



Sustainability Report 2019



Table of contents

Letter from the CEO	4	Handling of chemicals	22
		Adaptation to climate change	23
About Topsoe		Supply chain	24
Haldor Topsoe at a glance	6	Supplier code of conduct	24
Business model	7	Conflict minerals policy	24
		Chemical compliance	24
Our approach to sustainability		Governance & transparency	26
Key activities	8	Code of conduct	26
Priorities	9	Compliance hotline	26
		Anti-corruption & fair competition	27
Research & innovation	10	Global trade dynamics	27
Scientific leadership & partnerships	10	Third-party assurance & due diligence	27
Topsoe solutions address global challenges	11	Data privacy & protection of information	27
Innovation for making industries more sustainable	12	Crisis management & emergency response	27
How Topsoe's solutions impact the UN Sustainable Development Goals	14	Responsible tax	27
		Donations & community engagement	28
Workplace	16	Stakeholder dialogue	30
Safety	16		
Engagement & well-being	17	Sustainability performance data	31
Employee development	18		
Diversity	18		
Human & labor rights	19		
Production	20		
Air emissions	20		
Energy	21		
Water	21		
Waste	22		

About this report

This Sustainability Report covers activities for the 2019 calendar year for Haldor Topsoe A/S, complementing Topsoe's Annual Report 2019. It also serves as a supplement to our statutory statement on social responsibility and underrepresented gender in accordance with sections 99a and 99b of the Danish Financial Statements Act. Visit www.topsoe.com for previous Annual reports and Sustainability reports and learn more about our company.

Letter from the CEO

2019 was in many ways a very good year for Topsoe. We achieved the best financial results ever. We had the privilege of welcoming a minority shareholder, Temasek. We reached an all-time low in lost time accidents frequency. We made significant progress with new solutions that will be important in the fight against climate change.

I am proud that our strong focus on employee safety continues to bring down the number and the severity of accidents. As part of our vision of zero harm, we cannot accept accidents at the workplace. In 2019, we have expanded our focus on safety to also include health and well-being, to better prevent all kinds of incidents at the workplace.

Increasing employee engagement was another important focus area in 2019. We implemented new and more frequent employee surveys to monitor engagement and well-being, and to be able to respond faster to ideas and issues in the organization. We also worked on strengthening strategy execution and prioritization across the company. We will continue to monitor and take actions to ensure a safe, engaging and motivating workplace.

Strategic focus

Sustainability has been high on our agenda in 2019. We continued our work with the UN Sustainable Development Goals to increase our understanding of how our key solutions impact global challenges. We are working on several non-fossil solutions and research projects within renewable fuels, battery materials, electrification (e.g. power-to-X), bio-to-chemicals, CO production and plastic recycling, among others.

We continued supporting customers in becoming more energy efficient, which is also a way to lower carbon emissions. Having said that, we can also do more ourselves, and in 2020, we will step up our efforts to reduce our own carbon footprint.

Topsoe has an important role to play

Topsoe has been addressing global challenges through innovative chemistry since the company was founded 80 years ago. Looking back at what we have achieved since then, there is much to be proud of. Yet, we also have much to be excited about for the future. Topsoe has an important role to play in making today's industries more energy efficient and less harmful to the environment. At the same time, Topsoe solutions help drive the industrial transition toward more sustainable energy sources for making fuels and chemicals.

We will continue to invest significantly in developing new and more sustainable solutions.

On behalf of the management team, I would like to thank our employees for their hard work, dedication and passion. For speaking up and sharing concerns and expectations for the betterment of our company.

I would like to thank customers and partners for excellent collaboration in the past year.

Finally, I would like to thank the Board of Directors for our very productive teamwork.

Bjerne S. Clausen

President & Chief Executive Officer

“Topsoe has an important role to play in making today's industries more energy efficient and less harmful to the environment. At the same time, Topsoe solutions help drive the industrial transition toward more sustainable energy sources for making fuels and chemicals.”



Haldor Topsoe at a glance

Topsoe is a world leader in high-performance catalysts and proprietary technologies for the chemical and refining industries. Based on cutting-edge research and development, we help our customers achieve optimal performance in all phases from design to daily operations – in the most responsible way. Topsoe is headquartered in Denmark.



1940

Established 1940 by
Dr. Haldor Topsøe



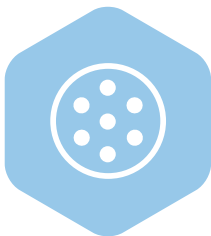
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Present in 15 countries
across 5 continents



