

# **Sustainability Report 2022**



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# Our Management Approach

## Introduction

Sustainability is the key driver of our strategy and clear requirement for our long-term success. We approach sustainability holistically and our fundament in this work is based on robust responsible business practices. We take into consideration all aspects of sustainability; environmental, social and economical. Sustainability focus areas are the most material topics that are defined through a materiality assessment process in cooperation with our stakeholders. Our work is guided by the United Nations Sustainable Development Goals (SDGs) and thus contribute to the global sustainability agenda. Our commitments to the Kemira Code of Conduct, internationally defined sustainability principles, and stakeholder expectations, as seen in our strategy, corporate policies and integrated management system, shows that sustainability for us is not only about being a good corporate citizen, but finding new business opportunities.

## International sustainability principles, commitments and ratings

**The United Nations Global Compact** has been signed by Kemira Oyj since 2014 as our commitment to its 10 principles, to respect and promote human rights, implement decent work practices, reduce our environmental impact and combat corruption. Furthermore Kemira works by the **United Nations Guiding Principles** which require companies to conduct due diligence to protect and respect human rights and remedy victims of business related abuses.

**Responsible Care®** is a voluntary commitment by the global chemical industry to drive continuous improvement and achieve excellence in environmental, health and safety and security performance. Kemira was among the first companies in Finland to make the commitment to Responsible Care®. Through this framework, global chemical manufacturers commit to pursue an ethic of safe chemicals management and performance excellence worldwide. This helps to enhance public confidence and trust in the industry's dedication to safely manage chemicals throughout their lifecycle while ensuring that chemistry can continue to contribute to a healthier environment, improved

living standards and a better quality of life for all. Kemira is committed to operate according to the principles of Responsible Care®.

In 2022 Kemira committed to the Science-Based Targets initiative. Climate change is the biggest challenge of humanity and with this commitment we make sure that our climate action work is aligned with the expectations of our stakeholders and of the science community. Further we also joined the Renewable Carbon Initiative, which demonstrates our commitment to accelerate the industry shift from fossil carbon to renewable carbon and raw materials.

**External rating surveys.** Our stakeholders share interest in our sustainability performance and thus Kemira is actively reporting to external rating offices to increase transparency around sustainability topics. The most important reporting platforms in 2022 have been CDP Climate Change and CDP Water Security, EcoVadis and S&P Global and from investor platforms ISS ESG, Sustainalytics and MSCI. In the majority of the surveys, Kemira is an average or above average performer compared to chemical industry peers.

## Materiality and stakeholder engagement

### IMPACT

The most significant economic, environmental and social impacts are described below. A more detailed description of business model and impacts can be found in our [Annual Review](#).

**Economic impact:** We generate revenue by selling chemical products and solutions for industrial uses in the pulp and paper, water treatment, oil and gas and mining industries. We have a direct economic impact on suppliers and service providers through the payments we make for purchased goods and services, to employees through compensation and benefits, to capital providers through dividends and interest payments, to the public sector through taxes, and to society through local community projects, sponsorship and donations. Unethical business behavior could impact Kemira's reputation and thus financial position.

**Environmental impact:** We have a positive environmental impact through our products and solutions which enable our customers to improve their resource efficiency by reducing the use of water, the generation of waste, the need of energy or the use of raw materials in their processes. Our main environmental risks relate to carbon emissions from our own manufacturing and in the value chain due to our purchasing

activities, upstream and downstream transportation, and to potential incidents through accidental release of chemicals or process safety deficiencies.

**Social impact:** Our main social impacts, and related risks, concern safety in the workplace, safe use of our products along the value chain and human rights issues like non-compliance with responsible business practices in our own operations or those of our upstream business partners.

### STAKEHOLDER EXPECTATIONS

Our key stakeholders include our customers, shareholders, lenders, employees and suppliers. Other relevant stakeholder groups include the local communities where Kemira operates, regulatory bodies, trade associations, decision makers and opinion leaders.

- A significant share of our investors practices ESG Investing (Environmental, Social, and Governance). These ESG investor signatories represent 20% of the ownership of Kemira shares (restated figure 21% in 2021).
- Many of our customers are sustainability leaders in their respective industrial sectors. Kemira plays a role in their value chains, and we are expected to demonstrate the same strong commitment to sustainable business as our customers.
- Our employees see sustainable business conduct as an important factor behind their engagement with Kemira, according to our employee surveys.

Our approach to stakeholder engagement includes activities ranging from information sharing to active dialogue and collaboration on issues of mutual interest. We regularly review our stakeholders expectations and potential concerns. The latest materiality assessment was performed in late 2021 and finished in early 2022.

Due to their effect or potential effect on the Kemira organization's ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements (including ISO Standards), Kemira has determined:

- the interested parties that are relevant to its business and Management System
- the requirements of these relevant interested parties
- the risks and opportunities of these relevant interested parties
- the response in place and the improvement plan when needed.

Kemira organization monitors and reviews information about the relevant interested parties and their specific requirements at least once per year.

## STAKEHOLDER ENGAGEMENT

List of stakeholder groups	Identifying and selecting stakeholders	Approach to stakeholder engagement	Key topics and concerns raised	Kemira's response
	Why is this stakeholder important to us as a company?	How do we normally engage with this stakeholder?	What are their key concerns? 3 year horizon	What are our key mechanisms that help us address these concerns?
<b>Customers</b>	<ul style="list-style-type: none"> <li>Our customers are Kemira's main source of value creation</li> <li>Our customers' expectations and needs drive our product portfolio and offerings</li> </ul>	<ul style="list-style-type: none"> <li>Direct customer contacts</li> <li>Customer webinars, events and newsletters</li> <li>Customer satisfaction measure</li> <li>Key drivers in customer satisfaction are the technical service, speed and proactivity, as well as increasingly our ability to offer new and sustainable solutions</li> </ul>	<ul style="list-style-type: none"> <li>Communication to customers about sustainability of products and Kemira's supply chain</li> <li>Transparency and reporting of sustainability efforts: performance and targets (incl. data collection and management), traceability of products, product environmental data</li> <li>Offer support to customers to become more sustainable like innovative products and services, circular end properties and partnerships</li> <li>Reliable production flow</li> <li>Value beyond the tangible products e.g., services and digital solutions</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D project portfolio management through stage gate process and sustainability checks</li> <li>Sustainable development in Product Development (e.g., use of circular and renewable solutions in product portfolio)</li> <li>Product lifecycle management for all aspects of product safety</li> <li>Improve understanding of customer needs beyond current offerings</li> <li>Sustainability performance data, like Product Carbon Footprints, submitted on request</li> <li>Systematic quality assurance processes (ISO 9001)</li> </ul>
<b>Shareholders and lenders</b>	<ul style="list-style-type: none"> <li>Share of our value creation through dividends and interest payments</li> <li>Expectations for return on investment, good corporate governance practices and sustainability performance</li> </ul>	<ul style="list-style-type: none"> <li>Regulatory financial communications: financial reporting and stock exchange communication</li> <li>Regular events like roadshows, conference calls and one-to-one meetings</li> </ul>	<ul style="list-style-type: none"> <li>Overall management approach to sustainability issues - sustainability strategy and concrete measures and efforts supporting the agenda (such as science-based targets, transparency in reporting, transforming business portfolio)</li> <li>Sustainable profitable growth and long-term returns</li> <li>Governance (e.g., Diversity &amp; Inclusion)</li> <li>Controversy management</li> </ul>	<ul style="list-style-type: none"> <li>Transparent and regular reporting and verified disclosure according to the GRI standard</li> <li>Participation in CDP Climate Change and CDP Water Security programs</li> <li>Responding to rating company and investor questionnaires</li> </ul>

List of stakeholder groups	Identifying and selecting stakeholders	Approach to stakeholder engagement	Key topics and concerns raised	Kemira's response
<b>Employees</b>	<ul style="list-style-type: none"> <li>Our employees' engagement, safety and well-being, integrity and competencies impact our value creation, operational and sustainability performance</li> </ul>	<ul style="list-style-type: none"> <li>Performance management and development process</li> <li>Regular Town hall meetings globally</li> <li>Co-operation with employee representatives</li> <li>Continuous listening and employee feedback</li> <li>Ethics and Compliance hotline and trainings</li> <li>Local wellbeing programs in all regions</li> </ul>	<ul style="list-style-type: none"> <li>Understanding Kemira's sustainability strategy and future direction, linking those to employees work</li> <li>Clear and concrete proof of actions in the sustainability agenda and long term targets setting, especially in mitigating climate change through greenhouse gas reductions (targets, progress, KPIs)</li> <li>Ways of developing and maintaining competences for the future and mitigating cost increases (inflation, energy scarcity)</li> <li>Product innovations</li> <li>Company and management diversity</li> <li>Health &amp; safety (incl. wellbeing; mental health)</li> </ul>	<ul style="list-style-type: none"> <li>Strategy and purpose communication and action planning</li> <li>Corporate sustainability programs</li> <li>Performance and development discussions</li> <li>Future leadership principles implementation</li> <li>Systematic competence development</li> <li>Team engagements on sustainability</li> <li>Rewarding and recognition</li> <li>Compensation management</li> </ul>
<b>Suppliers</b>	<ul style="list-style-type: none"> <li>Share of our value creation through payments for goods and services</li> <li>Suppliers' sustainability performance may impact our operational efficiency and business risks</li> </ul>	<ul style="list-style-type: none"> <li>Working closely with key suppliers to help them meet our performance and product expectations, and take corrective actions if needed</li> </ul>	<ul style="list-style-type: none"> <li>Safety remains important</li> <li>Environmental impacts needs to be managed properly throughout the upstream value chain</li> <li>Labor &amp; human rights issues</li> <li>Ethics in value chain</li> <li>Sustainable products and services</li> </ul>	<ul style="list-style-type: none"> <li>Suppliers are asked to commit to Kemira Code of Conduct for Business Partners</li> <li>Supplier sustainability assessments and audits performed</li> <li>Leading by example through high EcoVadis rating</li> <li>Supplier engagement relating to climate and other sustainability topics</li> <li>Sourcing sustainable raw materials</li> </ul>
<b>Local communities</b>	<ul style="list-style-type: none"> <li>Share of our value creation in the form of tax payments and employment</li> <li>Safety and environmental performance may impact the acceptance of our local presence</li> </ul>	<ul style="list-style-type: none"> <li>Dialogue and collaboration with local communities at major sites to ensure we understand and address their concerns</li> <li>Collaboration with schools and universities</li> </ul>	<ul style="list-style-type: none"> <li>Exposure to safety and environmental risks</li> <li>Employment opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Environmental aspects and impacts and EHSQ risk assessments</li> <li>Regular and open dialogue with local communities</li> </ul>
<b>Regulatory bodies, trade associations, decision makers, NGOs and opinion leaders</b>	<ul style="list-style-type: none"> <li>These stakeholders have the capability to influence or make political decisions on legislation with an impact on our operations and business</li> </ul>	<ul style="list-style-type: none"> <li>Memberships in industrial trade associations</li> <li>Subject-specific dialogue with regulatory bodies on national and regional level</li> </ul>	<ul style="list-style-type: none"> <li>Resource efficiency in operations</li> <li>Chemicals safety</li> <li>Environmental impact management and mitigation</li> </ul>	<ul style="list-style-type: none"> <li>Actively participating in dialogue on EU directive proposals on sustainability and the chemical industry</li> <li>Participation in CEFIC</li> <li>Participation in the Chemical Industry Federation of Finland</li> </ul>



## DETERMINATION OF MATERIAL TOPICS

The materiality assessment process is built on identification, analysis, prioritization and integration of most material sustainability topics.

