Our vision for more sustainable products" sections in this chapter.**

The Höganäs product portfolio

Our product portfolio includes over 3,500 products, and we serve around 3,000 customers in 75 countries. Höganäs products are used in a wide range of applications, such as:

- Powder metallurgy components
- Additive manufacturing
- Electromagnetic applications
- Water and soil treatment
- Surface coating and joining

Our products promote sustainability

Powder metallurgy enables customers to efficiently manufacture complex metal parts. The technique has the highest raw material utilisation (over 95 percent) and the lowest energy requirement per kilogram of finished part (consuming around 43 percent of the energy) compared with forging and machining*.

Powder-based metal surface coatings can increase a product's lifetime by providing improved wear and corrosion resistance. Metal powder is also used in water treatment and soil remediation, as well as to produce inductors for renewable energy generation – to improve the lives of millions of people around the world.

** EPMA, https://www.epma.com/powder-metallurgy-economic-advantages*

Our products create customer value

Powder metallurgy is recognised as a resource-efficient production technique compared to traditional methods such as forging and machining, in terms of both materials and energy. Our business approach is to create value for our customers by providing products and services that contribute to reducing climate impact, increased customer sustainability performance, productivity and profitability, while continuously improving sustainability and environmental performance in our product portfolio. Our metal powders have a variety of compositions, from plain iron powders to high alloyed powders, which are used in applications with a wide range of performance and lifetime requirements. We are committed to optimising sustainability and customer value for our various products – from sustainable raw material sourcing and increasing the use of secondary raw materials and fossil-free energy in our processes, to more sustainable packaging solutions and finding uses for our residuals.

We further strive to provide our customers with all the necessary information for our products, such as for handling and safety.

No tools, no waste

Digital Metal – 3D metal printing is a high-precision binder jetting additive manufacturing (AM) technique. The process requires no part-specific complex or costly tools and keeps material waste down to an absolute minimum. All powder not used in the actual component is removed and reused in the next production batch.

Requirements for product and service information and labelling	Required for product/service labelling
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.

Our vision for more sustainable products

Through our product portfolio, we contribute towards overcoming some of society's global sustainability challenges, such as climate change, access to clean drinking water, soil remediation and renewable energy systems and other applications that support electrification. Central to this is our vision for sustainable products, which serves as a compass for technological development and the future direction for our product portfolio.

Our product sustainability vision is based on sustainability principles and a life cycle perspective and is in accordance with the UN Sustainable Development Goals. It focuses on four areas that describe sustainable metal powders:

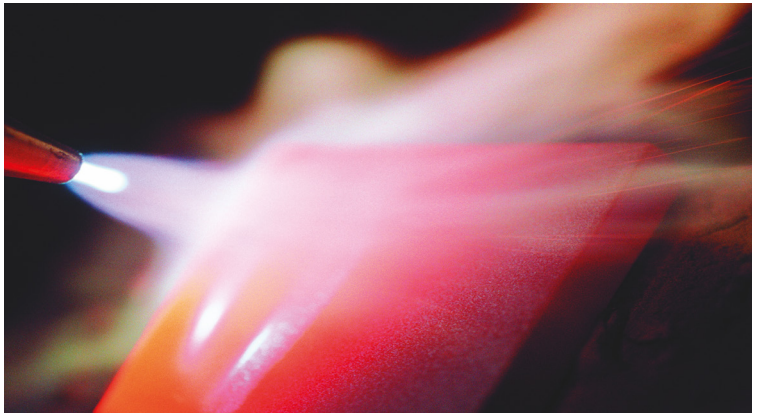
1. **Climate neutral** – Eliminate dependence on fossil carbon sources
2. **Circularity** – Enable circular material flows throughout the value chain
3. **Resource productive solutions** – Promote effective and efficient solutions for industry and society
4. **Safe and ethical** – Cause no harm to people and the environment throughout the value chain

Achieving our vision requires mastering a set of key enablers, or skills, that need to be fostered. Three key enablers have been identified that represent the key capabilities needed for making our sustainability product vision a reality:

- Material selection from a full life cycle perspective
- Sustainable business transformation for the metal powder industry
- Re-imagining partnerships for future applications and working together to influence the value chain

Our product sustainability vision is intertwined with other areas of our sustainability agenda such as our Climate Roadmap, our Responsible Sourcing programme, sustainable production processes and minimised environmental impact.

The principles from the product sustainability vision are actively used in our development process. A sustainability assessment is part of the start-up of all new pre-studies and projects for both product- and process development, as well as in investment pre-studies and projects. These principles are also applied by our product areas on their product portfolio to increase knowledge, identify business opportunities and clarify the direction for the development of new products, as well as further improve existing products from a full life cycle perspective. In 2021, a series of workshops was held with the main technology areas to identify opportunities for more sustainable products. We have also created working groups within the product areas with the aim to promote our sustainable product offerings during 2022.



Surface coating technology helps improve sustainability by enhancing the durability and repairability of components. The materials are generally designed to be long-lasting, which in turn reduces the amounts of replacements and repairs required and cuts down consumption.

Höganäs brazing knowledge enables more sustainable heat exchangers

In 2021, Höganäs enhanced its expertise in more sustainable brazing filler metals that are typically used in heat exchangers – to reduce metal ion leaching into drinking water and promote circularity.

Brazing is a metal-joining process where metal items are joined together by a melted filler metal. During the year, Höganäs tested various brazing filler metals that are relevant for drinking water applications, particularly for brazed plate heat exchangers. The tests highlighted that Höganäs' iron-based stainless brazing filler metals BrazeLet® F300-20 and BrazeLet® F86 offer significant technical advantages in terms of lower or no significant metal ion leaching to drinking water.

The conclusions from the tests enable Höganäs to make better material recommendations to existing and potential new customers. This deepened knowledge will also help Höganäs' customers to meet the applicable regulations for metal ion leaching to drinking water in the markets they serve.

Enabling low-copper leakage heat exchangers

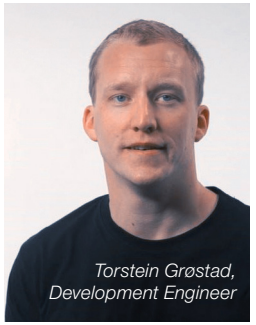
Höganäs already offers nickel-based brazing filler metals that reduce copper-leaching compared to copper foil, as well as brazing filler metals that are completely copper-free.

"Following our tests in 2021, we are well-positioned to advise heat exchanger manufacturers on the brazing formulation for their particular design," says Torstein Grøstad, Development Engineer at Höganäs. "This will enable them to minimise – or even completely eliminate – copper leaching and also promote the more circular use of resources."

Contributing to more circular resource use

Using copper-based brazing filler metals leads to a considerable amount of copper in the component that cannot be separated for recycling.

"As the copper cannot be effectively refined from steel scrap, it makes recycling much more difficult when the component reaches end-of-life and limits the potential applications the steel scrap can be used for," says Grøstad. "While the future regulations and industry trends on recyclability and circularity are unclear, our enhanced knowledge on brazing filler metals enables us to promote more sustainable and circular solutions to be well prepared for future demands."



Torstein Grøstad, Development Engineer

Life cycle assessments and product footprints

To maintain our ambition to promote sustainable industrial development and ultimately a climate neutral product portfolio, all stages of a product's life cycle need to be analysed and evaluated. For environmental areas with good data availability, such as for greenhouse gases, quantifying a product's footprint is necessary to make qualified decisions to drive sustainability. However, where data is missing, either for part of the life cycle or for entire footprint areas, such as the social footprint and recyclability, traditional life cycle assessments do not give a full picture.