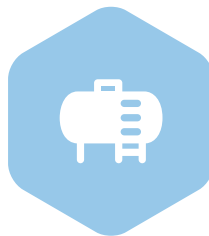
2,238

2,238
employees



150

More than 150
different catalysts



1,000

Over 1,000 Topsoe-
designed units



8%

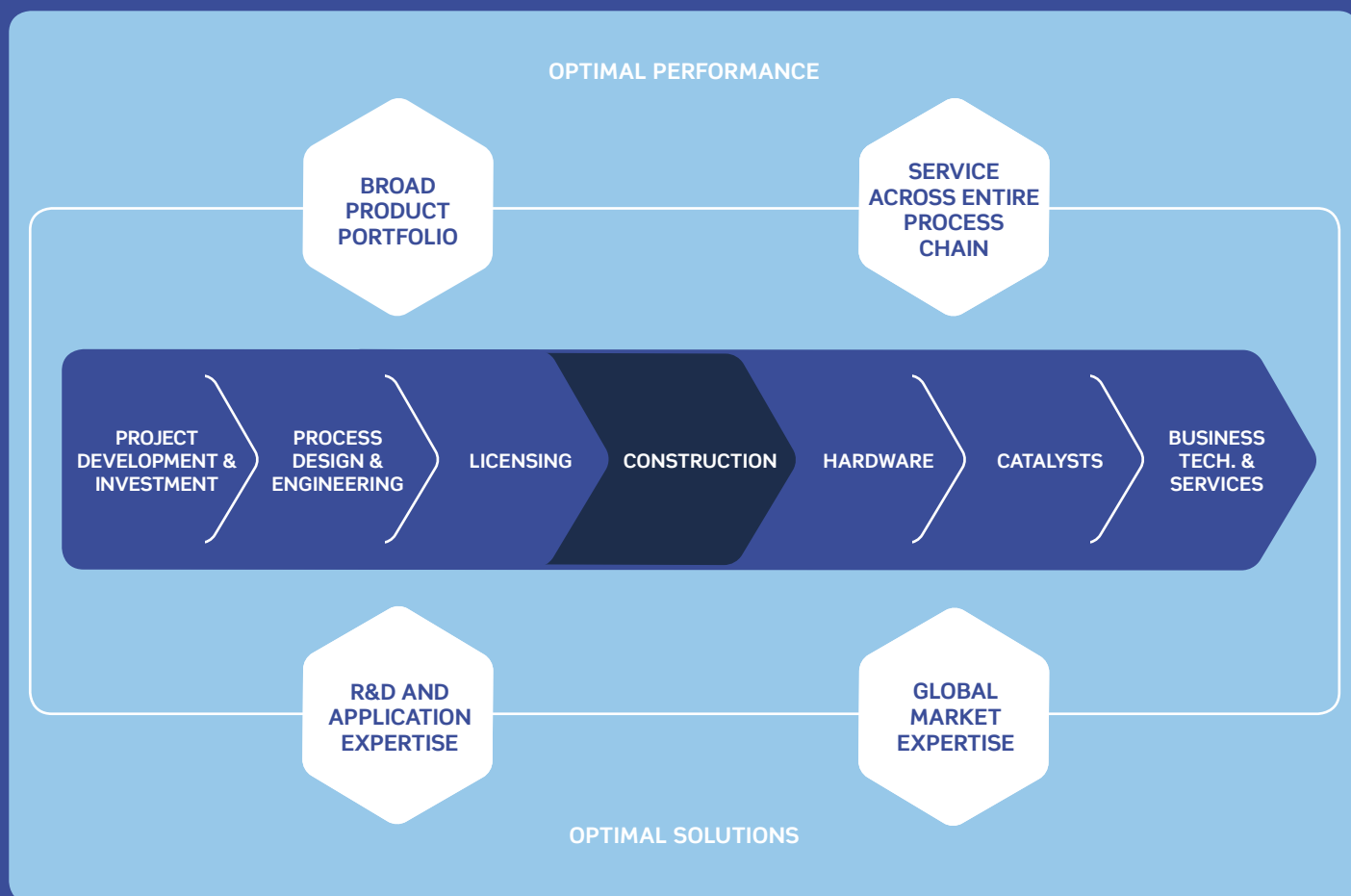
R&D spend is
8% of revenue

Business model

Topsoe has a solution-focused business model covering the full value chain, based on unique chemical engineering competences.

In the early project phases, Topsoe provides project development and investments. As a next step, we supply process design, engineering, and licensing of technologies. For the realization of the project, Topsoe provides proprietary hardware, high-performance catalysts, and services.

Across our business areas, we are at the forefront of developing sustainable technologies.



 TOPSOE OFFERINGS

 CONSTRUCTION SERVICES ARE DELIVERED BY WORLD-CLASS ENGINEERING, PROCUREMENT & CONSTRUCTION COMPANIES (EPC).

Our approach to sustainability

Topsoe continuously strives to create sustainable solutions that make a difference in the world of today – and tomorrow. We are committed to ensuring that our solutions, as well as our conduct, are economically, environmentally and socially sustainable.

Key activities 2019

Transparency & awareness

We published our first stand-alone Sustainability Report, added a sustainability section on our website and optimized our sustainability performance against global benchmarking to meet customers' expectations.

Sustainable Development Goals

We continued our efforts to map and document the impact of our key solutions in the context of the UN Sustainable Development Goals. Read more on page 14.

Employee ideas

Employees have come up with 61 concrete ideas on how to advance Topsoe's sustainability efforts. Some ideas were implemented in 2019, others will inspire future actions.

Research & innovation

An article by Topsoe and others about electrified steam methane reforming solution (eSMR™) was published in Science, and we were honored with the IChemE Oil and Gas Global Award and the Innovation in Materials Characterization Award.

Responsible procurement

We developed and tested a supplier code of conduct, to be implemented in 2020, that will hold suppliers more accountable on sustainability matters. Read more on page 24.

Climate focus

We initiated a global project to intensify our efforts toward significantly reducing Topsoe's own carbon footprint, starting with our production plants. Read more on page 20.



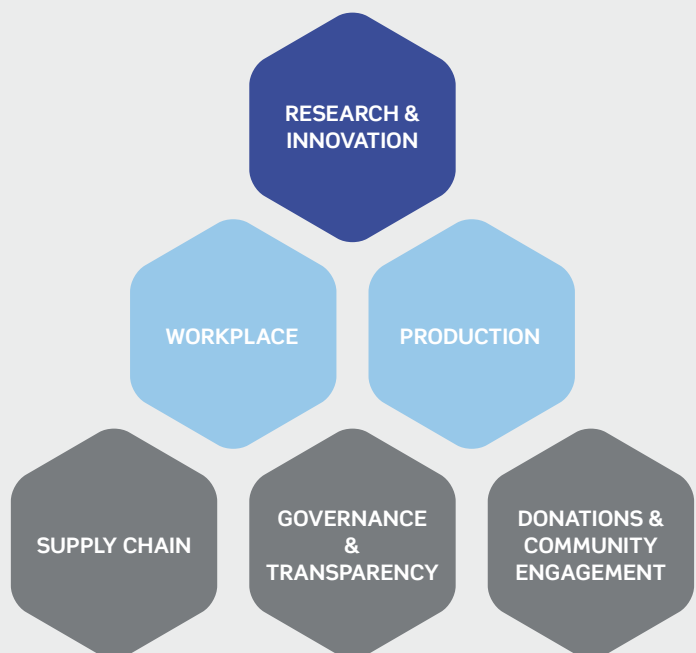
Priorities

In 2019, we reviewed our sustainability priorities and made updates to our Sustainability policy. One new priority, Governance & transparency, was added to ensure visibility and focus on the work done within this category.

Six sustainability priorities - our sustainability framework

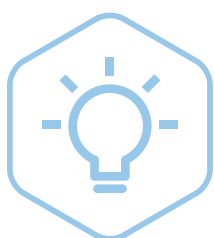
Through our framework, we monitor and drive progress and transparency on environmental, social, and governance efforts across Topsoe's global operations. Progress on each of the priorities during 2019 is described in the following chapters of this report.