**Identification:** Material topics relevant to Kemira have been identified based on their relative magnitude of impact and respective concerns raised by different stakeholders. Emphasis has been put on the determination of actual and potential, negative and positive impacts on the economy, environment, people and human rights. The most recent materiality assessment was based on the United Nations Sustainable Development Goals (SDGs) framework.

**Analysis:** Representatives of our key stakeholder groups (investors, customers, internal stakeholders) were interviewed to identify their expectations of Kemira, a benchmark study on material disclosure topics was carried out and major sustainability related development trends were analyzed. The importance of the topics were evaluated and the impact of the potential material topics based on key stakeholders' insights and expectations assessed with interviews and surveys. Based on the results from the assessment process, 21 most important sustainability topics were identified.

**Prioritization:** The identified topics were prioritized with reference to the relative importance to stakeholders, and to the relevance to Kemira's business and strategy, as well as the significance of specific topics related to the global chemical sector.

**Integration:** the results of our materiality assessment were visualized in the form of a materiality matrix and our corporate sustainability program was revised based on the results. The relevance of our existing sustainability focus areas were assessed by cross-referencing the top materiality assessment topics with those.

In the table we describe our material GRI disclosure topics and the topic boundaries. We have aligned our GRI disclosure based on the prioritized UN SDG topics in the materiality assessment. Thus we have included also non-GRI topics to the reporting, that are highly material to Kemira. These are for example product design, product stewardship and products and solutions.

MATERIAL GRI TOPICS	TOPIC BOUNDARIES	KEMIRA DATA COLLECTION PRACTICES
<b>Added non GRI topics</b>		
Product development	Kemira Operations <sup>1)</sup>	Product sales data is extracted from Kemira's ERP system. Product applications are manually linked to product categories.
Product stewardship	Kemira operations	Data is extracted from Kemira's ERP system and from PSRA documentation, and from Kemira processes.
Products and solutions	Kemira operations <sup>1)</sup>	Data is extracted from Kemira's ERP system.
<b>Economic GRI Standard Series</b>		
Economic performance	Kemira operations <sup>1)</sup>	Data is extracted from Kemira's ERP system.
Anti-corruption	Kemira operations <sup>1)</sup>	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Anti-competitive behavior	Kemira operations <sup>1)</sup>	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
<b>Environmental GRI Standard Series</b>		
Materials	Kemira operations as covered by our ERP <sup>2)</sup>	Kemira's ERP system.
Energy	Kemira manufacturing sites <sup>3)</sup>	Data is collected from each production site and consolidated at the Group level.

MATERIAL GRI TOPICS	TOPIC BOUNDARIES	KEMIRA DATA COLLECTION PRACTICES
Greenhouse gas emissions	Kemira manufacturing sites <sup>3)</sup>	Data is collected from each production site and consolidated at the Group level. Scope 3 emissions data is collected from Kemira's ERP system and the relevant organizational units. Default data and assumptions are as in the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain.
Other emissions to air		
Water and Effluents	Kemira manufacturing sites <sup>3)</sup>	Data is collected from each production site and consolidated at the Group level.
Waste	Kemira manufacturing sites <sup>3)</sup>	Data is collected from each production site and consolidated at the Group level.
Biodiversity	Kemira manufacturing sites <sup>3)</sup>	Data is collected from each production site and consolidated at the Group level.
Environmental compliance (old GRI criteria but included due to reporting structure)	Kemira manufacturing sites <sup>3)</sup>	Data is collected from each production site and consolidated at the Group level.
Supplier environmental assessment	Kemira suppliers	Data is extracted from Contract Management Tool used to track suppliers' signing of Code of Conduct for BP. Assessment data is stored on both external and internal service platform.
<b>Social GRI Standard Series</b>		
Employment*	Kemira operations <sup>1)</sup>	Data is extracted from HR data management system.
Labor/Management relations*	Kemira operations <sup>1)</sup>	Data is collected from each region and combined with the HR data management system.
Workplace safety and occupational health and safety	Kemira operations <sup>1)</sup>	Data is extracted from synergy data management system. Data covers also contractors working at Kemira sites.
Training and education	Kemira operations <sup>1)</sup>	Data is extracted from HR data management system.
Diversity and equal opportunity	Kemira operations <sup>1)</sup>	Data is extracted from HR data management system.
Non-discrimination	Kemira operations <sup>1)</sup>	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Freedom of association and collective bargaining	Kemira operations <sup>1)</sup>	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Human rights	Kemira operations <sup>1)</sup>	Data is collected with a Human Rights Impact Assessment and from company processes and procedures.
Public policy	Kemira operations <sup>1)</sup>	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Customer health and safety	Kemira operations as covered by our ERP <sup>2)</sup>	Data is extracted from Kemira's ERP system and from R&D New Product Development process documentation, from PSRA documentation, and from Kemira's legal archives.
Marketing and labelling	Kemira operations as covered by our ERP <sup>2)</sup>	Data is extracted from Kemira's ERP system and from PSRA documentation, and from Kemira's legal archives.
Socioeconomic compliance (old GRI criteria but included due to reporting structure)	Kemira operations <sup>1)</sup>	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Supplier social assessment	Kemira suppliers	Data is extracted from Contract Management Tool used to track suppliers' signing of Code of Conduct for BP. Assessment data is stored on both external and internal service platform.

\*) Not material GRI topic but reported because considered useful based on continuity.

1) Kemira's operations = All operations covered by Kemira's consolidation rules.

2) Kemira's operations covered by ERP = All operations covered by both Kemira's consolidation rules and the company's Enterprise Resource Planning (ERP).

3) Kemira's manufacturing sites = All manufacturing sites covered by Kemira's consolidation rules.

4) PSRA Product Stewardship and Regulatory Affairs.



## MATERIALITY MATRIX BASED ON KEMIRA'S 5 FOCUS AREAS



## MATERIALITY MATRIX

In 2022 Kemira finalized its latest materiality assessment to verify and update most important material sustainability topics.

The result of the analysis is visualized in a materiality matrix. The topics have been evaluated on a scale from significant to crucial, which highlights that only important topics have been taken into consideration. The topics were then linked to the Kemira focus areas (safety, people, circularity, water, climate), to showcase how the topics link to the existing corporate focus areas.

The results of the analysis reflect well Kemira's business operations as well as strategic ambitions in advancing sustainability. Water, renewable raw materials, health and safety, climate change mitigation and circular economy are all subjects, that are identified as having importance by external stakeholders as well as by Kemira. These are also subjects where Kemira can have a crucial impact and towards which Kemira has already developed long term targets.

Kemira's next round of materiality assessment is in 2023. The objective is to perform a double-materiality assessment during the year.

\* Emerging topics in the assessment are defined as topics that are considered emerging in industry reports, but peers and customers had not yet taken those into consideration

## Strategy, governance and policies

### WHAT SUSTAINABILITY MEANS TO US

Sustainability is a key driver of our strategy and requirement for our long term success. It's present in how we manage our own operations and create value for our customers. We also expect our partners to commit to sustainable operations. We want to use our chemistry expertise to find solutions and contribute to a sustainable and prosperous society.

Sustainability is a broad topic and work is made throughout the organization to improve the company sustainability performance and become better every day, as we state in our purpose. Everything starts with the responsible business practices, which is the fundament for all sustainability work. Through the materiality process, and mirroring with our strategic ambitions, we choose focus areas that are the spearheads of Kemira sustainability and build the corporate sustainability program around those. We also link these spearheads to most relevant Sustainable Development Goals, to connect our work with global sustainability ambitions. Ambitious targets and KPIs have been created to support our work to achieve our targets.

Chemistry with a purpose. Better every day.											
PURPOSE & STRATEGY		We aim to become the leading provider of sustainable chemical solutions for water-intensive industries.									
		Our own sustainability fundamentals and strategy			What we can do for our customers		Our own product portfolio				
FOCUS AREAS		<div>8 DECENT WORK AND ECONOMIC GROWTH</div> <div></div> <div>Safety</div>		<div>8 DECENT WORK AND ECONOMIC GROWTH</div> <div></div> <div>People</div>		<div>6 CLEAN WATER AND SANITATION</div> <div></div> <div>Water</div>		<div>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</div> <div></div> <div>Circularity</div>		<div>13 CLIMATE ACTION</div> <div></div> <div>Climate</div>	
KPIs & TARGETS		TRIF 1.5 by 2025 and 1.1 by 2030		D&I index industry top 10% by 2025		Improve water management to Leadership level (CDP) by 2025		Disposed production waste intensity reduction by 15% by 2030 Biobased revenue growth to 500 M€ by 2030		Scope 1&2 emissions reduction by 50% by 2030	
PROGRAMS		Safety		Diversity & Inclusion		Nature stewardship		Climate action			
						Positive impact portfolio, Biobased strategy					
RESPONSIBLE BUSINESS PRACTICES		Health & Safety		Employees	Kemira Values	Water & Wastewater	Materials	GHG emissions	Digital and analytics technology		
		Critical incident risk management		Diversity & Inclusion	Pollution prevention	Leadership Principles	Circular economy	Energy	Waste		
		Supporting customers to become more sustainable		Human rights		Water handprint	Carbon handprint	R&D			
				Environmental compliance		Product design for sustainability	Innovation & Partnerships				
		Product stewardship		Sustainable supply chain and sourcing		Biodiversity		Business ethics			

## SDGS, FOCUS AREAS AND PERFORMANCE INDICATORS

Our sustainability priorities are based on the most material impact of our business model, on the increasing expectations of our customers, investors and other stakeholders, and on our commitment to the Kemira Code of Conduct and internationally defined sustainability principles.