We therefore apply two parallel methods with the goal of mapping the environmental performance of metal powder:

Life cycle assessments (LCA) – focus on cradle-to-gate[1)] analysis covering the parts of our products' life cycle that we can directly influence. LCA is a valuable tool for analysing and identifying significant sources of emissions for specific product categories and predicting the outcome of mitigating measures. It can furthermore be used to provide product-specific climate footprint data for reporting to customers. Additionally, we are pursuing an industry-wide initiative on full life cycle assessments within the European Powder Metallurgy Association (EPMA), starting with a lighthouse project to quantify the full life cycle impact of a specific powder metal part.

Sustainability Assessment[2)] – is a qualitative analysis of a product's footprint based on the four sustainability principles. This method is used in pre-studies to ensure that all sustainability aspects are covered in the forthcoming development work. During 2021, it was applied to the development work for our new products within areas such as lubricants, brazing products, and surface coatings. The same procedure was followed on pre-studies for new or modified processes, and for investments involving new or modified processing equipment within our production facilities. A total of 14 such assessments were completed during the year.

The four principles for a sustainable society

In a sustainable society, nature is not subject to systematically increasing…

1.  … concentrations of substances extracted from the earth's crust
2.  … concentrations of substances produced by society
3.  … degradation by physical means
4.  … and in that society there are no structural obstacles to people's health, influence, competence, impartiality and meaning

These principles are often referred to as "System Conditions for a Sustainable Society" by The Natural Step, the international non-profit organisation promoting their development and application world-wide since 1989. The principles are part of a Framework for Strategic Sustainable Development that is openly published in peer-reviewed journals.

1) "Cradle to gate" includes the contribution from upstream resource extraction, processing and transport, and downstream transport to the customers' factory gate.
2) Also sometimes called SLCA, Sustainability Life Cycle Assessment.

Material use

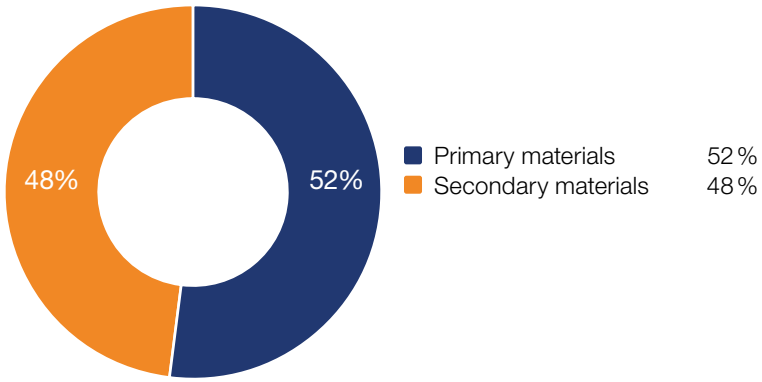
In 2021, we handled 690,000 (550,000) tonnes of direct materials in total to produce around 490,000 (400,000) tonnes of products and 119,900 (91,900) tonnes of side stream materials. The raw material types representing the largest volumes are non-renewable in the sense that they are extracted from the earth's crust. These materials are mainly iron ore, limestone and fossil process coal or coke.

By ensuring that half of our total raw material base consists of secondary or recycled materials, we can improve our resource efficiency as well as reduce our carbon dioxide emissions, our environmental footprint from our production processes and the life cycle footprint of our products. Secondary materials include both pre- and post-consumer scrap. Our largest secondary material type by weight is iron-based scrap, which amounted to more than 330,000 (270,000) of purchased tonnes in 2021.

Our ambition is to further increase the proportion of secondary materials in our production. In 2021, we used 2,950 (2,350) tonnes of packaging material, such as cardboard and metal. 92 percent of this packaging material was plastic, which in some cases can be a more sustainable alternative, despite being non-renewable, as it has a longer lifespan and is fully recyclable.

Raw materials, tonnes	2021	2020	2019	2018
Secondary materials, metal scrap	332,000	267,000	294,000	359,000
Ferrous and ferroalloys	242,000	191,000	222,000	248,000
Graphites, coke and anthracites	65,000	46,000	55,000	59,000
Slag-forming agents and minerals	33,000	26,000	29,000	36,000
Non-ferrous metals	15,000	12,000	12,000	13,000
Organic	3,000	3,000	3,000	4,000
Total	**690,000**	**545,000**	**611,400**	**719,500**

Part secondary raw materials



We used 690,000 tonnes of raw materials, including 48 percent secondary materials, to produce approximately 490,000 tonnes of products and 156,000 tonnes of process residuals. Of these residuals, 120,000 tonnes were reused internally or externally, and 36,000 tonnes were sent for disposal.

Packaging materials, tonnes	2021	2020	2019	2018
Cardboard & Paper	50	30	130	170
Metal & Fibre	180	220	190	220
Plastic	2,720	2,100	1,840	1,950
Total	**2,950**	**2,350**	**2,160**	**2,340**

Packaging materials consist of 92 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.

Process residuals, circularity and zero waste

Our aim is to improve the circularity of our processes by finding new uses for process residuals to avoid them from becoming waste with the long-term objective of achieving zero waste. Our target is that 95 percent of our process residual materials should be converted into useful products by 2026. It takes knowledge, creativity, time, and co-operation to identify new, valuable uses for residual materials.

In 2021, 77 (80) percent of our process residuals were reused. The reason for the lower result compared to 2020 was mainly due to the loss of a customer in Brazil that used our slag to produce paving blocks was suddenly closed down. We have however already identified another use for the slag material that will take effect during 2022.

To ensure progress towards our targets, we established a Best Practice Group during the year with the aim of increasing knowledge sharing and improve our ways of working throughout the company. Action plans are in place to further increase the use of our process residuals and we are optimistic about achieving our target of 95 percent by 2026.

We divide our process residuals into three categories depending on their final 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 within the site of origin
3. Process residuals as waste for internal or external landfill

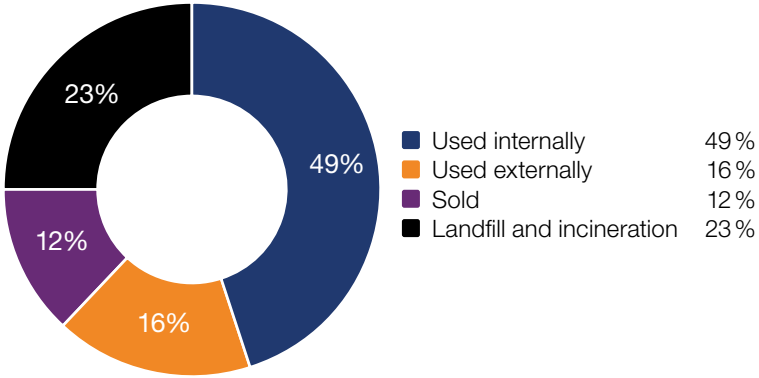
BMX tracks can be compacted by riders over time. Petrit® E and Petrit® T-S are perfect materials for BMX tracks as they can withstand heavy loads while still ensuring the track is easy to modify if necessary.

Process residuals, tonnes	2021	2020	2019	2018
Process residuals directed to disposal (Waste)				
- to external landfill (96% non-hazardous)	13,200	6,800	7,200	9,400
- to internal landfill (100% non-hazardous)	22,400	16,800	17,100	24,200
- to incineration with energy recovery	100	100		
Process residuals directed to disposal (99% non-hazardous)	35,700	23,700	24,300	33,600
Process residuals diverted from disposal				
- to external recipient for recycling	10,000	19,900	25,500	33,800
- to external recipient for reuse	33,400	15,700	16,700	12,200
- to internal recipient within Höganäs Group	13,100	4,000	3,800	12,700
- to internal recirculation or reuse	63,400	52,300	54,000	50,700
Process residuals diverted from disposal (86% non-hazardous)	119,900	91,900	100,000	109,400
Part process residuals put to use	**77%**	**80%**	**80%**	**77%**

77% of all process residuals are diverted from disposal

In 2021, we diverted 77 (80) percent of our total amount of process residuals from disposal, with the remaining 23 (20) percent sent to landfill.