Topsoe's sustainability activities are driven by line of business, coordinated by the Corporate Compliance & Sustainability team and overseen by the Compliance & Sustainability Committee. The Committee comprises the CEO, Deputy CEO, CFO, Group Vice President of Global Marketing & Communications and Chief Compliance Officer and is chaired by the Group General Counsel.



Research & innovation

Innovative chemistry has been a key focus for Topsoe since the company was founded in 1940. Today, we are world leading in catalysts and proprietary technologies for the chemical and refining industries.



8%

R&D spend is
8% of revenue

Scientific leadership & partnerships

Topsoe actively contributes to knowledge sharing in the scientific research community through presentations at conferences, participation in panel debates and scientific networks, as well as through articles in scientific publications.

Topsoe collaborates with numerous universities and research institutes globally, and sponsors research projects, chair professorships and PhD student grants. These long-term relationships keep us up to date on frontier research, and we co-develop important areas of interest at universities, thereby also expanding our recruitment pipeline.

One important new research partnership created in 2019 was SOEC4NH₃ (solid oxide electrolysis-based production of ammonia). The project aims at demonstrating ammonia's potential as a sustainable fuel as well as a solution for storing and utilizing renewable energy. Project partners include the University of Aarhus, DTU (Technical University of Denmark), Energinet, Vestas, Equinor and Ørsted Wind Power. The project is financially supported by the Danish Energy Technology Development and Demonstration Program (EUDP).

Topsoe aims at maintaining its position as scientific leader within industrial research. Since 1950, Topsoe has contributed to 1,636 publications, and has an overall Topsoe h-index of 144.

Why is catalysis important?

- A catalytic process converts one chemical component into another. For instance, hydrogen and nitrogen can be made into ammonia that can be used in fertilizer.
- Using a catalyst in a chemical process speeds up the reaction and allows it to take place under less severe conditions, which consumes much less energy. Production yield increases, and resources are saved.
- Catalytic processes are indispensable in industry today – and will also be vital for the utilization of sustainable energy to make chemicals and fuels in the future.
- Catalysis will be essential for using affordable clean energy for sustainable production of plastic, polyester, artificial fertilizer, and countless other products to cover people's needs.

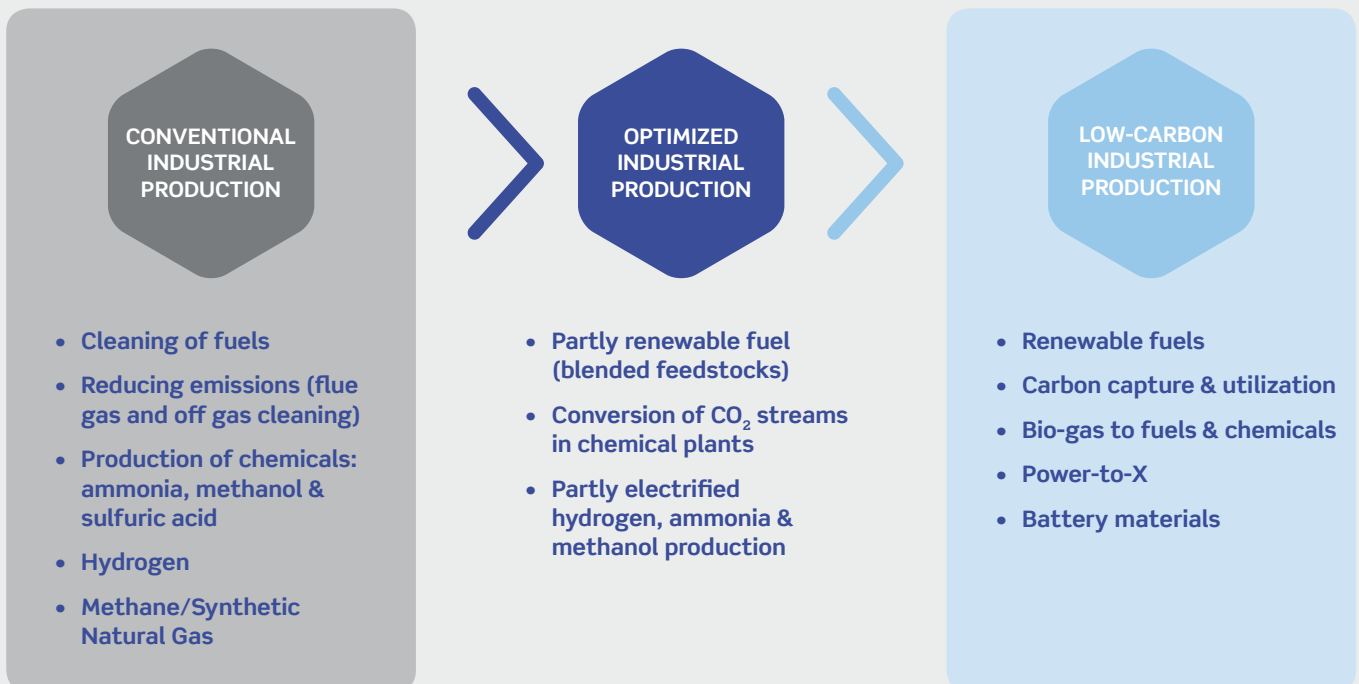


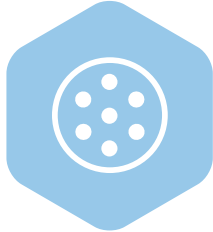


Topsoe solutions address global challenges

Topsoe provides a wide range of solutions that are instrumental in making today's chemical and refining industries more energy efficient and less harmful to the environment. At the same time, Topsoe solutions also enable the gradual transition of industry toward more sustainable energy sources for production of fuels and chemicals.

Topsoe portfolio & pipeline examples





15

new commercialized solutions in 2019

New R&D Center in China

In October 2019, Topsoe, JITRI, and Suzhou Xiangcheng district opened a joint R&D Center to accelerate development of innovative technologies for the Chinese market. The Center will focus on applied research and new technologies for instance within improved battery materials for electric cars.

Innovation for making industries more sustainable

Topsoe proactively strives to apply its unique scientific competencies to create solutions that make a positive difference in the world of today - and tomorrow. We adapt our business focus

to be able to supply solutions that are relevant for climate change initiatives, particularly the need for reducing global carbon emissions, and the global energy system transformation.

Catalytic processes will be essential to the global energy system transformation and emission reduction. Topsoe's world-leading catalytic processes,

Example of electrification and CO₂ utilization

In May 2019, DeLille Oxygen Co. selected Topsoe's eCOs™ technology for onsite production of ultra-high purity carbon monoxide (CO). This is a major step toward increased electrification and sustainability of the chemical industry.