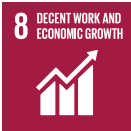
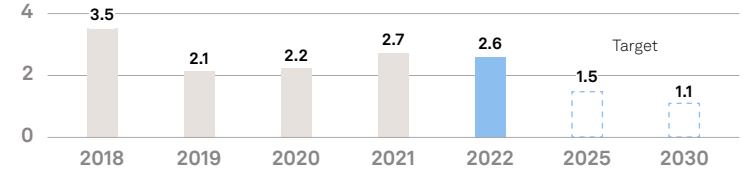
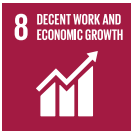
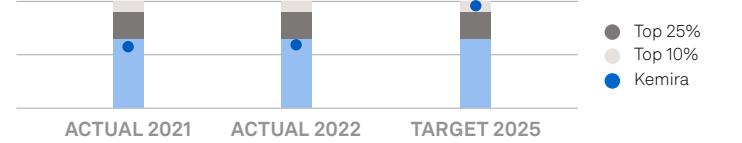

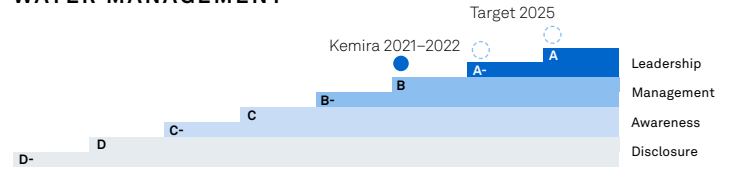

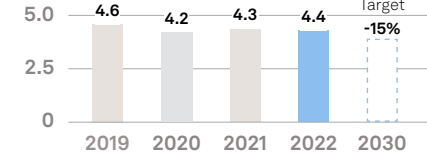
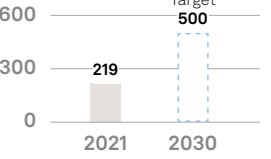

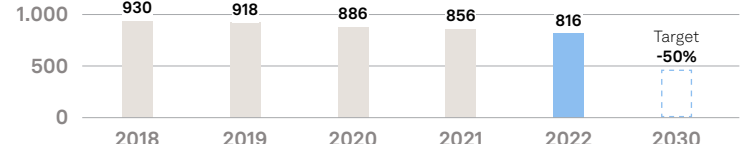
The global shared ambition to build a sustainable world is articulated in the UN Sustainable Development Goals (SDGs). These offer us a common framework through which to evaluate how Kemira currently contributes to these goals and how we can further develop to make even bigger impact in the future. We have chosen four SDGs to focus on. SDG number 8; Decent Work and Economic Growth, represents our focus on social and economical sustainability. Three of the SDGs describe our focus on important environmental sustainability topics, these are SDG number 6; Clean Water and Sanitation, SDG number 12; Responsible Consumption and Production and SDG number 13; Climate Action. The chosen SDGs reflect well our most material topics.

We have chosen to build our corporate sustainability program around prioritizing five sustainability themes that best match our businesses and customer segments. These are also the five themes where we can make the biggest difference: either by reducing our impacts or maximizing our contributions to achieving the UN SDGs. These five themes are: Safety, People, Circularity, Water and Climate.

## TOP MATERIAL TOPICS ALLOCATED TO MANAGEMENT BOARD MEMBERS

Our priority focus areas	Top material topics identified in the materiality matrix	Management Board champion
<b>SAFETY</b>	<ul style="list-style-type: none"> <li>• Critical incident risk management</li> <li>• Hazardous materials</li> <li>• Health &amp; safety</li> </ul>	EVP, Operational Excellence & Sustainability
<b>PEOPLE</b>	<ul style="list-style-type: none"> <li>• Health &amp; safety</li> <li>• Diversity in leadership</li> <li>• Employee D&amp;I</li> </ul>	EVP, Human Resources Group General Counsel
<b>WATER</b>	<ul style="list-style-type: none"> <li>• Supporting customers in sustainability</li> <li>• Water &amp; wastewater</li> <li>• R&amp;D</li> <li>• Innovation and partnerships</li> </ul>	Segment Presidents EVP, Operational Excellence & Sustainability Chief Technology Officer
<b>CIRCULARITY</b>	<ul style="list-style-type: none"> <li>• Supporting customers in sustainability</li> <li>• Circular economy</li> <li>• Use of renewable &amp; biobased raw materials</li> <li>• Carbon handprint</li> <li>• R&amp;D</li> <li>• Innovation &amp; partnerships</li> </ul>	Segment Presidents EVP, Operational Excellence & Sustainability Chief Technology Officer
<b>CLIMATE</b>	<ul style="list-style-type: none"> <li>• Supporting customers in sustainability</li> <li>• Carbon footprint &amp; environmental impact</li> <li>• Climate and renewable energy</li> <li>• Carbon handprint</li> <li>• R&amp;D</li> <li>• Innovation &amp; partnerships</li> </ul>	Segment Presidents EVP, Operational Excellence & Sustainability Chief Technology Officer

## FOCUS AREAS AND PERFORMANCE INDICATORS

SDG	FOCUS AREA	KPIS AND TARGETS	PERFORMANCE
	<b>SAFETY</b> We prove that a safe business is a sustainable business. Safety of people, products, processes and environment is the foundation of everything we do.	<b>KPI:</b> Total Recordable Injury Frequency (TRIF) per million hours, Kemira + contractors. <b>Target:</b> TRIF 1.5 by 2025 and 1.1 by 2030.	<b>TRIF</b> 
	<b>PEOPLE</b> Our employees drive our sustainability transformation. A diverse and inclusive culture enables us all to bring our best selves to work every day.	<b>KPI:</b> Diversity & Inclusion index compared to top 10% cross-industry norm. <b>Target:</b> Reach top 10% cross-industry norm for Diversity and Inclusion by 2025.	<b>DIVERSITY AND INCLUSION</b> 
	<b>WATER</b> We believe in clean water and sanitation for all. Our actions set the example for world class water management.	<b>KPI:</b> Improve water management. <b>Target:</b> Improve water management to Leadership level based on CDP Water Security scoring methodology by the end of 2025.  Kemira published it's water target in the beginning of 2022, to strive for an improvement in overall water management.	<b>WATER MANAGEMENT</b> 
	<b>CIRCULARITY</b> We set sustainability at the center of every design. Our sustainable chemistry and digital solutions accelerate the circular- and bio-economies.	<b>KPI:</b> Disposed production waste intensity. <b>Target:</b> Reduce disposed production waste intensity by 15% by 2030. Baseline is 2019 at 4.6 metric tons of waste per thousand metric tons of production and target is 3.9 by 2030.  <b>KPI:</b> Biobased products revenue <b>Target:</b> Revenue from biobased products >500 million EUR by 2030. Baseline is 100 million EUR in 2019.	<div> <b>WASTE INTENSITY</b>   </div> <div> <b>BIOBASED REVENUE</b>   </div>
	<b>CLIMATE</b> We reduce our climate impact throughout our value chain. Clean energy and processes will support our ambition to be carbon neutral by 2045.	<b>KPI:</b> Scopes 1 & 2 emissions. <b>Target:</b> -50% from 2018 Scope 1 and Scope 2 emissions by 2030. 2018 baseline 930 kt CO <sub>2</sub> equivalents (CO <sub>2</sub> e) <b>Ambition:</b> to become carbon neutral in scope 1 & 2 emissions by 2045. Kemira updated its climate target in June 2022 in accordance with the Science Based Target Initiative (SBTi) requirements. The emission reduction target changed from -30% to -50%. The target is not yet validated by the SBTi.	<b>GHG EMISSIONS</b> 

## GOVERNANCE

The Shareholders' General Meeting, the Board of Directors and the Managing Director (President and CEO) are responsible for Kemira's management and operations. Their tasks are defined based on the Finnish Companies Act and Kemira's Articles of Association. President and CEO is assisted by the Management Board, which is a non-statutory management body. More detailed information on Kemira governance can be found in the [Corporate Governance Statement](#).

The Board of Directors' key duties include establishing Kemira's long-term goals and the main strategies for achieving them, duties are described in detail in the [Corporate Governance Statement](#). Sustainability being a key driver of Kemira's strategy brings also many sustainability related topics to the Board of Directors decision making, the Board of Directors, e.g., approves Kemira's values, the sustainability targets and the Sustainability Report. The Board of Directors has appointed two Committees to assist in fulfilling its responsibilities: 1) The Audit Committee assists in oversight responsibilities for e.g., non-financial (including economical, environmental and social topics) reporting process, 2) The Personnel and Remuneration Committee assists in preparation of matters related to e.g. compensation linked with sustainability KPI elements.

The President and CEO is responsible for managing and developing Kemira in accordance with the instructions and guidance given by the Board of Directors and implementing its decisions. The President and CEO reports to the Board of Directors on financial and non-financial matters, the business environment and other significant topics, including environmental and social topics.

The Management Board is an operative management body that is responsible for securing the long-term strategic development of the company. Kemira measures progress in the sustainability priority areas through group-level key performance indicators (KPI) and targets that are approved by the Board of Directors. Responsibility for individual corporate sustainability targets is shared between the members of the Management Board.