Destinations of process residuals



Our useful side stream products

Three of our most useful side stream products that we have developed and REACH registered are Petrit® E, Petrit® T, and Petrit® L, that are made from slag where Petrit® L is a new product for 2021. During 2021, we started to offer Petrit® L as a raw material for mineral wool production, in the same way as we have offered Petrit® E for several years.

Petrit® E can also be used to replace gravel in road construction, as an aggregate in asphalt and as a construction material. We are conducting promising research into the potential to use Petrit® E for water treatment by reducing phosphorus and dissolved metals. As an example, Petrit® E has been supplied to a customer that now uses the material in a combination of water purification, delay reservoirs and as construction material at their new storage area. The interest in becoming more circular continues to grow, and our material has a clear competitive advantage compared to virgin macadam that otherwise is used for these purposes.

Petrit® T can be used as a lime replacement, for example, as a lime additive for clay soils to improve soil quality for agriculture. Our focus in 2021 was to develop an efficient Petrit® T production process for this application. It can also be used for soil stabilisation, and we see potential for cement substitution. Furnace dust is sent for zinc recovery and other forms of dust are processed for iron recovery. We make briquettes as an internal raw material but have also found a potential customer for our iron-rich dusts. Spent refractory materials can be reused as slag formers in metal production.

Approximately 18,300 (11,500) tonnes, or 12 (10) percent of Höganäs' total residual materials are sold as products for use in different applications, for example as soil improvers, raw-materials for stonewall and as aggregates for asphalt. There is significant market potential, which makes these applications important areas for us to work with in the future.

In 2021, a waste and recycling company used a large amount of Petrit® T as construction material to cover its landfill. The plan is to continue to supply them in the coming years.

Lime can be used to treat clay soils to improve their workability and drainage. When Petrit® T-S is used as structural lime, carbon is also added to improve the soil.

Petrit® E used for treating stormwater for first time in Sweden

Höganäs provided steel industry slag to replace macadam in the treatment of industrial stormwater and wastewater at an industrial plant in Västerås, in central Sweden.

Polluted stormwater is a major environmental problem and can affect natural ecosystems and pollute water sources. Macadam is typically used for treating surface water, which is obtained by blasting virgin rock before being transported and crushed.

Residual product replaces virgin material

Petrit® E is made from slag, a by-product from the iron and steel industry, and can be used instead of macadam. The material was used on the 10,000 square meter Carbomax storage facility site to create delay magazines in ditches for effective drainage and the purification of stormwater. It also effectively absorbs particles from carbon dust and other substances. The large-scale use of Petrit® E for treating stormwater was the first of its kind in Sweden.

"We're actually turning a by-product into a material with environmental value and are currently starting to scale up the application for industrial water treatment," says Björn Haase, responsible for by-products at Höganäs.

"We hope this partnership can inspire more circular innovation in the iron and steel industry. It shows that it is possible to help a customer turn a by-product into a saleable product, and to make our industry more sustainable, while reducing impact on the environment and natural resources," says Catharina Lindgren, CEO of Carbomax.

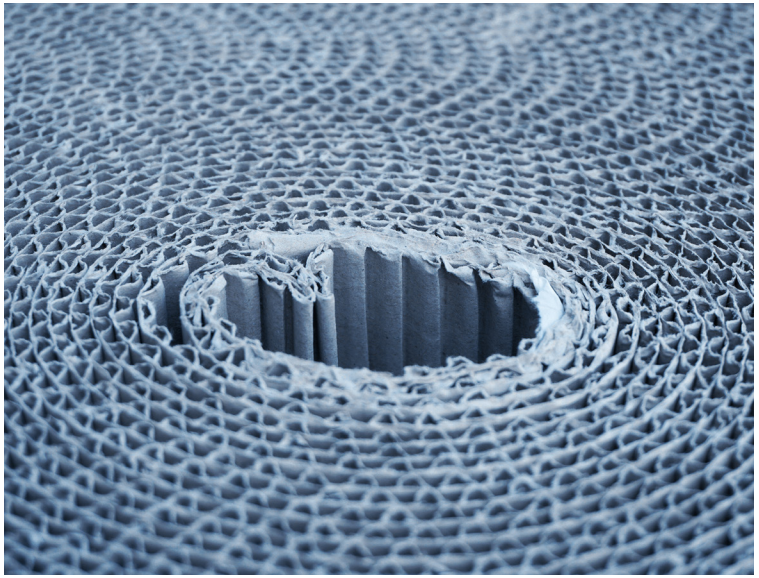
Björn Haase, Höganäs and Catharina Lindgren, Carbomax in front of the new water treatment facility where slag from Höganäs is used for water purification.

Destination non-process waste, tonnes	Domestic waste		General plant waste		Packaging		Total
	Hazardous	Non-hazardous	Hazardous	Non-hazardous	Hazardous	Non-hazardous	
Incineration with energy recovery	-	230	9	-	0	405	644
Incineration without energy recovery	0	1	0	34	-	77	113
Landfill	-	426	-	28	-	9	463
Other disposal or destruction	5	80	-	-	1	-	86
Other recovery operation	-	7	152	960	-	-	1,120
Recycling	-	34	5	136	-	442	617
Total, tonnes	**5**	**779**	**166**	**1,158**	**1**	**934**	**3,043**

Non-process waste is waste that is not related to our production processes, such as plastics, paper, wood, food left-overs from canteens, and residues from maintenance work, and 58% is diverted from disposal. Of the 6% that is classified as hazardous waste the main part in 2021 was oil contaminated sand (141 tonnes) that was sent to recovery.

Non-process waste

In 2021, non-process related waste amounted to 3,000 (13,900) tonnes, or 2 (8) percent of our total waste and side streams. This included general plant waste, domestic waste and waste from packaging materials. We have increased the part of packaging sent for recycling, 47 (31) percent, and decreased the part that is sent to landfill, 1 (4) percent compared to last year. Packaging is 31 percent of our non-process waste. Work is ongoing to map our waste generated from packaging to see what improvements can be made.



Environment

We mitigate the environmental impacts from our production and from the materials and chemicals we use. During the year, we stepped up our work on biodiversity and made improvements regarding water management.

How we work

Our production processes and related activities impact the environment through emissions to air, water discharge, and the use of land and water. Climate impact is one of our most significant environmental aspects, and this is discussed in the “Climate” chapter. Our approach is to avoid negative environmental impacts as much as we can by applying the precautionary principle, using best available technologies, and creating stability in our processes.

All of our production sites have environmental management systems that are third-party certified according to the ISO 14001 standard*.

All large production sites have environmental permits and are subject to authority control. Environmental permits are renewed at intervals so that requirements of environmental protection are updated and relevant. Höganäs adheres to the limitations set out in environmental permits and regard them as minimum requirements for environmental management. There were no breaches of environmental permits, spills or other environmental accidents with significant environmental impact reported during 2021.

In 2021, the Johnstown High Alloy Plant applied for a renewed National Pollution Discharge Elimination System (NPDES) water discharge permit.