The eCOs™ solution converts CO₂ into valuable CO by solid oxide electrolysis. When powered by renewable electricity, consuming CO₂ and only emitting oxygen, the eCOs™ solution is a carbon-negative technology.





MRS Innovation in Materials Characterization Award

In May, a Topsoe scientist received the prestigious 2019 MRS Innovation in Materials Characterization Award for atomic-scale transmission electron microscopy leading to new insights in catalysis. This award underlines Topsoe's position at the forefront of fundamental catalysis research, which is essential to develop solutions for sustainable production of fuels and chemicals.

catalysts and hardware designs combined with our ability to successfully upscale solutions from laboratory to industrial scale earns us a unique position in supporting the transition of industries toward more sustainable operations.

New technologies must be developed to make alternative energy resources sustainable and commercially viable alternatives to fossil fuels. Topsoe is at the forefront of developing solutions for a future with a more diverse energy supply, pioneering how we can valorize

biomass, CO₂, waste and electricity from non-fossil sources such as wind turbines and solar panels.

Mitigating the negative impact on the environment, climate and human health from a fossil-based industry remains important during the transition toward more utilization of sustainable energy sources. Topsoe will continue to develop and deliver advanced solutions which ensure that fossil resources are used in the most responsible, environmentally friendly and energy-efficient manner possible.



How Topsoe's solutions impact the UN Sustainable Development Goals

Topsoe is making an extensive assessment of how our solutions impact the world's global challenges, in the framework of the UN Sustainable Development Goals (SDGs). We expect to finalize the impact assessment in 2020.

Ammonia solutions



SDG 7
(Energy efficiency)



SDG 2
(Agricultural productivity)

Ammonia is mostly used as a key ingredient in fertilizers, which are a prerequisite for feeding the world's growing population.

Ammonia production is a very energy-intensive process with a significant contribution to the world's total carbon emissions. However, modern ammonia plants consume only half of the energy compared to technologies of the 1950s, and Topsoe has been one of the few companies driving this huge improvement. Thus, Topsoe's solutions within ammonia production alone save an estimated 139 million tons CO₂ every year, equivalent to almost 4 times Denmark's annual CO₂ emissions.

When it comes to optimizing the energy consumption in modern ammonia production, we have reached the state of what is practically possible, as we are close to the theoretical limit. Topsoe is working on solutions that could make it possible to produce ammonia based on water, air and green electricity, which could contribute to reducing the world's dependency on fossil fuels.

Despite its toxicity, ammonia also holds promising potential as an energy carrier, and for wind and solar energy storage as well as a fuel for heavy transportation.



Cleaner fuels



SDG 7
(Renewable energy)

SDG 3
(Reduce air pollution)

Topsoe's hydrotreating processes enable refineries to remove potentially harmful substances from naphta, gasoline, kerosene, diesel, and heavier oil streams like, e.g., vacuum gas oil and marine fuels. These fuels are used in a large range of industries and for transportation.

Fuels hydrotreated with Topsoe technologies emit less SO_x and NO_x (main components in smog) and lower the negative impact on the environment and human health.

In many regions of the world, an increasing volume of fossil fuels is replaced by fuels from alternative sources. The use of these biofuels is expected to grow significantly in the coming years.

Topsoe is at the forefront in this field and has developed HydroFlex™, a technology for production of renewable fuels from a vast variety of bio-feedstocks such as vegetable, tallow oils and waste.

Emissions control



SDG 12
(Responsible production)

SDG 3
(Reduce air pollution)

SDG 14
(Prevent acidification of oceans)

Topsoe's solutions benefit the environment and human health by reducing air emissions caused by industrial production.

Our SNOX™ technology removes SO_x , NO_x and particulates from industrial processes and power generating facilities, and converts it into commercial grade sulfuric acid. This solution eliminates the need to use water and/or major absorbents and thereby reduces landfilling and ocean discharge.

Our wet gas sulfuric acid (WSA) technology removes sulfur dioxide (SO_2) emissions from industrial processes and converts it into commercial grade sulfuric acid. We estimate that this technology globally captured around 425,000 tons of SO_2 in 2019 – equivalent to 41 times Denmark's annual SO_2 emissions.

Workplace

Topsoe is deeply committed to ensuring a safe, healthy, engaging and attractive workplace for its employees.



52%

reduction in
lost time accidents
since 2015

During 2019, we implemented a new global system, TopsoeVoices, for gathering and addressing employee input, expectations and concerns. We expanded our focus on safety to include health and well-being. Finally, we strengthened our health, safety & environmental efforts by establishing a corporate function responsible for coordinating and developing the company's ambitions in these areas.

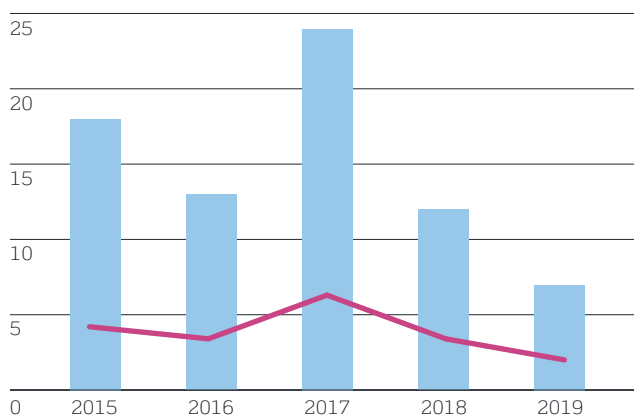
Safety

Dedicated efforts and consistent focus on safety have improved employee safety significantly in Topsoe over the past five years. By the end of 2019, the lost time accident frequency rate

was 2.0 per one million working hours compared to 3.4 in 2018*. A couple of the accidents recorded in 2019 were unfortunately more severe compared to previous years.

Topsoe has a vision of zero harm and a long-term commitment to reducing both the number and the severity of accidents. We do this through continuous training, company-wide targets, safety walk-and-talks between employees and managers, risk assessments and registration of near-misses. Other initiatives in 2019 included a travel security policy, which will be rolled out globally at the beginning of 2020.

Lost time accidents



- Lost time accidents*
- Lost time accidents frequency per one million working hours*

* An incident in 2018 was recategorized to be a lost time accident because it led to lost work time in 2019. Accordingly, the lost time accident frequency for 2018 was adjusted from 3.1 to 3.4, and the number of lost time accidents was adjusted from 11 to 12.