The Sustainability Steering Team is a senior management level team under the Management Board, which steers a variety of sustainability linked programs, that are dedicated to the most material sustainability topics of the corporate sustainability program. The main tasks of the Sustainability Steering Team is to prepare proposals to the Management Board about developing Kemira corporate sustainability strategy, vision and ambition, to steer chosen corporate sustainability related programs, which includes follow-up of near- and long-term plans and roadmaps, and to report annually on corporate sustainability development to the Management Board and Board of Directors. The Sustainability Steering Team ensures the development, implementation and follow-up of sustainability as part of daily business operations. Active programs steered by the Sustainability Steering Team are Climate Action (climate target), Nature Stewardship (water and waste targets, biodiversity development), Positive Impact Portfolio (supporting the biobased revenue target) and Diversity & Inclusion (diversity and inclusion target). Safety and biobased strategy programs are steered by the Management Board.

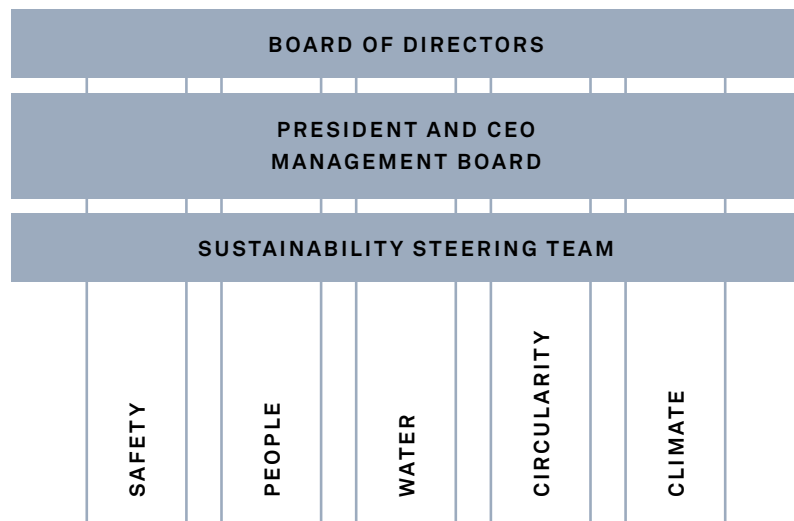
The Director of Corporate Sustainability is responsible for the corporate level sustainability program and its development, for coordinating related reporting activities, assisting the

organization and its leadership to stay ahead of most recent sustainability related trends, supporting the company to identify and build relevant competences and ensuring that relevant management processes relating to material corporate sustainability topics are being developed and implemented as part of Kemira strategy and integrated management system. The Director, Corporate Sustainability, also facilitates the collaboration of the Sustainability Steering Team.

**Remuneration and sustainability:** Kemira has both a long- and short-term incentive plan for selected individuals of the company management. Safety has been a KPI of the short-term incentive plan for several years. There has not previously been sustainability related KPIs in the long-term incentive plan.

The aim of the long-term incentive plan is to combine the objectives of the shareholders and the persons participating in the plan to increase the value of Kemira, to commit the participants to Kemira, and to offer them a competitive reward plan. In 2023 Kemira will continue its growth strategy. To further emphasize sustainability transformation driving profitable growth, the key priorities are reflected in the incentive programmes: In addition to financial targets, the long-term incentive plan performance period 2023–2025 consists of two sustainability targets, namely Kemira CO<sub>2</sub> emission reduction from Scope 1 & 2 and Revenue Growth of Biobased products. More information on remuneration can be found in the [Remuneration Report](#).

Diversity of governance bodies is reported in the Diversity and Equal Opportunity section in the Sustainability Report and in the [Corporate Governance Statements](#).



## POLICIES

The Code of Conduct is the foundation for doing business in the right way and functions as an umbrella commitment for the entire company. Kemira Code of Conduct is approved by the Auditing Committee of the Board of Directors. Global policies are in many cases extensions of the Code of Conduct commitments, where we elaborate further on those and make them more understandable for the organization. All policies are approved by the Management Board and have a dedicated owner. Policies are prepared in respective functions within the company.

The segments are guided by policies and standards defined by global functions. Global functions are responsible for developing policies, standards and tools related to their respective functional areas on a global basis. Such policies and processes are complied with throughout the company. Functions also have representatives in each geographic region. Regional organizations ensure that the global policies and standards are implemented and adhered to in the regions. They are also responsible for supporting the business locally in the region.

The policy commitments become visible in the organization through e.g., strategic target setting, like the sustainability related targets covering safety, people, water, circularity and climate topics. The enterprise strategy and risk management processes identify risks and opportunities in relation to the policy statements and specific impact assessments are made e.g., for human rights issues. Our commitments are also visible through our management processes in terms of e.g., sustainable sourcing programs, product safety work and the research and development stage gate process with sustainability checkpoints. Besides this, we create task groups for specific topics, like the Human Rights Council, which is a cross-functional group developing and discussing Kemira human rights practices.

Kemira maintains internal control systems to ensure the effectiveness and efficiency of its operations, including the reliability of financial and operational reporting and compliance with the applicable regulations, policies and practices. More details on this can be found in the [Corporate Governance Statements](#).

**Grievance mechanisms:** it is our intention to promote and maintain the best possible relationship with our stakeholders and we regard it as essential to provide effective procedures for the rapid resolution of differences and disagreements. Kemira offers various channels to report grievances and is committed to dealing with such reports promptly and fairly. Some of the channels and mechanisms are local, varying from country to country, some are regional or global. Examples of these mechanisms are:

- Employee related complaints and appeal procedures vary from country to country depending on the local employment law and practices, such as structure of employee representation through unions and collective bargaining agreements. Kemira has employees in nearly 40 countries and thus there are a plenitude of different mechanisms.
- Our global ethics and compliance hotline which is available both internally and externally for our business partners.
- Global customer service and customer complaint process directed to customers.
- Internal SNOW portal for reporting GDPR related breaches.
- Cooperation with local authorities in cases of breaches of environmental permits.
- Internal grievance tools.
- Global vendor complaint system.



**Precautionary principle:** We do not have a separate statement about following the precautionary principle, but we have different mechanisms, processes and procedures in place that prevents and mitigates potential negative impacts.

Precautionary actions:

- Existing regulations create the basis for this principle (e.g., within the EU Green Deal soil regulations and SEVESO and other comparable regulation on other regions where we operate).
- Risk assessment processes are also basic precautionary action in Kemira activities.
- The principle in question is used on site-level projects e.g., through utilizing Best Available Technology principles and Capital Project Management guidance. Relating to prevention e.g., identification of critical equipment and precautionary maintenance is actively pursued.
- The principle is used in the New Product Development process where product properties are secured and chemical safety is evaluated.
- In people safety the principle is taken into action through operative risk assessments safety standards and instructions. Risk assessment of chemical exposure, needed protective measures and medical evaluations of personnel are also concrete measures.

- Concerning the environment, the principle is most visible through manufacturing sites guidance on spill prevention and other process precautionary measures.
- Also internal and external audits and authority controls are ensuring that the precautionary measures are in place.

Mitigation:

- Corporate risk assessment process identified high/medium risk items are mitigated and controlled under the risk assessment review process.
- Emergency response and crisis management processes are first emerging activities in case of incident and accidents, but also in business interruptions. To ensure continuous improvements in root cause analysis identifies improvement elements and corrective actions to be implemented.
- Liability site management is one critical mitigation measure for soil contamination in existing and old closed manufacturing sites.

Key policies	Policy owner	Description of main policy commitments	Level of approval and publicity	Application to company activities and communication
Code of Conduct	Group General Counsel	Kemira Group Code of Conduct is the foundation for doing business the right way. The Code reflects Kemira's values and the principles set out in the OECD Guidelines for Multinational Enterprises. The Code of Conduct includes 19 statements covering commitments to work community, customers, suppliers, markets, society and investors. Commitments relate to economical, environmental, people and human rights topics. More information on the specific human rights commitments can be found in the human rights section in the Sustainability Report.	Board of Directors  Publicly available.	This policy applies to all organization activities and business relationships equally.  Mandatory training for all employees. Available in 19 languages.
Code of Conduct for Business Partners	Head of Global Sourcing	Document reflects Kemira values and the principles set out in the Kemira Group Code of Conduct.	Management Board  Publicly available.	This policy applies to business partners (e.g., suppliers, consultants, advisers, distributors and agents)  Mandatory approval of business partners. Available in 19 languages.
Product stewardship policy	Head of Product Stewardship and Regulatory Affairs	Compliance with chemical regulatory requirements, to assess human health & safety and environmental protection aspects, identify and manage chemical risks and to share information about the above mentioned themes. To protect human health and safety with different measures. Main stakeholders considered are employees and customers.	Management Board	These policies apply to all organization activities.
Trade Compliance policy			For internal use.	Mandatory training for selected employees. Only in English.

Key policies	Policy owner	Description of main policy commitments	Level of approval and publicity	Application to company activities and communication
Sustainability and EHSQ Policy	EVP, Operational Excellence & Sustainability	Safe working conditions, preventing incidents, respecting human rights in operations, diversity and inclusion, protecting the environment, enabling circular economy and protecting biodiversity. Main stakeholders are our employees and value chain partners.	Management Board  Publicly available.	This policy applies to all organization activities.  Mandatory training for all employees.
Sourcing and Procurement Policy	EVP, Operational Excellence & Sustainability	All activities being aligned with Kemira CoC, company values and sustainability goals, key supplier selection and supplier risk assessment criteria including sustainability performance both in social and environmental topics. Social sustainability performance expectations mainly regarding our upstream value chain partners.	Management Board  For internal use.	This policy applies to all organization activities.  Mandatory training for selected employees.
Logistics and Transportation Policy	Head of Global Supply Chain Management	Transportation and chemical safety, minimization of environmental impacts on transportation operations and sustainable logistics. To provide safe working conditions in supply chain and reduce environmental impacts. Main stakeholders are suppliers, employees and customers.	Management Board  For internal use.	This policy applies to all organization activities.  Optional training for selected employees.
Recruitment Policy	EVP, Human Resources	In all recruitments respect of diversity, equal opportunity, and treatment regardless of race, color, gender, sexual orientation, creed, political persuasion, age, social status, origin or any status protected under the laws, respect of fundamental human rights and no use of any form of forced or child labor. Particular attention is given to own employees and subjects of recruitment, which are also the main stakeholders.	Management Board  For internal use.	This policy applies to all organization activities.  Training for employees responsible of recruitment and for hiring managers.
Global Competition Law Compliance Policy	Group General Counsel	Fair and ethical competition, within framework of applicable laws. No anti-competitive activities. Zero tolerance towards bribery and corruption.	Management Board  For internal use.	These policies apply to all organization activities.  Mandatory training for selected employees. Several language versions available.
Gifts, Entertainment and Anti-Bribery Policy				
Tax Policy	Chief Finance Officer	Conducting our business in compliance with all applicable laws and regulations and according to high ethical standards.	Management Board  For internal use.	This policy applies to all organization activities.  Mandatory training for selected employees.