To uphold the stability in our production processes and facilities, we have a well-managed loss prevention and risk

**The exceptions are the small mixing station in Korea and Digital Metal, both with limited environmental impact.*

SDG target	Our objectives and what we do
TARGET 6·4 — INCREASE WATER-USE EFFICIENCY AND ENSURE FRESHWATER SUPPLIES	**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.**
TARGET 9·4 — UPGRADE ALL INDUSTRIES AND INFRASTRUCTURES FOR SUSTAINABILITY	**Continuously upgrading and optimising equipment at the local level.** ➡ **See the section on "Environmental impact mitigation" in this chapter.**
TARGET 12·4 — RESPONSIBLE MANAGEMENT OF CHEMICALS AND WASTE	**Resource efficiency and zero waste, responsible sourcing and process safety management.** ➡ **See the "Environmental impact mitigation" and "Emissions to air and water" sections in this chapter and the "Material use" section in the "Products" chapter.**

management system in place. This system is part of our contingency planning and provides instructions for consistent actions according to best practice at all operational sites. All sites have clear organisational responsibilities and procedures, and extensive and regular on-site auditing is conducted by external specialists. The audits shape action plans and drive continual improvements.

Environmental impact mitigation

Stable processes are key to avoiding unplanned production disruptions with increased emission levels, spills, leakages, and other events that could cause harm. Preventive maintenance is essential to ensure process safety and mitigate environmental impact. Daily routine maintenance is conducted by operators and scheduled maintenance by local maintenance teams. Our Loss Prevention Manual is the steering document for the loss prevention and risk management system, which is part of our overall management system.

We conduct comprehensive risk analyses concerning molten metal and reactive chemicals for each individual chemical and piece of equipment used. Chemicals are only used on site after being approved and a regular inventory of chemicals is made as part of our internal audit programme. We have procedures to replace chemicals with less harmful alternatives. Our certified environmental management systems help us work systematically to prevent spills and other accidents.

Minimising negative impact on water, air and soil is an important part of our work to mitigate the environmental impacts of our operations. We monitor discharges and emissions according to local environmental control programmes to ensure we do not exceed environmental permit limits.

Air emissions

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

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 to air, and other substances of concern, depending on the nature of the process. Read more about our GHG 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.

Slag handling, including sorting and transporting to internal landfills, is generally carried out in the open at all slag production sites. Procedures such as watering and road sweeping are used to minimise dust emissions.

Our Local environmental control programmes typically include monitoring emissions such as nitric oxides, sulphur oxides, metals to air, and other substances of concern.

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

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

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.

Lean and sustainability

Lean is a systematic way of working to use time, competence and resources in an efficient and safe way, and to avoid over producing and building up too much stock.

Höganäs is implementing a global approach to lean, which is being integrated throughout the business to drive efficiency, sustainability and safety. Per Ljunggren, Group Lean and Quality Manager, explains what is being done and how lean is driving sustainability.

How long has Höganäs been working with lean?
Höganäs sites around the world have been working with lean initiatives for many years. But since 2018, we have been developing and implementing a global lean concept throughout our business. Our Group management has set the clear objective for us to create a continuous improvement culture to support our sustainable business transformation agenda, and we do this through the implementation of lean.

How is lean related to sustainability?
By continuously improving how we work, we naturally use less resources and improve safety for example, which promotes our sustainability agenda. This might involve improving the capacity of an existing production line, enhancing energy efficiency and reducing waste by avoiding the creation of non-conforming material. It may also make processes safer, which reduces the risk of accidents that can cause. environmental damage from uncontrolled emissions or spills.

How is lean implemented around the world?
We use the lean methodology as a means to achieve our business plan and sustainability objectives by driving efficiency improvements. We are gradually rolling out a lean implementation programme site by site that involves nominating local lean coaches that drive lean methodology training and a culture of continuous improvement. The local sites then identify and implement lean projects throughout their business. As of the end of 2021, we have started lean implementation at ten sites around the world.

Can you tell us about an example of a lean project in 2021?
At our Saitama site in Japan, we optimised our processes to ensure that we send exactly the agreed amount of material to customers. This means that we deliver on our customer expectations while making sure we don't over produce material, which ensures the efficient use of our resources and cost efficiency.

What are your plans for lean in 2022?
We will continue to roll out lean implementation and plan to add another five sites during the year. I also expect lean projects to increasingly contribute to the Höganäs Climate Roadmap around the world as lean implementation will be a valuable tool to drive climate action going forward.


Per Ljunggren

Water use

We monitor our water use in relation to water availability in all locations where we operate to identify and mitigate negative impacts. The largest quantity of water we use is seawater for the cooling of closed systems through heat exchange, and we used 4,370 (3,760) thousand cubic metres during the year. Our use of large quantities of seawater does not have significant environmental impact as the seawater is returned to the ocean in the same state as it was taken.

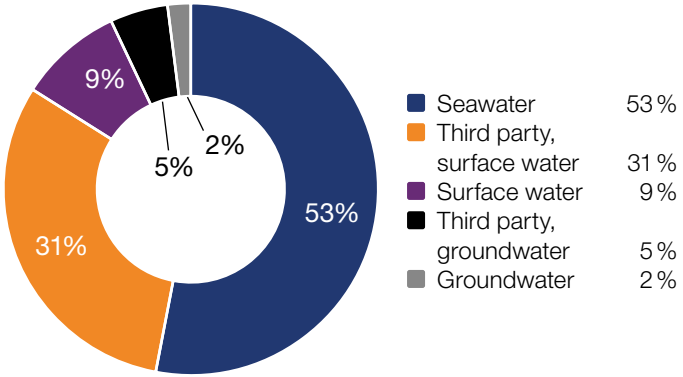
Water is also used in the atomising process where molten steel is atomised into the desired particle sizes in a controlled "water jet" process. The water is treated, cooled and largely recycled within the atomising process. Water for dust binding and slag quenching is evaporated, treated on site or sent to external water treatment plants.

Our production sites are generally located in areas where fresh water supply is plentiful. The exception is our Indian site in Ahmednagar, where seasonal fluctuations cause water stress either in the form of flooding or drought. Measures are being taken to optimise the use of water and store water for use during dry periods.

In Halmstad, following a regional water shortage, focused work to reduce water consumption has been ongoing for three years. During 2021, a study began to investigate the potential to partially replace municipal water supply with industrial wastewater from a neighbouring industrial facility. Potential for significant additional savings in process and cooling water has also been identified and Halmstad is now investing the necessary equipment that will be put into operation during 2022.

During 2021, the wastewater treatment plant in Ath, Belgium was upgraded to meet the upcoming stricter environmental standards set by the European Industry Emissions Directive (IED).

Water withdrawal by source



Water withdrawal, CBM	2021	2020	2019	2018
Total volume of water withdrawn	8,216	6,294	6,865	6,261
- of which Seawater	4,365	3,758	4,140	4,160
- of which Freshwater	3,850	2,535	2,726	2,100
Total water discharges	7.590	5,742	6,233	5,587
Total water consumption	**626**	**552**	**632**	**674**

Water withdrawal has increased by 31 percent due to larger production volumes and more exact water flow measurements in our facility in Stony Creek, US. The effect on our total water consumption was a 13 percent increase.

The aim of the upgrade of the plant was to further reduce discharges of Nickel and Chromium. The upgraded wastewater treatment plant was designed by the Höganäs in-house developed treatment media Cleanit®-EC.

Water discharge

Our site environmental permits stipulate our water discharge requirements. We monitor our discharges of metals to water and measure other substances of concern. Our discharged water is mainly uncontaminated cooling water.

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

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

Wastewater treatment test case with Cleanit®-EC

The Höganäs plant in Belgium produces industrial wastewater that must be treated to reduce environmental impact. As a result of changes in legislation, the team in Belgium evaluated alternatives to the existing wastewater treatment plant and found an optimal solution from within Höganäs.

Cleanit®-EC, a solution developed by Höganäs in the US, was selected and tested at the Belgium plant, and the results have been very positive. The treatment performance of the industrial wastewater was high enough to meet the new legal requirements and exceeded the expectations of the team. All metal concentrations are well below legal specifications following the filtration through the Cleanit®-EC system and concentrations of all metals have decreased at least ten-fold.