7%

employee turnover
rate in 2019

Our production plant in Frederikssund, Denmark completed its ISO 45001 (former OHSAS 18001) audit in November 2019 with 15 non-conformities of which three were considered major. All actions have been duly handled.

Engagement

TopsoeVoices is a new, global employee survey that focuses on engagement and well-being. It was introduced in May 2019 and showed an employee engagement score of below our target. The high response rate of 90% combined with 2,500 written comments in the survey show that Topsoe employees are very committed, which is also reflected in our low employee turnover rate of 7%. Subsequently, 200 employees participated in discussions of the survey results at eight TopsoeVoices meetings, hosted by the senior leadership team. On that basis, action plans have been developed to be implemented at both corporate and departmental level. A follow-up survey

in January 2020 showed an improved engagement score.

Well-being

Shorter well-being surveys are conducted on a quarterly basis to proactively address well-being issues through short-term actions and quick follow-ups. In the two surveys conducted in August and October 2019, results indicated some progress in the overall well-being score among employees.

To ensure the best conditions for a good working environment, Topsoe also took measures to strengthen strategy execution, decision-making processes and better balancing of priorities and resources. This work continues in 2020.

Other initiatives in 2019 includes the launch of an employee share program, an updated policy for flexible work (Denmark) and an expansion of Topsoe's Employee Assistance Program to include more regional offices.



40%

female representation
in the senior leadership
team

All listed initiatives align with the well-being policy and procedure developed in 2018 to ensure a more proactive, comprehensive, effective, and collaborative approach.

Employee development

At Topsoe, we are committed to the continued development of our employees to ensure that all positions are staffed by competent employees. This is key to the success of the Topsoe strategy, and to ensure that employees thrive and feel motivated in their work and continue to grow in their roles.

Management groups perform annual reviews of their organization, people, roles, development needs, and succession plans. Managers also conduct employee development interviews focused on goals and development areas. A new approach to goal setting and employee development, called TopsoeTalks, with well-being as an important component, will be rolled out across the company at the beginning of 2020.

Diversity

By the end of 2019, the gender split among Topsoe employees was 27% female and 73% male.

Among managers, the split was 22% female and 78% male, unchanged from 2018. Topsoe has set a target of 30% female in management positions with the ambition of mirroring the overall gender split in the company. In the senior leadership team, the split is 40% female and 60% male.

Topsoe - like its peers - is challenged by the fact that women are typically underrepresented in the technology and engineering sectors. Yet, Topsoe seeks to strengthen gender diversity through talent acquisition, awareness initiatives and passionate employee ambassadors promoting gender diversity. To increase and diversify the total talent pipeline, Topsoe is involved in several initiatives that seek to inspire young female students to choose a STEM (Science, Technology, Engineering, Mathematics) career.

Topsoe's diversity policy is available at www.topsoe.com/about/sustainability.

Diversity



2019

Men

Women

	Men	Women
Board of Directors	86%	14%
Senior Leadership Team	60%	40%
Managers	78%	22%
Employees	73%	27%

The composition of Topsoe's Board of Directors was changed following the closing of the agreement with minority shareholder Temasek in July 2019. By end of 2019, the Board had seven members, not counting employee representatives. There is one female (14%) and six male (86%) board members.

The Board has set a target of two female members by the end of 2020. This target has been carefully considered when members have been replaced or added to the Board. However, it has not yet been possible to identify and appoint new female members to the Board. The Board of Directors continues to focus on this target when evaluating its composition, competencies, and future candidates. See the Corporate Governance section of the Topsoe Annual Report 2019 for more details.

Human & labor rights

Topsoe respects international human & labor rights, and we strive to avoid infringing these rights in relation to our employees, business partners or other stakeholders that we impact.

While Topsoe's code of conduct sets the overall standards for our business conduct, our respect for international human and labor rights is addressed in more detail in various company policies and procedures.

Our global policies cover diversity, fair and equal treatment, non-discrimination, health and safety, freedom of association, acceptable working hours, and remuneration.

Our new supplier code of conduct addresses human rights concerns and focuses on labor

standards and health & safety. The same goes for our conflict minerals policy, which covers human rights concerns in conflict areas.

The privacy of individuals is important to us, and we are continually focus on ensuring that our processes comply with privacy regulations applicable to our business. In 2019, we developed a global e-learning course, for launch in 2020, to raise awareness among employees at all our locations and offices.

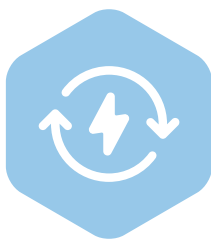
During 2018 and 2019, we carried out our first human rights assessment covering the main areas of Topsoe's value chain. Based on this insight, we plan to update our code of conduct to more explicitly reflect our human rights commitment in 2020.

Topsoe engineers joined the UNLEASH Innovation Lab 2019

Three Topsoe engineers joined the UNLEASH Innovation Lab in China in November. They worked on designing solutions within Responsible Consumption & Production (SDG 12), Affordable & Clean Energy (SDG 7) and Quality Education (SDG 4).

Production

At Topsoe, sustainable production means efficient use of resources, cost effectiveness and reducing carbon footprint, while preserving the natural environment and supporting the well-being of employees.



2,100

single family-houses benefit from excess heat from our production plant in Denmark

The production of catalysts is associated with the use of chemicals, energy and water, and has the potential to affect the environment in many ways. We acknowledge these impacts, and we are committed to limiting them through responsible production in accordance with our global environmental policy.

Topsoe gives high priority to the safe handling of chemicals, control of emissions and the protection of natural resources through resource reduction and waste management at our production plants in Frederikssund, Denmark and Bayport, Texas, US.

Our plant in Frederikssund is certified according to ISO 14001, environmental management. Our plant in Bayport is currently preparing for certification to Responsible Care® 14001. We have on-site Environmental, Health & Safety coordinators at both plants, who monitor environmental progress and compliance.

All certifications are available on www.topsoe.com/about/sustainability/production

In 2019, we received reports of 23 environmental non-conformities in total, of which 21 have been duly handled. Two are being addressed through corrective action plans.

We are currently assessing the impact of our production, mapping existing efforts, aligning definitions and validating available data. We will use these insights to define one global approach, set targets and drive further action to reduce our environmental impact in 2020. Moreover, we seek to streamline monitoring and reporting for increased transparency.