## Integrated management system

Globally, we aim to bring together all of our operations under the Kemira Integrated Management System. The Kemira Integrated Management System defines the way our organization is working through the set of policies, standards, procedures and processes. It also defines the requirements and accountabilities at each level of the organization.

Conformance to Integrated Management System and compliance to regulatory requirements are ensured by regularly monitoring the performance indicators and by conducting internal and external audits and management reviews. In 2022 all internal and external audits were completed fully and in timely manner.

The management reviews are performed at all levels of the organization from manufacturing to regional management and the Management Board.

Kemira has a principle that all operations under our Integrated Management System meet the international standards ISO 9001:2015 for Quality, ISO 14001:2015 for Environment, and ISO 45001:2018 for Occupational Health and Safety. All 3 R&D sites (Atlanta, Espoo and Shanghai) are ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certified. Our share of certified sites has improved from 86% to 90% from 2021, due to three (3) manufacturing sites which got their first ISO certification. Kemira's Energy Management System is certified according to ISO 50001:2018 for selected EMEA sites. Our Integrated Management System is externally audited through a three-year audit cycle. In 2022, eighty-three (83) internal and external audits (Management Systems, Process Safety, Energy, Transportation, EHS Legal Compliance, Sustainability) were conducted, including manufacturing sites, major office locations and R&D centers.

### NUMBER OF LOCATIONS (MANUFACTURING SITES, MAIN OFFICES AND R&D) CERTIFIED IN 2022:

	EMEA	Americas	APAC	Total*
<b>ISO 9001:2015</b>	36	20	10	66 (90%)
<b>ISO 14001:2015</b>	36	19	10	65 (89%)
<b>ISO 45001:2018</b>	36	20	10	66 (90%)
<b>ISO 50001:2018**</b>	6			

\*Kemira has 62 manufacturing sites in total, 3 main offices and 3 R&D centers.

\*\*ISO 50001 certification is only for selected EMEA sites

### INTEGRATED MANAGEMENT SYSTEM



## KEMIRA'S MANAGEMENT APPROACH TO SUSTAINABILITY (NON-FINANCIAL) MATTERS

	Environmental and climate-related matters	Social and employment-related matters	Respect for human rights	Anti-corruption and bribery
<b>International frameworks covering all topics</b>	United Nations Sustainable Development Goals (SDGs) United Nations Global Compact United Nations Guiding Principles on Business and Human Rights Responsible Care®			
<b>Code of conduct</b>	Code of Conduct Code of Conduct for Business Partners			
<b>Policies and standards</b>	Sustainability and EHSQ policy EHSQ standards and processes Logistics and transportation policy and processes Sourcing and procurement policy			<ul style="list-style-type: none"> <li>Global competition law compliance policy.</li> <li>Gifts, entertainment and anti-bribery policy.</li> <li>Trade compliance policy.</li> <li>Investigation procedure.</li> <li>Audit Committee Charter.</li> </ul>
	<ul style="list-style-type: none"> <li>Product stewardship policy.</li> </ul>	<ul style="list-style-type: none"> <li>Product stewardship policy.</li> <li>Trade compliance policy.</li> <li>Recruitment and compensation policy.</li> <li>People and HR processes.</li> </ul>	<ul style="list-style-type: none"> <li>Recruitment and compensation policy.</li> <li>Statement for slavery and human trafficking.</li> <li>Statement on conflict minerals.</li> <li>Investigation procedure.</li> <li>Audit Committee charter.</li> </ul>	
<b>Hazards and Risks</b>	<ul style="list-style-type: none"> <li>GHG emissions (Scopes 1, 2 &amp; 3), water withdrawal, disposed waste and spills and chemical releases.</li> <li>Climate change adaptation related operational risks throughout the value chain</li> <li>Non-compliance with legislation and regulations may result in fines, creating reputational and business risks.</li> <li>Reputational or financial risk if products are not proven to be safe or guidance for safe use is not communicated or if employment and engagement poorly managed.</li> <li>Ability to meet new environmental expectations with products and services.</li> <li>People related health and safety hazards and work related incidents, illnesses and well-being.</li> <li>Competences related to chemical risks (physical and chemical), own work processes.</li> <li>Risk of not being able to attract talented people to the company.</li> </ul>		<ul style="list-style-type: none"> <li>Potential violations of human and labor rights and unethical business practices can impact Kemira's reputation and thus financial position.</li> <li>Main human rights risks relate to production and raw material sourcing of suppliers and supply chain partners, health and safety at own sites and the impacts of utilizing fossil fuels.</li> </ul>	<ul style="list-style-type: none"> <li>Risk that Kemira internal organization engages in bribery or other forms of corruption.</li> <li>Risk that third parties acting on behalf of Kemira engage in bribery or other forms of corruption. A third party is anyone with whom Kemira interacts and who sells, resells or assists Kemira in selling Kemira's products to customers.</li> </ul>
<b>Risk / hazard management</b>	<ul style="list-style-type: none"> <li>Risk are effectively managed through existing integrated management system and continuous risk identification and mitigation processes.</li> <li>Environmental, health and safety and quality activities are documented and managed in line with ISO 9001, 14 001 and 45001 standards including certification of majority of the activities. Incident and crises management –systems.</li> <li>Compliance with the chemical regulations is ensured by complying with PSRA (Product Stewardship and Regulatory Affairs) processes incl. priority substance management.</li> <li>Performance and development process (PDD) conducted and documented for all employees. Learning solutions and development paths available. Talent management activities targeted to specific job roles and positions.</li> <li>Continuous listening and employee feedback with MyVoices Pulse surveys in place.</li> <li>Kemira's New Product Development (NPD) and product lifecycle management processes are followed.</li> <li>Ethics and compliance Hotline (Whistleblower mechanism) for raising a concern or reporting potential misconduct.</li> <li>Supplier sustainability assessment and audits globally. Mandatory Code of Conduct and Human Rights for Business trainings and anti-corruption training. Supplier segmentation &amp; prioritization by value/criticality/risk.</li> <li>Behavior based safety program.</li> <li>Reporting system in place for violations of Code of Conduct.</li> <li>Human Rights impact assessment carried out, latest in 2021.</li> <li>Identity and age checks during hiring process and annual internal country level verification of compliance.</li> </ul>			<ul style="list-style-type: none"> <li>Continuous communication and training of Kemira's policies.</li> <li>Due diligence in reviewing and selecting third parties who act on behalf Kemira.</li> <li>Requirement that third parties commit to Kemira's Business Partner Code of Conduct.</li> <li>Screening of all business partners to identify denied and blocked persons.</li> <li>Ethics &amp; Compliance Hotline and email for reporting suspected breaches of law or Kemira's Code of Conduct internally or externally. Reported allegations are subject to confidential and impartial internal investigation.</li> </ul>

	Environmental and climate-related matters	Social and employment-related matters	Respect for human rights	Anti-corruption and bribery
<b>Due diligence processes</b>	<ul style="list-style-type: none"> <li>Compliance verification against existing Kemira, legal and other EHSQ requirements and talent development are managed through Global internal and external auditing and annual Global reporting processes. Audits and identified non-conformities are registered, assessed and managed in a global system ensuring also the Global visibility and compliance assurance.</li> <li>Compliance with the chemical regulations followed / audited by external authorities and audited internally and externally by Kemira.</li> <li>Audits and identified non-conformities are registered and managed in a global system.</li> <li>Kemira's New Product Development (NPD) process and individual NPD projects as well as short-term technical assistance request (TAR) process are managed by global internal and external auditing.</li> <li>In human rights issues, reporting to Audit Committee of Board of Directors.</li> <li>Suppliers are required to accept Kemira's Code of Conduct to business partners. Kemira also constantly monitors, assesses and audits its supplier base by performing periodic checks either through routine processes or annual internal audits by competent sourcing members. Based on conducted assessments prioritized supplier are invited to take more detailed assessment or audit.</li> </ul>			<p>We review and vet all new agents and distributors who will act as third parties for Kemira. The review and vetting are based on a risk level assessment which determines which diligence activities are required when selecting and onboarding a new third party. After the due diligence activities, new third parties are subject to approval according to a risk level-based approval matrix.</p> <p>Kemira's Ethics &amp; Compliance Committee coordinates investigations of internally or externally reported alleged violations of anti-bribery and anti-corruption laws. The Committee may escalate a matter to the President &amp; CEO, and the Committee reports to the Audit Committee of the Board of Directors.</p>
<b>Outcomes of policies and due diligence processes</b>	<ul style="list-style-type: none"> <li>Operations meet legal requirements. Company is ready to meet global existing and foreseen challenges.</li> <li>New products with smaller environmental footprint, better chemical safety profile and providing customers with resource efficiency improving properties.</li> <li>Sustainability long term targets to 2025–2030 relating to water, waste, emissions, energy, diversity and inclusion and growing the renewable raw materials based products portfolio.</li> <li>Health and safety program to reach zero harm to people. Reduced risks on human health and environment.</li> <li>Competences Development Program for key target groups and statutory and role-based on-the-job learning for employees on professional and leadership development.</li> <li>Human rights issues identified and mitigated in own operations and value chain.</li> <li>Meeting on group level the EU Taxonomy minimum safeguards of most recognized human rights guidelines and guiding principles.</li> <li>Sourcing &amp; Procurement policy, processes and procedures mitigate and prevent supplier's violations related to any type of non-legal practices, they also ensure that suppliers are operating at or above the levels required by Kemira from the economical, environmental, social and human rights point of view.</li> </ul>			<ul style="list-style-type: none"> <li>There have been no confirmed cases of bribery or corruption involving Kemira or its third parties.</li> <li>Kemira is compliant with anti-bribery and anti-corruption laws applicable to it.</li> </ul>

Product development

Kemira’s New Product Development (NPD) process follows a stage-gate model. Successful projects must demonstrate both improved sustainability and business benefits at each decision gate to justify the project’s continuation, and ultimately the product launch.