Benoît Gobeaux, Quality Control and Environment Manager

Cleanit®-EC systems operate by passing an electrical current across Höganäs' innovative porous metal electrodes that are suspended in the process flow. The use of porous metal electrodes increases the active surface area in the system, which significantly improves process efficiency. The coagulated contaminants form flocculated solids that are then efficiently settled, concentrated, and removed for disposal.

The successful testing period for the Cleanit®-EC system is now been followed by full implementation, and it is anticipated that the technology will be able to reduce the presence of metals in wastewater to almost untraceable levels. This means that the water can be reused in industrial processes or disposed of in a safe and sustainable way.

Biodiversity

Höganäs carried out a pilot study during 2020 and 2021 at the Höganäs site in Sweden, to identify and to better understand our impact on the surrounding eco-systems and how we can strengthen biodiversity in the vicinity of our operational sites.

One example where we have made progress, is the Höganäs site in Ath, Belgium. The site is located near the Ath-Blaton canal where a number of waterways meet. We are a member of the local river committee with the goal to work with other stake-holders to improve water quality. To help achieve this goal, we joined a project to help rejuvenate and recreate aquatic habitats in the watercourse. Habitats have been created both above and below the water to help improve biodiversity and protect local flora and fauna.

Mapping biodiversity and ecosystem services in Sweden

During 2020 and 2021, plants, animals and ecosystem services have been mapped on the Höganäs site in Sweden to guide the team's long-term environmental work.

The approximately 145-hectare site in Höganäs not only includes a manufacturing plant, but also natural environments and a closed landfill site that are home to a wide variety of animals and plants. Using biotope-mapping, areas of concern for biodiversity have been identified and are subject to maintenance and development plans with the aim of protecting and enhancing local habitats.

"Our site is home to a number of rare bird and plant species," explains Frida Lindbladh, Environmental Engineer. "The closed landfill areas in particular are a haven for migrating birds as they are fenced off and largely protected from human disturbance."

Frida Lindbladh, Environmental Engineer Environment & Safety

The Höganäs site includes various natural environments and habitats.

Identifying ecosystem services to guide environmental work

Work is also ongoing to identify ecosystem services, which are positive benefits that natural functions provide to humans. For example, green areas mitigate the release of pollutants and dust by stopping them spreading by wind and water, and natural environments promote mental well-being for employees.

"We have just begun to understand the importance of ecosystem services on our site at Höganäs, but we have a clear purpose – to make sure that the ecosystem services are not depleted by overexploitation," says Lindbladh. "This approach will guide our environmental work in the coming years and will ensure we stay ahead of future legislation to protect the environment."

Some changes to how the Höganäs site is managed have already been made to promote biodiversity and ecosystem services. One example is that the meadows are only cut once plants have finished flowering to ensure they are a source of food for insects. A maintenance plan has been adopted for the green areas on the site that takes seeding, breeding, feeding and migration seasons into consideration with the aim of supporting animal and plant diversity.

Society

We are committed to high ethical standards in everything we do, including our sourcing and responsibility toward the local community and other stakeholders. Our common global standards mean that we go beyond compliance in many of the locations we work in around the world.

How we work

We aim to add value to society by working with our supply chain and responsible sourcing, human rights, and business ethics, and creating societal value. Our societal responsibility is also reflected in our transparency and our non-negotiable compliance with legislation, including our financial and non-financial reporting, our anti-corruption work, our tax payments and our attitude towards external parties dependent on our business.

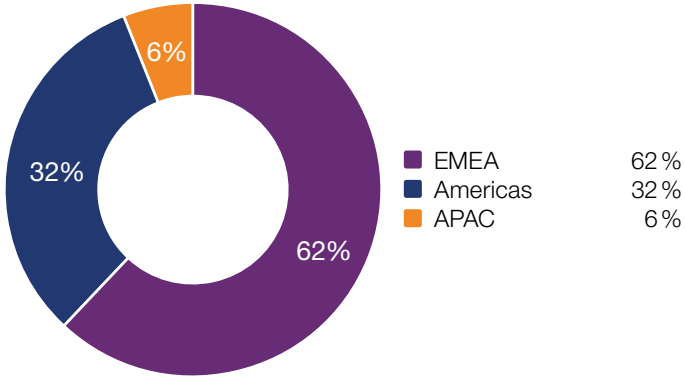
Our supply chain

At the end of 2021, Höganäs Group had 607 (609) suppliers of direct materials and approximately 6,400 (6,300) suppliers of indirect materials, transportation, and other services. We onboarded 44 (12) new suppliers of direct materials and 682 (294) new suppliers of indirect materials and services. Direct material suppliers also increased in 2021 due to previous acquisitions being fully incorporated into the statistics.

Even though we source raw materials globally, we prioritise local or regional suppliers, and more than half of our raw materials are sourced locally within the country of operation. Our total spend on external suppliers in 2021 was 9,111 (6,613) MSEK, 62 (62) percent of which was spent in Europe, 32 (31) percent in the Americas and 6 (8) percent in Asia. Approximately 15 percent of our raw material in spend is sourced through distribution channels or traders.

SDG target	Our objectives and what we do
TARGET 8·7 — END MODERN SLAVERY, TRAFFICKING AND CHILD LABOUR	**Responsible Sourcing Programme.** ➡ See the "Responsible Sourcing" section in this chapter.
TARGET 8·8 — PROTECT LABOUR RIGHTS AND PROMOTE SAFE WORKING ENVIRONMENTS	**Responsible Sourcing Programme.** ➡ See the "Responsible Sourcing" section in this chapter.
TARGET 12·6 — ENCOURAGE COMPANIES TO ADOPT SUSTAINABLE PRACTICES AND SUSTAINABILITY REPORTING	**Responsible Sourcing Programme.** ➡ See the "Responsible Sourcing" section in this chapter.
TARGET 16·4 — COMBAT ORGANIZED CRIME AND ILLICIT FINANCIAL AND ARMS FLOWS	**Responsible Sourcing Programme.** ➡ See the "Responsible Sourcing" section in this chapter.
TARGET 16·5 — SUBSTANTIALLY REDUCE CORRUPTION AND BRIBERY	**Responsible Sourcing Programme. Other business partners and Höganäs co-workers are covered by internal policies and procedures.** ➡ See the "Responsible Sourcing" and the "Human rights and business ethics within Höganäs" sections in this chapter.

Spend per continent



Responsible Sourcing

As a large part of our social impact takes place in our supply chain and to fully be able to take responsibility, we work together with our suppliers to achieve our sustainability goals through our Responsible Sourcing programme. To ensure compliance towards internationally agreed principles and legal frameworks concerning business ethics, anti-corruption, conflict minerals, and respect for human rights and fair labour standards, as well as environmental precautions, we evaluate risks and opportunities both from a material and a supplier perspective.

Supplier assessments

The supplier perspective is managed by systematically working to improve the sustainability performance of suppliers. We do this by introducing our principles of ethical business behaviour through our steering documents such as the **Responsible sourcing policy** the Conflict **minerals and cobalt policy** and the **Code of Conduct for Suppliers**. These documents in turn are based on internationally agreed principles and relevant legal frameworks*.

** E.g. UN Global Compact and related conventions, OECD Guidelines for Multinational Enterprises, the OECD Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (Annex II); the Dodd-Frank Act, EU's Conflict Minerals Regulation 2017/821. See section 2.2 in Höganäs Conflict Minerals and Cobalt Policy.*

Before on-boarding a new supplier, they are required to respond to our supplier questionnaires to enable us to assess the supplier's compliance with our commitments and policies. The supplier questionnaires are available on an online platform, which facilitates the administration and follow-up of our suppliers' responses.

Our policy is to only approve suppliers that can ensure that they themselves and their suppliers adhere to internationally agreed principles and relevant legal frameworks, and transparently show evidence of compliance when approached to do so.