Air emissions

We monitor and report on emission levels in compliance with relevant laws and regulations. In 2019, CO₂ emissions from our production plants amounted to 56,368 tons.

Other relevant air emissions are metal dust, nitrogen oxides (NO_x) and ammonia (NH₃). For the past five years, our plant in Frederikssund has achieved annual reductions in these emissions for every ton of catalyst produced.

Facts about Topsoe production

- Topsoe's largest production plant in Frederikssund, Denmark employs **559 people** and produces around **33,000 tons of catalysts and alumina** and around **35,000 tons of potassium nitrate** annually.
- Topsoe's production plant in Bayport, Texas, US, employs **125 people** and produces around **14,500 tons of catalysts** annually.



Environmental indicators

Topsoe monitors its environmental performance based on the indicators below:

- Energy, fuel and water consumption
- Generation, consumption, handling and disposal of hazardous raw materials, chemicals and waste
- Air emissions such as metal dust, nitrogen oxides (NO_x), carbon dioxide (CO₂) and ammonia (NH₃)
- Generation of waste and discharge of wastewater and surface water*
- Noise levels*

*Only applies to Frederikssund, Denmark

Energy

Topsoe's energy consumption from production plants was 984 TJ in 2019.

In Frederikssund, we have achieved total energy savings of 1,438 MWh through ten optimization projects during 2019. An energy audit of the plant is currently ongoing and expected finalized at the beginning of 2020. We will then evaluate proposed energy savings projects and implement them as feasible.

Excess heat generated by both of our production plants is generally used to provide heating to other processes at the plants. However, in Frederikssund, we also delivered 37,839 MWh of our excess heat to the local district heating plant in 2019, which is enough to heat around 2,100 single-family houses in the Frederikssund area.

Water

Topsoe's water consumption from production plants was 278,442 m³ in 2019.

In general, around 90% of the water used in our production processes in Frederikssund is ground water, not suitable for drinking water.

Where possible, we do our best to reduce wastewater discharge by reusing process water. An example from our alumina production is outlet water which is purified, reconditioned to the desired quality and fed back into the production cycle.

In Frederikssund, Topsoe is working diligently to reduce the discharge of metals into the surface water.

Waste

Topsoe generated 5,883 tons of waste in 2019. Topsoe makes continuous efforts to reduce the volumes of waste, including hazardous waste, both by optimizing production processes and by reusing waste products. With a Right-First-Time mindset, we work to keep production errors to a minimum, and, hence, reduce waste generation.

Our plant in Frederikssund has achieved reductions in hazardous waste over the past five years. In 2019, the plant ran an awareness campaign among employees emphasizing instructions on handling, sorting and recycling of waste in general.

Our plant in Bayport has in 2019 identified ways to reduce waste by recycling off-specification material

and feeding it back into the production process as recycled raw material. This is now standard procedure.

Bayport is also planning for a process upgrade in 2020, involving the installation of a powder transfer system to efficiently convey alumina powder to the operation unit. The new transfer system is expected to lower powder emissions and reduce alumina waste, just as it will eliminate manual handling of the powder and subsequent risk of spills and/or leaks.

Handling of chemical substances

Topsoe imports, manufactures and uses a multitude of chemicals at its production plants, many of which are considered hazardous chemicals and may pose a risk to people and/or the environment, if not handled with care.





In 2019, we had one reportable spill at our production plant in Bayport involving offloading of alumina from a delivery truck. The release was successfully remediated and reported to the appropriate authorities.

Our efforts to prevent spills fall under our global Health, Safety & Environmental governance and procedures.

It is an important priority to ensure that all our operations are fully compliant with chemical and environmental regulations in all jurisdictions where we operate or sell our products. Topsoe continuously monitors global chemical regulations to identify any relevant changes that might affect the company's operations.

In 2019, we increased the transparency on our handling of chemicals by making more information available on our corporate website: www.topsoe.com/about/sustainability/production/chemical-compliance

Adaptation to climate change

Extreme weather conditions and natural disasters can affect Topsoe's operations, particularly in case of damage to our production facilities. We seek to mitigate this risk and strengthen our resilience to weather conditions through various preventive measures and well-trained emergency response teams. In 2019, Topsoe received permission to build a dike to protect our production plant in Frederikssund against flooding from Roskilde Fjord. The dike is expected to be finalized in 2020.

Supply chain

Topsoe operates around the globe and depends on a vast network of trusted suppliers when buying raw materials for catalyst production or for production of proprietary equipment. We pursue a responsible and balanced approach to our supply base that integrates commercial, risk, and quality aspects as well as social, environmental, and ethical responsibility.

To further strengthen Topsoe's responsible procurement approach, we started a development initiative in 2018 focusing on mitigating potential risks and communicating our standards and expectations to employees and suppliers. So far, we have established the following measures:

- an updated procurement policy (2018)
- a stronger focus on supplier dependency (2018)
- a policy on conflict minerals (2019)
- a supplier code of conduct (2019)

In 2020, we will strengthen our supplier assessments by developing a common risk approach across categories and countries. The project will also include a more unified way of monitoring existing suppliers. All activities are overseen by Topsoe's Procurement Committee.

Supplier code of conduct

A code of conduct for Topsoe's suppliers was developed and tested with selected suppliers in 2019. It outlines our expectations to suppliers on human rights and labor standards, health & safety, environment and climate as well as ethics and integrity.

The supplier code of conduct will be progressively implemented in 2020

starting with our suppliers of raw materials and hardware. In case of non-compliance or if a supplier does not agree to the code of conduct, Topsoe will seek to resolve this through dialogue.

Topsoe wants suppliers to be competitive and independent, and for that reason we are conscious about the level of dependency between us and our suppliers. We strive to avoid situations where suppliers become overly dependent on us and vice-versa.

Conflict minerals policy

Topsoe is committed to responsible sourcing of conflict minerals in its supply chain. We have a strong focus on tightening business procedures to ensure compliance with relevant regulations on conflict minerals, mitigate risks and increase transparency across our supply chain.

In 2019, Topsoe introduced and implemented a policy on conflict minerals. Suppliers of raw materials containing potential conflict minerals are now requested to be transparent about their value chain and due diligence approach, declare adherence to business standards for smelters and importers, specifically the Responsible Minerals Initiative, and comply with applicable regulations. Topsoe has found no reason to believe that raw

materials containing conflict minerals purchased in 2019 originate from conflict areas.