Our New Product Development (NPD) sustainability assessments examine the economic, environmental and social impact of all new products and solutions developed. NPD sustainability assessment follows Kemira’s sustainability goals and following six topics are evaluated in the assessments: safety, people, water, circularity, climate and profitable growth.

A new sustainability assessment methodology and digital platform were introduced to the R&D organization during 2022. For all new product development projects we carry out a sustainability assessment which is re-evaluated at each project stage. New offering is compared against benchmarked or existing solutions both from Kemira’s and customer’s point of view. In early new product development project stages (from technology evaluation to development and piloting) effects of Kemira’s operations including used raw materials and customers’s operations are evaluated. In the end of NPD project (from scale-up to commercialization) effects of Kemira’s operations, raw material production operations (upstream) and customer operations (downstream) are evaluated in own categories. Sustainability index has been internal key performance indicator in Kemira R&D and it is calculated as an average of sustainability index of Gate 2 approved NPD projects.

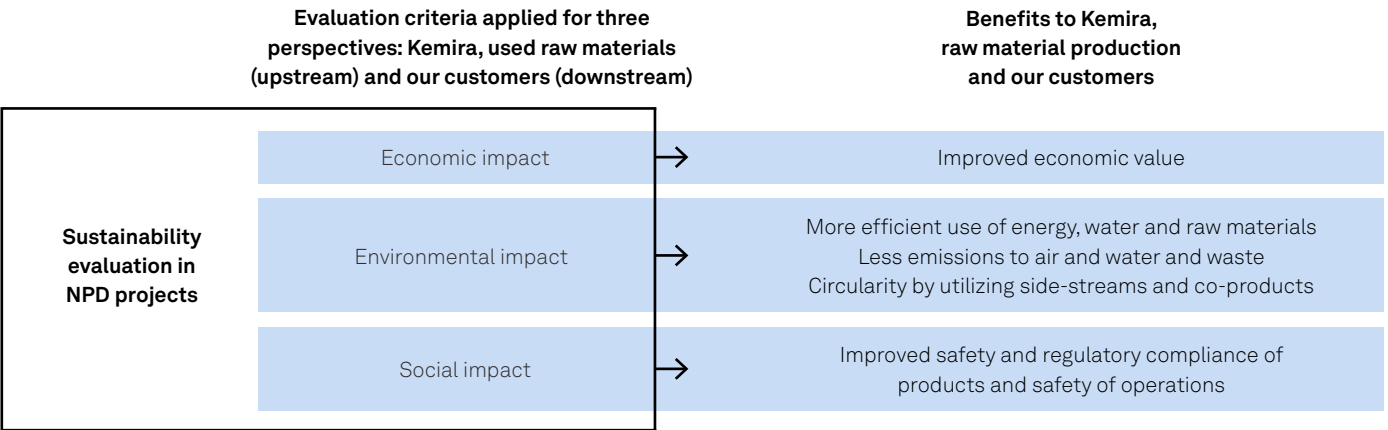
In 2022 the average score of the assessments across our portfolio was 8.0 (For year 2021, we reported 7.3). Scoring (-1 decreased, 0 no changes, +1 improved sustainability performance) is given in six categories (safety, people, water, circularity, climate and profitable growth) and both Kemira (used raw materials are evaluated under Kemira) and customer benefits are evaluated. Maximum scores are 12 when all evaluated categories are improved and minimum scores are -12, if all evaluated aspects are decreased. Average scoring of NPD projects has been followed since 2019 when scoring was 5.3.

In addition to the safety topic in the sustainability assessment, we consider and avoid the use of hazardous substances when selecting raw materials for new product development. Each NPD project and used raw materials

and end-products are evaluated in cooperation with Product Stewardship and Regulatory Affairs function. R&D also makes plans to replace raw materials with concerns or risks in product recipes. These actions improve the safety in transportation, storing and usage and in disposal of materials in our manufacturing processes and our customers’ processes and products.

NPD projects also aim to identify and evaluate more sustainable and renewable alternatives for raw materials, in terms of sources and use in the whole product life cycle. Year 2022, Kemira internal capabilities to generate life cycle assessments (LCAs) were extended in our product portfolio and life cycle assessment awareness was increased in the organization.

SUSTAINABILITY EVALUATION IN THE NEW PRODUCT DEVELOPMENT PROJECTS

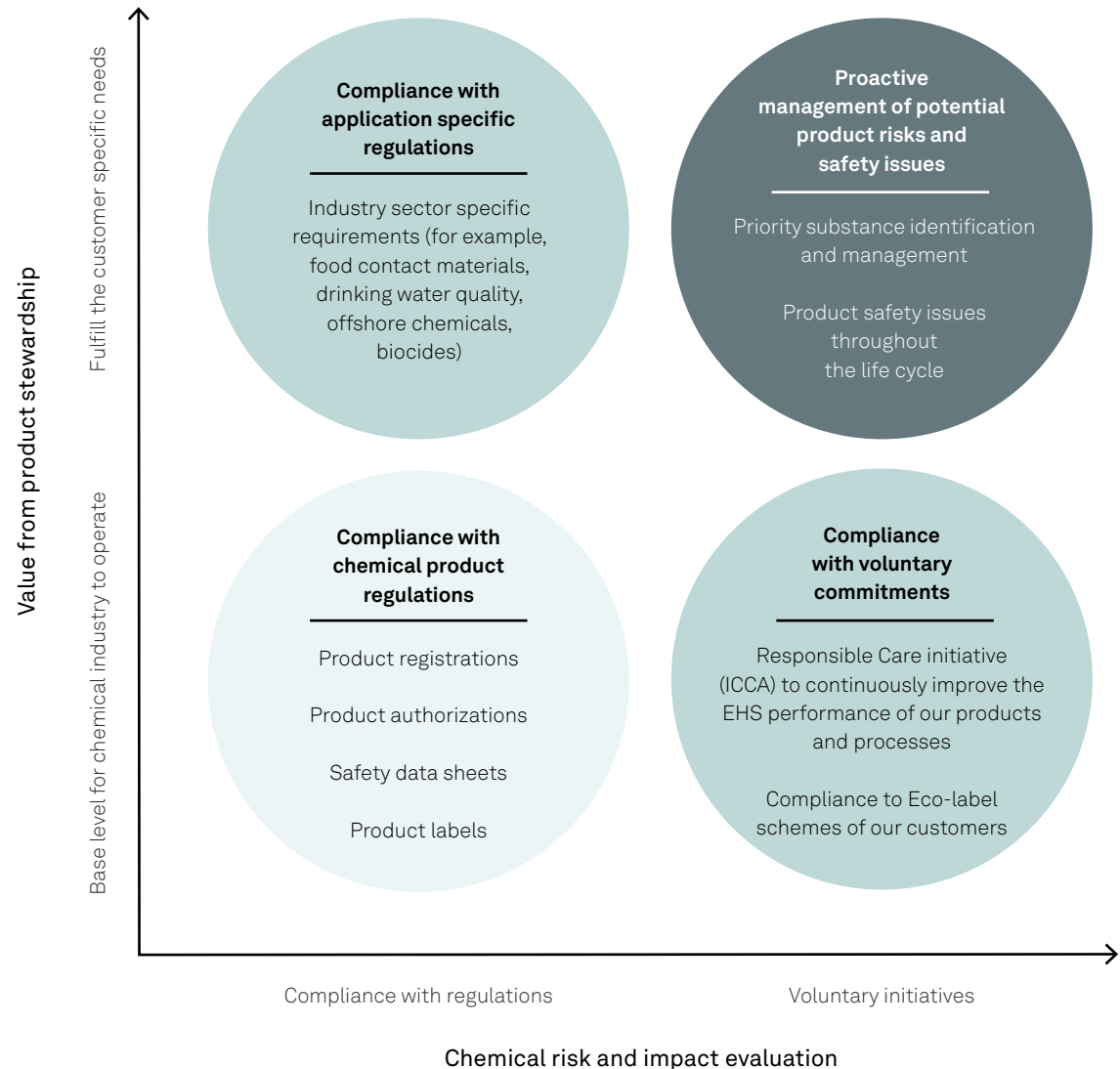




## Product stewardship

Kemira's Product Stewardship Policy defines the minimum requirements for our operations to ensure that our products can be safely used by our stakeholders and that chemical risks and their impact are incorporated in decision-making relating to our business. Our customers have their own health, safety and environmental requirements for their input materials and they typically follow several voluntary certification schemes, including eco-labeling schemes, which set further expectations on our product offerings. Chemical hazard assessments are not only prepared for products but also for raw materials, process aids and intermediates; and are incorporated in change management process during their full lifecycle. Product stewardship is the key pillar in the Responsible Care® program and involves the proactive management of the health, safety and environmental aspects of a product throughout its lifecycle. Product stewardship provides a platform that helps us to identify concerns relating to specific chemicals and their hazards at an early stage and manage those risks along the value chain to fulfill the expectations of different stakeholders.

### PRODUCT STEWARDSHIP MANAGEMENT APPROACH



## PRODUCT REGULATORY COMPLIANCE

The manufacturing and sale of chemicals are widely regulated around the world. Continuous follow-up of the regulatory development activities is the prerequisite for business compliance and plays a key role in ensuring product safety for customers, value chain and stakeholders.

## PRODUCT LIFECYCLE MANAGEMENT

All of our products, handled raw materials and intermediates need to comply with all applicable chemical regulatory requirements in the countries where we manufacture and/or sell chemicals. Assessments examining regulatory compliance, human health impact, safety issues and environmental protection aspects all form part of our Product Lifecycle Management process from conception and development to manufacturing and sales, and finally to product elimination. All data related to chemical products and substances including raw materials is managed in Enterprise Resource Planning system and is linked to Product Lifecycle Management tool/process.

## PRIORITY SUBSTANCE MANAGEMENT

We actively track our portfolio for priority substances that are subject to future regulatory restrictions or associated with particular concerns and prepare management plans for these substances. Our priority substance management plan aims to define the specific risks associated with each substance, examine options for managing these specific risks, and formulate action plans for the preferred options. These options to mitigate risks may include, for example, substitution, phase-out or limiting exposure.