All our suppliers are contractually bound by our policies and Supplier Code of Conduct and we reserve the right to terminate our contracts with our suppliers if non-compliance is detected.

Risks related to suppliers, including human rights risks, conflict minerals risks and corruption risks, are assessed based on geography, previous performance and the suppliers own self-assessment regarding compliance with our Supplier Code of Conduct and other applicable policies. If risks or non-compliances are detected, the subsequent dialogue with the supplier will determine whether there are opportunities to mitigate risks and/or improve performance, or if there is reason to end the co-operation with the supplier.

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.

Conflict minerals

Conflict minerals are natural resources extracted in a conflict zone where armed groups sell the minerals to finance continued conflict. We refer to our "Conflict minerals and cobalt policy" published on our website for more detailed information regarding our management system obligations, compliance organisation and contractual obligations in relation to suppliers.

Our Responsible Sourcing Programme includes a governance structure and a compliance organisation, with clearly defined roles and responsibilities, as well as procedures for escalation to senior management.

Lowering material footprints

The materials perspective is managed by making assessments of, and identifying the risks connected to the properties of each material, such as if the material is a hazardous substance or if it has a high carbon footprint.

We have also identified intrinsic risks from the extraction of certain ores and minerals related to high-risk areas such as artisanal mining and conflict minerals and these are continuously and systematically monitored and addressed accordingly. In response to new EU regulations on conflict minerals in effect from January 2021, Höganäs published a new policy and successfully implemented new tools and procedures to ensure compliance (see the Supplier Assessments section). Other identified risk areas are upstream GHG emissions and labour-related human rights infringements.

As part of our long-term commitment to reach net-zero emissions in our supply chain, we have intensified our focus on the indirect greenhouse gas emissions related to our raw materials

(scope 3). During 2021, the entire Höganäs purchasing organisation participated in training sessions and workshops to understand how we can reduce our scope 3 emissions from raw materials.

As part of our near-term 30 percent scope 3 emission reduction target related to raw materials, aligned with science-based targets, we are now increasing our efforts to replace high-carbon materials with low-carbon equivalents. We will intensify our dialogue with suppliers to understand their ambitions to become climate neutral and to find new ways to co-operate.

Responsible Sourcing Programme - Results during 2021

Our objective is to communicate our Supplier Code of Conduct to all our suppliers of direct materials and to suppliers of indirect materials and services that are identified as having impact. The ambition is that all suppliers shall comply with our standards. Suppliers comply either by signing and guaranteeing adherence to Höganäs Group's Supplier Code of Conduct and other applicable policies, or by answering an in-depth self-assessment covering our requirements, or by presenting their own Code of Conduct that fulfils the same criteria.

New suppliers are required to fill out a standardised questionnaire as part of the on-boarding process. The questionnaire covers their governance and performance within sustainability, including environmental and social assessments, as well as quality related issues. For suppliers that deliver materials included in the scope of conflict minerals legislation or cobalt, separate questionnaires and due diligence procedures apply. We evaluate existing suppliers regularly with the same methodology.

During 2021, we communicated our Supplier Code of Conduct, including our anti-corruption policies to 66 (387) suppliers of direct materials and to 159 (133) suppliers of indirect materials and services. No audits were carried out during the period due to the ongoing covid restrictions, but 37 new suppliers and 44 direct material suppliers were evaluated according to our Code of Conduct.

We have a target that 100 percent of our around 300 key suppliers shall be rated as "good" or "excellent", and in 2021, 80 percent of our suppliers achieved this status.

In 2021, we had six cases of insufficient supplier responsiveness, where suppliers failed to respond to our request for a self-assessment, performed poorly in an assessment or failed to show willingness to improve. All six cases were closed following in-depth dialogue with the supplier, and we could continue the business relations.

Incidents, non-compliance and increased risks concerning, for example, anti-corruption, conflict minerals or other human rights issues, such as for example child labour, forced labour or freedom of association, are reported through our Group-wide reporting system, Speak-Up. This system is also available to suppliers for reporting of incidents or grievances. During 2021, there were three new cases and one reopened from 2020. Allegations were mainly linked to questioning appropriate leadership. There were no consequences for individual employees. Follow up interviews and actions with local management and HR were made and two cases were closed and one remained open as of the end of 2021.

Conflict minerals legislation is applicable to 37 of our direct suppliers and we so far made a due diligence investigation towards the requirements on all 21 of our suppliers in EMEA. As we have chosen to apply the same standards in the Americas and APAC we will work to achieve a 100 percent response rate in 2022.

To minimise the risks of contributing to negative impacts associated with the sourcing of metals from conflict-affected and high-risk areas, we strive to only engage suppliers that can guarantee and prove that the metals we intend to procure originate from responsible smelters and refiners which have in place adequate due diligence procedures.

Such smelters and refiners should be listed as responsible by the EU Commission or by the Responsible Minerals Initiative or at least have had their due diligence practices audited against an audit standard aligned with the OECD Guidance. This year, all smelters in our direct suppliers' value chain are audited and approved according to the Responsible Mining Initiative and/or Responsible Global Smelter Refiners by the EU Commission.

Out of the 21 suppliers that were assessed for conflict minerals, seven suppliers provide 100 percent recycled materials (scrap metal). Suppliers that only deliver recycled materials must provide the necessary certificates or the material is subject to further controls and visual checks to ensure that all materials are only derived from recycled or scrap sources. Ten of the suppliers received red flags after answering the questionnaire, including seven scrap suppliers and three metal suppliers. These cases were reviewed in detail and it was found that all metals sourced came from certified sources approved by the Responsible Minerals Initiative (RMI). Red flags were lowered to orange and we will continue to monitor them in order to identify and assess any risks. Had there been any remaining concerns, the matter would have been escalated to senior management in accordance with the procedure described in our Conflict Minerals and Cobalt Policy and the supplier would have been suspended or we would discontinue our business with such supplier.

No supplier audits were carried out during 2021 due to the pandemic.

Human rights and business ethics within Höganäs

Our respect for human rights principles is reflected in our own behaviour internally and in our sphere of influence, as expressed in our Code of Conduct, which includes commitments to local society, our own operations and our business partners. Höganäs has always been committed to high ethical standards in all business relations. Our Code of Conduct expresses our stance against all forms of corruption and unethical business behaviour.

In total, we have 27 active contracts with agents, i.e. representatives acting on behalf of Höganäs, covering activities in 37 countries, including many long-term contracts. We signed three new contracts in 2021. In order to minimise risks, an audit of integrity is conducted with all agents exposed to bribery or other corruption risks before any contract is signed and the audit is expanded if necessary. Besides the requirement to comply with applicable anti-bribery laws and Höganäs' policy, agreements with agents also include permission for us to request an audit of the agent's financial records by an independent auditor to verify compliance.

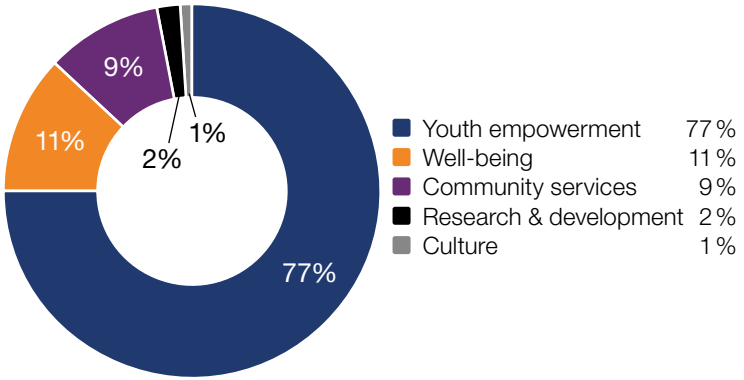
Reported non-conformities towards the Höganäs Code of Conduct in 2021

There were no open cases at year-end 2021. During 2021, three new cases were reported through our whistleblowing system, and one case was reopened from the previous year. All cases concerned inappropriate leadership.