Chemical compliance

As an importer and manufacturer of chemical substances, Topsoe is fully committed to applicable regulation, such as REACH, which aims at ensuring a high level of protection for human health and the environment. To ensure ongoing compliance, Topsoe has implemented systems and procedures for validating the registrations of chemicals made by the company's suppliers.



Governance & transparency

Topsoe strives to perform its activities in a compliant, transparent and responsible way. External regulations and business-related expectations are monitored and implemented through the Topsoe code of conduct and related policies, procedures and processes.

Acting responsibly in all aspects of our business is a fundamental element of our values. It serves as the foundation for how we do business in a complex, international business environment with cultural, political, and legal challenges. We lead our company based on good governance practices and have implemented business structures to ensure that our customers, owners, and business partners can always trust us. We reinforce this with compliance training for all employees.

During 2019, we conducted an updated compliance risk assessment. Conclusions were in line with results from previous assessments, however, updates of the code of conduct were suggested, which we will look into in 2020.

Responsibility for ensuring compliance with relevant requirements is assigned to senior management representatives. Internal assessments are conducted and reported annually. Topsoe's Compliance & Sustainability Committee oversees the portfolio of critical requirements and related risks, with regular reporting to the Board of Directors and the Audit Committee.

Code of conduct

Topsoe's code of conduct and underlying policies put our values

into action and set standards for our behavior by outlining the requirements and regulations that employees must comply with in their daily work. Our code of conduct has been implemented throughout the organization, through e-learning, policies and processes relating to anti-corruption, anti-money laundering, economic sanctions, competition law, health & safety, and other compliance issues.

Topsoe employees receive code of conduct training as part of our global compliance and sustainability e-learning course. The training includes modules on anti-corruption (hospitality, gifts and entertainment), confidentiality, and conflicts of interest. In 2019, additional e-learning courses have been developed, and they will be implemented in 2020. By the end of 2019, 77% of employees had completed their training (our target is 90%).

Compliance hotline

Topsoe's global compliance hotline (whistleblower solution) provides employees and other stakeholders with a channel for reporting concerns of unethical or unlawful behavior, also anonymously if desired.

Generally and historically, internal concerns are reported openly and

directly to colleagues responsible for the relevant areas, rather than through the hotline.

Hotline reports are handled by the Chief Compliance Officer and the Group General Counsel and managed according to complexity and severity as described in our compliance investigation procedure. Status on hotline reports is reported to the Audit Committee every quarter.

The compliance hotline is available on www.topsoe.com/Compliance-Hotline

Anti-corruption & fair competition

Topsoe is committed to always working against any kind of corruption. We have policies in place for giving and receiving hospitality, gifts, and entertainment, and we have third-party assurance and due diligence processes in place to support the continuing lawful conduct of our business and operations. With the implementation of our supplier code of conduct in 2020, we will further emphasize our standpoint on zero corruption and other business-critical requirements toward our suppliers.

Topsoe employees are trained in anti-corruption and anti-bribery as part of our mandatory e-learning course to help them identify and withstand

corruptive behavior. Additionally, in 2019, we conducted face-to-face training for a selected group of business partners.

Competition law was another focus area in 2019, where the Global Legal function led a cross-organizational analysis and review of existing structures for optimization purposes. On this basis, a new e-learning module and a revised policy will be launched in 2020.

Global trade dynamics

Economic sanctions have continued to impact global trade during the year. On a few occasions, mitigating actions have been necessary, in order to adjust operations to the e.g. US - CN trade war, and successfully reduce business impacts.

Topsoe continuously monitors and adjusts its compliance program in accordance with applicable EU, US, and UN regulations with special focus on export licenses for dual-use items and restrictions or prohibitions on commercial dealings with sanctioned countries and parties.

Through cross-organizational efforts, we reassessed our product portfolio against applicable EU export control regulations during 2019. Topsoe has a small portfolio of products that are subject to EU dual-use regulations, and the company collaborates with suppliers to ensure correct exports at all times.

Third-party assurance & due diligence

In September 2019, we updated our global third party assurance policy and processes to include intermediaries to authorities and contract/toll manufacturing organizations. To minimize the risks that may occur in

the collaboration with third parties, we perform compliance due diligence and reputational risk assessments of third parties. This includes checking third parties against economic sanctions, as well as analyzing potential unlawful behavior ranging from human rights violations over corruption to tax evasion.

Data privacy & protection of information

The privacy of individuals is important to us, and we are continuously adapting our processes to comply with privacy regulations that apply to our business. After thorough preparations ahead of the EU GDPR deadline in May 2018, we have re-assessed our efforts and worked on optimizing our global communication and training on personal data protection. In 2019, we developed a global e-learning course, for launch in 2020, to raise awareness at all our locations and offices.

Crisis management & emergency response system

Our crisis management and emergency response systems are constructed to be very flexible and applicable to any kind of crisis, accident or disaster. The aim is to limit the impact on people, the environment, and other assets as well as the company's reputation and external stakeholders.

In September 2019, Topsoe participated in a national crisis management exercise organized by the Danish government to test and evaluate the company's set-up and procedures under realistic settings. Based on the information obtained from this exercise, we put forth efforts to strengthen communication and coordination between our Emergency Response Teams, Regional Emergency Management Teams and our Global Crisis Management Team.

Responsible tax

Topsoe is committed to contributing to the further development of the communities in which the company operates. A responsible tax approach is an integral part of that. In 2019, Topsoe paid globally DKK 222 million in tax, of which DKK 72 million is related to residual tax for 2018. We expect to have a residual tax of DKK 11 million for 2019.

Topsoe's tax policy, updated in September 2019, applies to all group companies and is approved by the Board of Directors.

Topsoe has a responsible, transparent and consistent approach to all tax matters. We always do our utmost to comply with tax legislation in the countries in which we operate, by following both the letter and the intention of the law. We pay taxes where value is created, and we do not use contrived or abnormal tax structures that are intended for tax avoidance, have no commercial substance, or do not meet the spirit of local or international tax law. Topsoe does not use tax havens, where the business activities are elsewhere, in order to gain tax benefits.

Topsoe makes best efforts to secure that the tax position in the Group reflects the business reality of the transaction. We submit country-by-country reporting and transfer pricing documentation in accordance with the laws in the countries where we are present.