## COMMITMENT TO ANIMAL WELFARE AND SUSTAINABLE PALM OIL SUPPLY

Kemira is committed to reducing, refining and replacing animal testing wherever possible. Kemira does not itself perform any animal experimentation in-house. All animal testing commissioned by Kemira is done to the highest of animal welfare standards following national and international legislation on the protection of animals and only if specifically required by legislation or for product safety purposes.

Kemira is a member of the Roundtable on Sustainable Palm Oil (RSPO) supply chain standard for sustainable palm oil. RSPO certified palm oil currently has limited availability and Kemira is also forced to use palm oil derivatives without certification.

## Supplier management

Our Sourcing function is globally responsible for strategic spend management, while our Supply Chain Management function provides supply chain related services on a regional level to our business segments.

Our Sourcing activities cover the identification and selection of suppliers, the consequent negotiations and contract management and the management of supplier relationships. Our supplier selection criteria are based on cost competitiveness, short-term operational excellence, long-term business stability as well as sustainability performance.

Our Supply Chain Management activities cover all supply chain related services to our business segments once the supplier relationship has been established by our Sourcing function. Supply Chain Management services include Customer Service, Logistics, Supply Chain Planning, and Procurement. The Supply Chain Management function has regional units that each provide all the services needed within their respective regions.

The total spend of the Sourcing categories "direct materials" and "indirect goods and services", amounted to about EUR 2.761 billion in 2022. The direct materials cover all raw materials, packaging and energy while indirect goods and services include all non-raw material related spending, for example, on equipment, services, and logistics.

Supplier management and supplier risk and compliance management are cornerstones of our sustainable sourcing roadmap that ensure responsibility in our supply chain. Our Supplier Management focus is on improving economic performance, anticipating risk and initiating approaches with suppliers that are responsible and innovative. It is described in three main processes: Supplier Segmentation, Supplier Performance Evaluations (SPE) and Vendor Value Program.

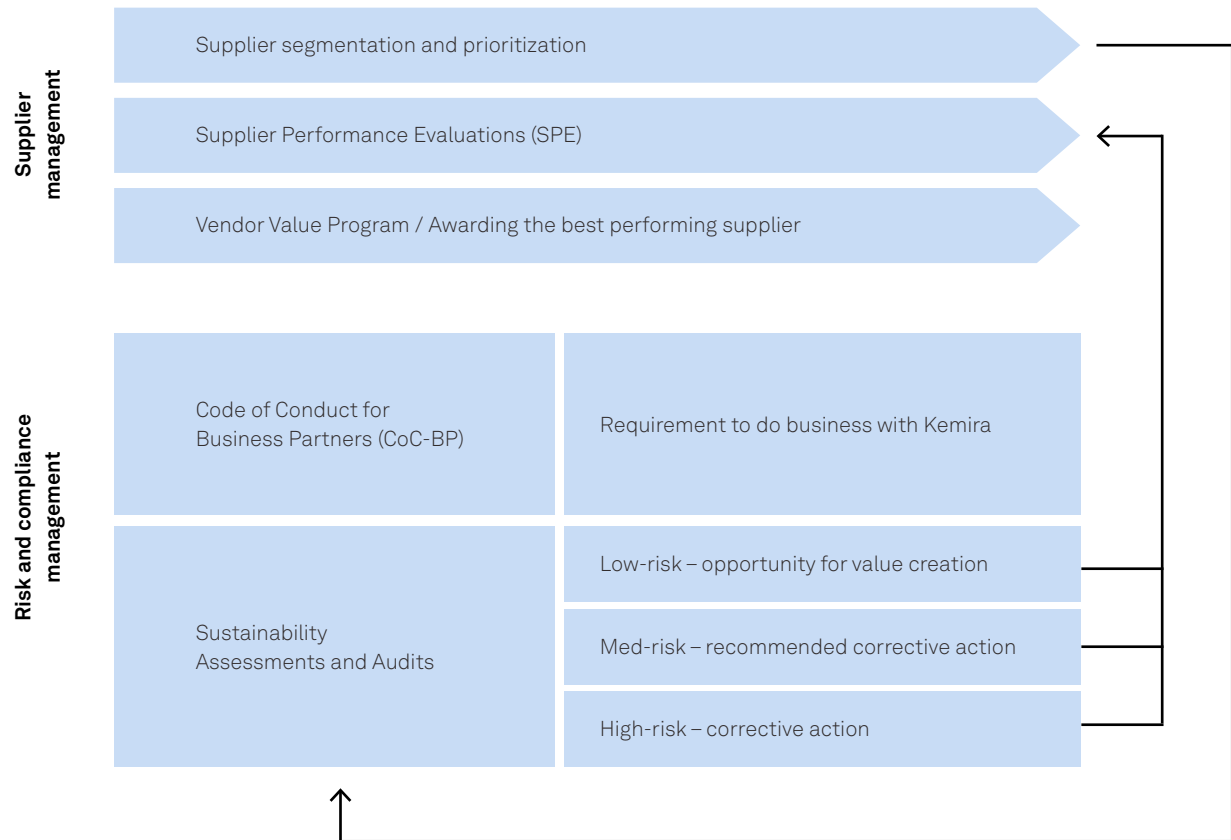
Our suppliers are segmented into four categories: strategic, critical, volume and base suppliers, and prioritized based on multi-factor risk criteria to help us better manage our suppliers and plan actions for necessary risk mitigation.

The SPE program collects and provides regular feedback to our suppliers both on their operational and sustainability performance. The majority of our strategic, critical and volume suppliers are part of regular supplier reviews.

Our Vendor Value Program is aimed at developing capabilities that will enable us to identify, partner with, and manage those suppliers, along the various value chains associated with Kemira's product lines.

Our supplier risk and compliance management define the requirements for suppliers to do business with Kemira, as well as provides tools and processes for mitigating the sustainability risk with our suppliers (sustainability assessments and audits).

## SUPPLIER RISK AND COMPLIANCE MANAGEMENT



## CODE OF CONDUCT FOR BUSINESS PARTNERS

All of our suppliers must follow our Code of Conduct for Business Partners (CoC-BP) in relation to all of their dealings with Kemira. Our CoC-BP is communicated to all suppliers through the ordering process as part of Kemira terms and conditions.

Supplier adherence to these principles is controlled in different stages of our Sourcing processes starting from the new supplier screening/new vendor creation process, to contracting where the commitment to our CoC-BP is integrated in the contract templates. Finally, we have continuous monitoring in place for those contracts exceeding certain spend thresholds to make sure we are reasonably covered.

## SUSTAINABILITY ASSESSMENT AND AUDITS OF SUPPLIERS

We continued enrolling new suppliers into our Sustainability program by assessing them through EcoVadis, conducting Corporate Social Responsibility audits and Quality audits.

**EcoVadis assessment:** In 2022, 48 new suppliers were assessed and a total of 396 suppliers have now gone through the assessment and have recorded an average score of 57, which is higher than industry average on assessed average on the platform. Results with low scores were reviewed together with suppliers and improvement plans were made accordingly. In most cases, low scores were due to lack of supporting documentation provided by the vendor to the assessment company. Around 65% of the 322 reassessed suppliers were able to improve their score.

**Corporate Social Responsibility** audits of direct material suppliers: We did not conduct Corporate Social Responsibility audits in 2022 due to turbulence in supplier management caused by the implementation of a new supplier management IT platform and need to timely address very disruptive supply market conditions.

**Quality audits of suppliers:** Direct material large spend suppliers also undergo quality audits, which include management systems, workplace health and safety standards, production quality and supply security. In 2022, 11 quality audits were conducted for direct material suppliers.

Supplier assessments and audits are part of sourcing processes and Sourcing function target setting and are monitored on a monthly basis. Audit results are being reviewed together with supplier and improvement plans created and followed up accordingly as part of our supplier management practices.

## SUPPLIER SUSTAINABILITY ASSESSMENTS AND AUDITS

	2022	2021	2020
EcoVadis assessment	396	348	291
Corporate Social Responsibility audit	0	1	1
Quality audit	11	14	12

## STRUCTURE OF KEMIRA'S SUPPLIER BASE

	Direct materials	Indirect goods and services
Number of suppliers, approximately	1,600	11,900
EMEA	800	6,700
Americas	500	3,700
APAC	300	1,500
Percentage of suppliers that form 80% of the category spend	9%	7%

## Integrity

### OUR VALUES AND CODE OF CONDUCT

Our management approach to integrity and responsible business practices is based on our corporate values and our Code of Conduct. Our values are:

- We are dedicated to customer success.
- We care for people and the environment.
- We drive performance and innovation.
- We succeed together.

These principles demonstrate our commitment to conduct our business in compliance with all applicable laws and regulations and according to high ethical standards.

Our Code of Conducts set the minimum standards of expected behavior for our employees and business partners. Our internal policies and procedures provide more detailed guidance to steer our daily work and decision-making.

Kemira's Code of Conduct was reviewed, updated and approved by the Board of Directors in 2017 and thereafter reviewed biannually for validity, latest revision in 2021. Every employee is expected to comply with Kemira's Code of Conduct. All people managers and leaders are responsible for implementing the Code within their teams. Since 2013, we have required all of our employees to regularly complete the Code of Conduct online training, which was revised and updated in 2022 – it is currently available in 19 languages. We also train selected employee groups on more specific compliance matters, such as anti-bribery, human rights, competition compliance and insider information.

We expect our business partners to follow our Code of Conduct for Business Partners (CoC-BP) in their business activities. Both of these Code of Conduct documents, as well as our corporate values can be found at [kemira.com](https://kemira.com).

### OUR ETHICS AND COMPLIANCE PROGRAM

Our Ethics and Compliance Program aims to enhance compliance management at Kemira on a continuous basis. The program addresses all of the following measures taken to manage ethics and compliance risks:

- Prevention: measures that help us proactively prevent ethics and compliance risks from materializing
- Detection: measures that help us detect where ethics and compliance risks have materialized or may arise
- Responding: measures that help us investigate and respond to potential ethics and compliance breaches

### ORGANIZATIONAL STRUCTURE FOR ETHICS AND COMPLIANCE

Our Ethics and Compliance function is responsible for overseeing the effective implementation of Kemira's Ethics and Compliance program. The status of the program is also reported directly to the Audit Committee on a regular basis.