All cases were followed up and investigated with certain actions/improvements implemented. Three cases were handled according to procedures and are now closed, and one case remained open at year end 2021. There were no consequences for individual employees.

In 2021, there were no reported claims or incidents concerning corruption nor concerning product health and safety, labelling or marketing, loss of customer data or other non-compliances in the social and economic area.

Community contributions



In 2021, voluntary contributions amounted to more than 2 million SEK. 77 percent of our community contributions and voluntary donations were directed towards youth empowerment.

Key monetary figures, MSEK	2021	2020	2019	2018
Turnover	10,527	8,645	10,343	10,361
Supply chain	8,075	6,613	8,177	7,753
Tax payments	226	206	210	175
Salaries, other benefits and social security expenses	1935	1,832	1,934	1,810
Investments excluding acquisitions	339	351	701	671
Equity	10,476	9,886	9,806	9,046
Net debt	**4,181**	**4,033**	**5,300**	**6,235**

Creating societal value

Besides the added value generated by our products when they are used, we create value and contribute to society through taxes and salaries paid to our employees. We always strive to ensure compliance with transparency requirements, and we do our utmost to avoid transactions or arrangements that may be considered tax evasion. In 2021, we paid 226 (206) MSEK in taxes globally. Our salaries and social security expenses amounted to 1935 (1832) MSEK during the year.

Local contributions

In line with our global commitment, we have developed a Group framework for community engagement and donations. We have a Sponsorships and Donations policy that states that our local sites can make donations that support our sustainability agenda. The policy provides a transparent and consistent process for the escalation and approval of donations throughout the Group to ensure that all funds are used ethically and according to the intended purpose.

Around 75 percent of our voluntary contributions support the development of youth and children through scholarships and other initiatives to promote education and children's rights. The remaining 25 percent of the contributions includes support to organisations to help vulnerable groups in society, promote well-being and healthy lifestyles, and to improve access to culture and leisure activities.

Supporting community irrigation and tree planting in India

Höganäs has helped the community of Waghluj in western India to repair their irrigation pond and plant thousands of fruit trees. These investments aim to promote food security and local livelihoods.

Securing community irrigation

The Waghluj rural farming community is dependent on an irrigation pond that was built in 1972 and was in need of repair. Höganäs has long-term engagement with the community and donated the funds needed to repair the leaking pond in 2021.

Fruit tree planting – an investment for the future

After discussions with village leaders and 60 local farmers, Höganäs donated around 2,400 mango and other fruit trees to the community, with each farmer receiving 40 saplings. The farmers planted the trees on their land and are tending to them with the ambition to sell the fruit at local markets in the future. Other fruit trees were planted on communal land as a community resource.

"We have established a long-term collaboration with the Waghluj community as the area is particularly drought prone and the average household income is far below the regional average," explains Sharad Magar, Manufacturing Director at Höganäs India. "By repairing the irrigation pond, we were then able to plant thousands of trees on barren land that will benefit the community for many years to come."

Community engagement and grievances

We have a responsibility to maintain an active and transparent dialogue where we inform the community about our activities and listen to their opinions in all locations where we operate. We welcome spontaneous feedback from our neighbours and all sites have communication and grievance mechanisms. Contact details are available on our website and local representatives respond to questions and complaints.

We also provide the opportunity to anonymously report incidents through SpeakUp, which is a tool on our website that is also available to external stakeholders, such as neighbours, suppliers and customers.

During 2021, we had two complaints from neighbours to our plant in Höganäs, Sweden, regarding noise and dust. Both cases were investigated according to procedures and are now closed.

We communicate news and changes via our website and through social media, which are effective external communication channels. During 2021, interaction with members of community were to a large extent limited due to the restrictions related to the pandemic.

Höganäs India donates to local communities during the pandemic

With the deadly second wave of the coronavirus pandemic sweeping through India in May 2021, Höganäs decided to help by providing local medical facilities in Ahmednagar, western India, with the resources they were urgently lacking to treat patients.

Supporting local healthcare facilities

Three ventilators were provided to a public hospital that was in urgent need of equipment to treat coronavirus patients. The hospital is a “free for all hospital” run by the government that serves people with limited means to pay for hospital care.

Höganäs donated 60 hospital beds to a local medical station that was experiencing a bed shortage. In addition, a rural NGO hospital was supplied with an oxygen generator that eliminated their dependence on external oxygen suppliers.

“We were happy to contribute to easing some of the critical resource shortages that the local healthcare facilities faced during the second wave of the pandemic,” says Sunil Muralidharan, Country Head at Höganäs in India. “We make such donations to urgent causes every year as part of our long-term Corporate Social Responsibility work in India.”

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)

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

COMMUNICATION ON PROGRESS

UN GLOBAL COMPACT

This is our **Communication on Progress** in implementing the Ten Principles of the **United Nations Global Compact** and supporting broader UN goals.

We welcome feedback on its contents.

Appendix

About this report

This report presents the sustainability performance of Höganäs Holding AB (Höganäs Group) in 2021. 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 report has been prepared in accordance with the GRI Standards: Core option and in accordance with the Swedish regulation (Årsredovisningslag) regarding the disclosure of non-financial information. This report also serves as our annual Communication on Progress report in accordance with our commitment to the UN Global Compact.

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.

The data presented includes all companies within the Group, i.e. Höganäs AB, with its headquarters located in Höganäs, Sweden, and its subsidiaries. Any exceptions are commented on. Management approach, boundaries, omissions and additional explanations are found in connection to each topic.

No significant changes to organisation nor the supply chain were made during the reporting period. There are no significant changes in reporting content.

A restatement on historical figures 2018-2020 has been made regarding carbon dioxide emissions. The restatement is found in the Climate chapter on **page 27**, and further details can be found in Methodology for Greenhouse gas emission calculations.

The report has been approved by the Höganäs Board of Directors and has not been subject to external assurance. The previous report was published on April 15, 2021, and the reporting is annual.

The list of entities included in the consolidated financial statements is found in the Höganäs Holding AB's Annual Report 2021. Any exceptions are commented on. The production facility in Niagara Falls was closed from November 1 in the reporting period. All figures reported for the year includes Niagara Falls to that date.

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 and Scope 2 for 2021. This was performed by KPMG, see appendix **Auditor's limited assurance statement on Höganäs Holding AB's climate footprint Scope 1 and Scope 2.**

Queries

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

Methodology for Greenhouse gas emission calculations

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

The emissions in this report are for the full year of 2021. The base year for reduction targets is 2018. The emissions for 2018-2020 have been revised as data quality has improved, in order to be comparable with the calculations for 2021. Only carbon dioxide (CO_2) emissions are reported in scope 1. Based on estimations, the gases CH_4 and N_2O, HFCs, PFCs, SF_6 and NF_3 are considered insignificant, and therefore excluded. They are included in scope 2, and expressed as CO_2e.

Scope 1 and 2 are calculated according to the GHG Protocol – Corporate Accounting and Reporting Standard[1)]. Scope 3 will be disclosed in the report for 2022.

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/fjarrvarm-estatistik/miljovardering-av-fjarrvarme/

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.
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.
Biogenic CO_2 emissions	
Emissions from the use of biobased fuels and materials	Biogenic CO_2 emissions, mainly the use of biogas. Calculated based consumption. Emission factors are local or default emission factors from ENS (the Danish Energy Agency).

Reporting categories	Calculation method and emission factors used
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.
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)[2)].