Our tax policy is available on www.topsoe.com/about/corporate-governance

Donations & Community engagement

Topsoe engages in and contributes to the communities in which the company operates by establishing long-term relationships, providing donations, and exploring opportunities for participating in local education and development programs. Such involvement with society has always been a core company value.

In 2019, Topsoe employees were involved in almost 100 different projects or activities around the globe focusing on improving living conditions and enabling access to education for

children and adolescents, who, in this context, often are underprivileged and vulnerable.

In 2019, the Haldor Topsoe A/S Board of Directors decided that the Donation Committee setup should be revised. In 2020, we will re-organize the Committee setup, onboard colleagues for the global work and revitalize the strategy for Topsoe's continued commitment to helping and supporting children in some of the communities in which the company operates.

Topsoe's Donation Committee was established in 2013, shortly after Dr. Haldor Topsøe's passing, and it was decided that 0.1 % of the company's revenue should annually be allocated to charity. Since then, the Committee, comprising a member from the Board of Directors of Haldor Topsoe A/S, the Topsøe family, and management representatives from Topsoe, has set a strong standard for local community development, with Sundarbans in India being one example.

Examples of Topsoe donations and development projects

United States

Sponsor at charity events in support of children in need, better healthcare, education and local community development.

Denmark

Sponsored activities within natural science, cultural activities, sports, and general charity in the local community.

Russia

Support for education for talented children in the Tula region and support of PhD students through the Topsoe Scholarship Program.

Argentina

Support for child care centers in Mendoza among others. Support for organizations that help improve living conditions and provide access to education for children in vulnerable life situations.

Uganda

Support for Street Child Care in Uganda, benefitting more than 200 children.

India

Support for education of more than 900 underprivileged children in Delhi and Sundarbans.



Denmark

LIFE project

Topsoe joined the LIFE (Learning, Ideas, Fascination, and Experiments) initiative in 2017.

LIFE is a Danish non-profit learning initiative that aims to strengthen scientific competencies and increase interest in STEM (Science, Technology, Engineering, and Mathematics) subjects among children and adolescents in Denmark. In 2020, the LIFE mobile lab will start its tour around Denmark to visit Danish schools and engage students, and in 2021 LIFE will open a learning centre in Lyngby. The LIFE initiative is supported by the Novo Nordisk Foundation in partnership with Topsoe, Novozymes and Novo Nordisk among others.

India

Support of school for underprivileged children

Since 2011, Topsoe has annually supported more than 450 children from the Sundarbans region in West Bengal in gaining access to quality education. This is done through a partnership with the Danish NGO, IGF Denmark.

Over the years, Topsoe has supported the building of a school, establishment of a community kitchen for the students, and erection of boys' and girls' hostels for boarding school students.

In 2019, Topsoe supported the school in establishing a more stable supply of electricity and expanding the schools' dormitory so that even more children can gain access to quality education.





Russia
PhD students

Topsoe has supported more than 120 young, talented scientists through the Topsoe PhD scholarship program since 1995. Currently, 8 male and 5 female students are enrolled in the program.

Stakeholder dialogue

At Topsoe, we understand how everything we do can affect human health and the environment, and therefore we strive to openly communicate about our activities in a constructive dialogue with authorities, neighbors, and other stakeholders.

Topsoe acts as an advisor to the Danish government on several platforms. Since 2018, Topsoe has contributed to the ongoing development of STEM (Science, Technology, Engineering, and Mathematics) education through our participation in TeknologipagtRådet.

In 2019, Topsoe was invited to participate in four climate panels, established by the Danish government, focusing on solving the climate challenge and defining pathways to meeting Denmark’s ambition of

reducing national CO₂ emissions by 70% in 2030. Topsoe contributes to the climate panels focusing on 1) Energy and utilities, 2) Waste, water and circular economy, 3) Marine transport and 4) Energy-intensive industry.

In countries where we have manufacturing, we have an ongoing dialogue with environmental and other supervisory authorities, for instance the Danish and US Environmental Protection Agencies.

Our production plant in Frederikssund, Denmark, is located adjacent to a residential area. Topsoe proactively engages in regular dialogue with its neighbors. In 2019, we invited neighbors for a dialogue meeting where we gave a presentation of the company and neighbors were able to ask questions and address potential issues or concerns. In general, we receive very

few substantiated complaints every year and take great pride in nurturing the relationship with our neighbors.

At Bayport, our production plant is located in an industrial area. However, it is still important for Topsoe to contribute to the local community, and we do so through active participation in the Local Chambers of Commerce, East Harris County Manufacturers Association (EHCMA), Houston Ship Channel Security District, Association of Bayport Companies (ABC), Channel Industries Mutual Aid (CIMA), Local Emergency Planning Committee (LEPC) and Bay Area Community Advisory Panel (BAYCAP) which include other member manufacturing facilities and representatives from the area neighborhoods, school systems and members of the regulatory community as well.

Sustainability performance data

	2019	2018	2017
Research & innovation			
R&D spend (% of revenue)	8.0	9.0	9.4
New commercialized solutions	15	14	26
Issued patents per year	323	294	279
Workplace			
Number of employees (yearly average)	2,238	2,246	2,527
Employee turnover (%)	7	-	-
Lost time accidents*	7	12	24
Lost time accident frequency per one million working hours*	2.0	3.4	6.3
Fatalities	0	0	0
Gender – employees – male/female (%)	73/27	72/28	72/28
Gender – senior leadership team – male/female (%)	60/40	-	-
Gender – managers – male/female (%)	78/22	78/22	78/22
Gender – Board of Directors – male/female (%)	86/14	83/17	86/14
Production			
Energy consumption (TJ)	984	-	-
Water consumption (m ³)	278,442	-	-
CO ₂ emissions from production plants (tons)	56,368	-	-
Waste (tons)	5,883	-	-
Spills (major)	1	-	-
Environmental non-conformities	23	-	-
Governance & transparency			
Code of conduct training – employee completion rate (%)	77	-	-
Compliance hotline – number of substantiated reports	0	0	0
Financial performance data (DKK million)			
Revenue	5,931	5,617	5,011
EBITDA	1,200	964	852
EBIT	855	708	595
Net profit	627	491	-19
Tax	224	185	126

* An incident in 2018 was recategorized to be a lost time accident because it led to lost work time in 2019. Accordingly, the lost time accident frequency for 2018 was adjusted from 3.1 to 3.4, and the number of lost time accidents was adjusted from 11 to 12.

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