GRI index

GRI indicator		Reference	Page
GRI 102:	**General Disclosures 2016**		
Organisational profile			
102-1	Name of the organization	**About this report**	69
102-2	Activities, brands, products, and services	**This is Höganäs**	4
102-3	Location of headquarters	**About this report**	69
102-4	Location of operations	**This is Höganäs**	4
102-5	Ownership and legal form	**About this report**	69
102-6	Markets served	**This is Höganäs**	4
102-7	Scale of the organization	**Creating societal value**	65
102-7	Scale of the organization	**Our people**	21
102-8	Information on co-workers and other workers	**Our people**	21
102-9	Supply chain	**Our supply chain**	60
102-10	Significant changes to the organization and its supply chain	**About this report**	69
102-11	Precautionary Principle or approach	**Environment (How we work)**	51
102-12	External initiatives	**Stakeholder dialogue**	16
102-13	Membership of associations	**Industry memberships of importance for our business**	68
Strategy			
102-14	Statement from senior decision-maker	**CEO statement**	7
102-15	Key impacts, risks and opportunities	**CEO statement, Strategy**	7, 13
Ethics and integrity			
102-16	Values, principles, standards and norms of behaviour	**Our values and principles**	10
Governance			
102-18	Governance	**Governance**	10
Stakeholder engagement			
102-40	List of stakeholder groups	**Stakeholder dialogue**	16
102-41	Collective bargaining agreements	**Labour terms**	20

GRI indicator		Reference	Page
102-42	Identifying and selecting stakeholders	**Stakeholder dialogue**	16
102-43	Approach to stakeholder engagement	**Stakeholder dialogue**	16
102-44	Key topics and concerns raised	**Materiality analysis**	15
Reporting practice			
102-45	Entities included in the consolidated financial statements	**About this report**	69
102-46	Defining report content and topic boundaries	**The Höganäs Sustainability Agenda**	18
102-47	List of material topics	**Materiality analysis**	15
102-48	Restatements of information	**About this report**	69
102-49	Changes in reporting	**About this report**	69
102-50	Reporting period	**About this report**	69
102-51	Date of most recent report	**About this report**	69
102-52	Reporting cycle	**About this report**	69
102-53	Contact point for questions regarding the report	**About this report**	69
102-54	Claims of reporting in accordance with the GRI Standards	**About this report**	69
102-55	GRI content index	**GRI index**	71
102-56	102-56 External assurance	**About this report**	69
GRI 103:	**Management approach 2016**		
103-1	Explanation of the material topic and its Boundary	**About this report**	69
GRI 201:	**Economic performance 2016**		
201-1	Direct economic value generated and distributed	**Creating societal value**	65
GRI 205:	**Anti-corruption 2016**		
205-2	Anti-corruption communication, training	**People development**	25
205-3	Confirmed incidents of corruption and actions taken	**Reported non-conformities towards the Höganäs Code of Conduct in 2021**	64
GRI 301:	**Materials 2016**		
301-1	Materials used by weight or volume	**Materials use**	45
GRI 302:	**Energy 2016**		
302-1	Energy consumption within the organization	**Energy use**	36

** Omitted due to commercial sensitivity*

GRI indicator		Reference	Page
302-3 *	Energy intensity		
GRI 303:	**Water and effluents 2018**		
303-3	Water withdrawal	**Water use**	55
303-4	Water discharge	**Water discharge**	56
303-5	Water consumption	**Water use**	55
GRI 305:	**Emissions 2016**		
305-1	Direct (Scope 1) GHG emissions	**Our carbon footprint**	27
305-2	Energy indirect (Scope 2) GHG emissions	**Our carbon footprint**	27
305-4	GHG emissions intensity		
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	**Air emissions**	53
GRI 306:	**Waste 2020**		
306-1	Waste generation and significant waste-related impacts	**Process residuals, circularity and zero waste, Non-process waste**	46
306-2	Management of significant waste-related impacts	**Process residuals, circularity and zero waste, Non-process waste**	46
306-3	Waste generated	**Process residuals, circularity and zero waste, Non-process waste**	46
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306-5	Waste directed to disposal	**Process residuals, circularity and zero waste, Non-process waste**	46
GRI 307:	**Environmental compliance 2016**		
307-1	Non-compliance with environmental laws and regulations	**Environment – How we work**	51
GRI 308:	**Supplier environmental assessment 2016**		
308-1	New suppliers that were screened using environmental criteria	**Responsible Sourcing Programme – Results during 2021**	61
308-2	Negative environmental impacts in the supply chain and actions taken	**Responsible Sourcing Programme – Results during 2021**	61
GRI 401:	**Employment 2016**		
401-1	New employee hires and employee turnover	**Our people**	21
GRI 403:	**Occupational health and safety 2018**		
403-1	Occupational health and safety management system	**We work safely – or not at all**	22
403-2	Hazard identification, risk assessment and incident investigation	**Health and Safety – towards industry best practice**	22
403-3	Occupational health services	**Promoting health**	23

GRI indicator		Reference	Page
403-4	Worker participation, consultation and communication on occupational health and safety	**People development**	25
403-5	Worker training on occupational health and safety	**Health and Safety – building safety culture**	23
403-6	Promotion of worker health	**Promoting health**	23
403-7	Prevention and mitigation of occupational health and safety impacts	**Health and Safety – towards industry best practice**	22
403-8	Workers covered by an occupational health and safety management system	**We work safely – or not at all**	22
403-9	Work-related injuries	**We work safely – or not at all**	22
403-10	Work-related ill health		
GRI 404:	**Training and education 2016**		
404-1	Average hours of training per year per co-worker	**People development**	25
404-2	Programmes for upgrading employee skills and transition assistance programs	**People development**	25
404-3	Percentage of co-workers receiving regular performance and development reviews	**People development**	25
GRI 405:	**Diversity and equal opportunity 2016**		
405-1	Diversity of governance bodies and co-workers	**Diversity and inclusion**	24
GRI 406:	**Non-discrimination 2016**		
406-1	Incidents of discrimination and corrective actions taken	**Diversity and inclusion**	24
GRI 414:	**Supplier social assessment 2016**		
414-1	New suppliers that were screened using social criteria	**Responsible Sourcing Programme – Results during 2021**	61
414-2	Negative social impacts in the supply chain and actions taken	**Responsible Sourcing Programme – Results during 2021**	61
GRI 416:	**Customer health and safety 2016**		
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	**Reported non-conformities towards the Höganäs Code of Conduct in 2021**	64
GRI 417:	**Marketing and labeling 2016**		

GRI indicator		Reference	Page
417-1	Requirements for product and service information and labeling	**Our products create customer value**	41
417-2	Incidents of non-compliance concerning product and service information and labeling	**Reported non-conformities towards the Höganäs Code of Conduct in 2021**	64
417-3	Incidents of non-compliance concerning marketing communications	**Reported non-conformities towards the Höganäs Code of Conduct in 2021**	64
GRI 418:	**Customer privacy 2016**		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	**Reported non-conformities towards the Höganäs Code of Conduct in 2021**	64
GRI 419:	**Socioeconomic compliance 2016**		
419-1	Non-compliance with laws and regulations in the social and economic area	**Reported non-conformities towards the Höganäs Code of Conduct in 2021**	64

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

To the management of Höganäs Holding AB.

We have undertaken a limited assurance engagement of the consolidated Carbon Footprint from Scope 1 and Scope 2 for the reporting period 2021-01-01 – 2021-12-31 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 2021 on page 29 and 30

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

Höganäs Holding AB is 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 2021-01-01 – 2021-12-31 are not prepared, in all material respects, in accordance with the above stated criteria.

Stockholm, March 15th, 2022

KPMG AB

DocuSigned by:
Camilla Alm-Andersson
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Camilla Alm Andersson
Authorized Public Accountant

Torbjörn Westman
Expert member of FAR