The Compliance Committee oversees the management of compliance allegations to ensure fair and sufficient investigation, remediation and consistent disciplinary action across our organization. The committee consists of Group General Counsel, EVP Human Resources, Head of Internal Audit, and Director, Ethics and Compliance.

Our Local Ethics and Compliance Officer Network consists of employees across the organization based in all regions, who support our regional ethics and compliance communication, activities and overall awareness as part of their work.

### INTEGRITY INDEX AND ETHICS & COMPLIANCE SURVEY

Integrity Index has been measured based on employee perception of integrity using the internal MyVoice Pulse survey. We use the question 'Speak My Mind' phrased as 'I can report unethical behavior or practices without fear of retaliation at Kemira' as a single-item index.

In 2022 the Integrity Index was 80 points, 10 points above manufacturing industry benchmark (2 points above 2021) and the participation rate in the survey 81%, being considered a company strength, with high impact in engagement.

In addition, a specific Ethics & Compliance (Risk Clarity) Survey, hosted by Gartner, was conducted in 2022 and sent to all employees, with specific questions to measure the culture of integrity, Kemira's culture scores (77% favorable) were 3% above Gartner's benchmark.

### MECHANISMS FOR REPORTING CONCERNS

We promote a culture that encourages our employees to speak freely. We actively encourage our employees to contact their managers, local HR, Legal or Ethics and Compliance function to express their concerns and ask questions.

All of our employees also have access to an externally hosted Ethics and Compliance hotline, which is a 24/7 service enabling them to report potential violations of our Code of Conduct or other ethical concerns. All employees can anonymously submit such reports in their own languages, by phone or through a web form, which can be accessed through Kemira's intranet, wherever such channels are not restricted by local legislation. Information about the availability of the Ethics and Compliance hotline is shared to all employees on Kemira's intranet. We provide regular mandatory training to all employees. In 2021 the Speak Up! campaign was launched, including an online training available in 18 languages and active communications to our employees on all of our available channels to report concerns and to assure the anonymity of the report, as well as no retaliation. The hotline system and the process of handling the reports are managed by the Ethics and Compliance function. There is an e-mail address that can be used by third parties to report cases of potential misconduct relating to Kemira or our business partners. This information is available on our website and in Kemira's Code of Conduct for Business Partners.

All allegations of potential violations of our Code of Conduct made in good faith will receive a fair and comprehensive investigation utilizing internal and/or external assistance. Any reporting of potential Code violations is treated as strictly confidential and anonymous to the fullest extent and without fear of retaliation.

## CONCERNS OF ALLEGATIONS OF POTENTIAL CODE OF CONDUCT VIOLATION REPORTED IN 2022

	Number of cases	Cases closed with merit	Cases closed without merit	Open cases as at Dec 31, 2022
Cases reported via hotline	13	4	8	1
Cases reported via other channels	16	6	6	4
<b>Total number of cases</b>	<b>29</b>	<b>10</b>	<b>14</b>	<b>5</b>

## CASES CLOSED WITH MERIT BY ISSUE CATEGORY

	Number of cases
Corruption and bribery	0
Code of Conduct (incl. Conflict of Interest / Safety)	4
Employee relations fair treatment	9
Harassment	9
Transactions and company records	7
<b>Total</b>	<b>29</b>

## INCIDENTS OF DISCRIMINATION AND CORRECTIVE ACTIONS TAKEN

During 2022, 29 incidents were reported to the Ethics & Compliance function alleging potential violations to the Code of Conduct. All cases were investigated (5 of them are still under investigation), 10 of the cases were closed with merit and remediated during 2022. No incident was concluded as being a case of discrimination.



# Economic performance

## DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED

Kemira generates economic value from products, expertise and sustainable solutions, enabling our customers to improve their resource-efficiency.

Kemira distributes the generated economic value to various stakeholders. This includes suppliers and service providers through payments for raw materials and services, employees through compensation and benefits, capital providers through dividends and interest payments, public sector through taxes, and society through local community projects, sponsorship and donations. Taxes have a significant impact on our businesses, financing and growth opportunities.

Kemira's approach to tax is to support responsible business performance in a sustainable way. A separate tax footprint report is available at [kemira.com](https://kemira.com) > Company > Investors.

The economic value retained is reinvested in the company for capital investments, R&D and technology development. The economic value retained increased to EUR 304 million in 2022 (125 in 2021).

## ECONOMIC VALUE, CASH FLOW BASED

Stakeholder	Economic value, EUR million	2022	2021	2020
<b>Direct economic value generated: Revenues</b>				
Customers	Income from customers on the basis of products and services sold, and financial income	3,478	2,589	2,443
<b>Direct economic value distributed</b>				
Suppliers	Payments to suppliers of raw materials, goods and services	2,626	1,922	1,630
Employees	Employee wages and benefits	384	371	373
Investors & Lenders	Dividends, interests paid and financial expenses	131	127	121
Government & Public sector	Corporate income taxes	33	44	36
<b>Economic value retained</b>		<b>304</b>	<b>125</b>	<b>283</b>

## Anti-corruption

### OPERATIONS ASSESSED FOR RISKS RELATED TO CORRUPTION

In 2020 Kemira conducted a global ethics and compliance risk assessment, covering key business operations and functions in all regions. Anti-corruption was one of the key focus areas in the assessment. During 2021 and 2022 the assessment results have been utilized in Kemira's ethics and compliance and internal audits. No significant risks related to corruption have been identified through ethics and compliance activities or internal audits in 2022.

### COMMUNICATION AND TRAINING ABOUT ANTI-CORRUPTION POLICIES AND PROCEDURES

Kemira's principles for anti-corruption are included in the Kemira Code of Conduct and in the Kemira Group Gifts, Entertainment and Anti-Bribery Policy. Both documents are available to all employees on Kemira's intranet, and the Code of Conduct is also publicly available at [kemira.com](https://kemira.com).

Kemira's Code of Conduct has been approved by the Board of Directors, and as part of our mandatory and regular Code of Conduct training our anti-corruption principles are communicated to all of our employee groups and regions on a regular basis. All members of Kemira's Board of Directors are aware our anti-corruption principles.

Kemira provides mandatory anti-corruption training to its white-collar employees who need to have a comprehensive understanding of Kemira's anti-corruption principles. The table below demonstrates the scope of the training, with a breakdown by employee category and regions.

### ANTI-CORRUPTION TRAINING PERFORMANCE

		Number of permanent employees, not absent	Number of permanent employees, received training on anti-corruption	% of employees received training on anti-corruption
Americas	White collars	868	847	98%
	Blue collars	654	0	
APAC	White collars	473	471	100%
	Blue collars	457	0	
EMEA	White collars	1,520	1,489	98%
	Blue collars	885	0	
Total		4,857	2,807	58%

We expect our suppliers and other business partners to conduct their business with integrity and commit to Kemira's Code of Conduct for Business Partners in their business activities with Kemira. According to the CoC-BP, Kemira expects our Business Partners to ensure that they, and third parties acting on their behalf, do not offer, give or accept improper or corrupt payments, and that they will not engage in any form of bribery. We aim to communicate the CoC-BP to all of our suppliers, agents and distributors. All of our suppliers (engaged with an SAP Purchase Order) receive a written reference to Kemira's CoC-BP as part of the Kemira general terms of purchase on the back of the Purchase Order.

## TOTAL NUMBER AND PERCENTAGE OF SUPPLIERS THAT OUR ANTI-CORRUPTION POLICY HAS BEEN COMMUNICATED TO

Region	Total number of suppliers*	Total number of suppliers* that our anti-corruption principles have been communicated to	% of suppliers* that our anti-corruption principles have been communicated to
Americas	4,200	4,200	100%
APAC	1,800	1,800	100%
EMEA	7,500	7,500	100%
<b>Total</b>	<b>13,500</b>	<b>13,500</b>	<b>100%</b>

\*The numbers include suppliers engaged with an SAP Purchase Order. In addition to SAP transactions, some small purchases are processed via the travel claim process.

## CONFIRMED INCIDENTS OF CORRUPTION AND ACTIONS TAKEN

There were no confirmed incidents of corruption in 2022.

## Anti-competitive behavior

### LEGAL ACTIONS FOR ANTI-COMPETITIVE BEHAVIOR, ANTI-TRUST, AND MONOPOLY PRACTICES

Kemira had no pending or completed legal actions initiated under national or international laws designed for regulating anti-competitive behavior, anti-trust, or monopoly practices in 2022.

# Environmental Performance

## Products and solutions

Kemira is offering sustainable chemical solutions for water intensive industries and is providing best suited products, services and expertise to improve our customers' end product quality, process and resource efficiency. Kemira's products can help in reducing the need of energy and water, cut the amount of waste and emissions and optimize raw material use in customers' processes and end products. Besides increasing resource efficiency, our aim is to develop products and solutions that improve recycleability and biodegradability, to help customers accelerate circularity and meet their sustainability targets. In 2022 Kemira established the Positive Impact Portfolio sustainability program to systematically build further our product sustainability evaluation capabilities.

To better understand the impact of our customer offerings, we calculate how large part of our product revenue is improving resource efficiency in customers' applications. Our KPI is described as the share of revenue from products sold for use-phase resource efficiency. The calculation is performed by identifying and mapping Kemira's product groups that improve resource efficiency in different customer applications, and calculating the revenue of these products and comparing that to the entire revenue. The target is to ensure that at least 50% of our revenue is generated through products improving customers' resource efficiency. We have been able to improve the target from baseline 49% in 2016 to 53% in 2022.

Year	2022	2021	2020	2019	2018	2017	2016
Share of revenue from products sold improving customer resource efficiency	53%	54%	52%	53%	51%	50%	49%

Kemira New Product Development (NPD) process, described in section Product development, is also a big contributor in development of the sustainable products and solutions portfolio. During 2022, we started 14 (2021: 12) new product development projects, 86% of them aiming to improve customers' resource efficiency. At the same time, Kemira started commercialization of nine new product development projects all contributing to improve resource efficiency at customers. At the end of year 2022, Kemira had 401 (2021: 382) patent families, including 2,101 (2021: 1,972) granted patents and 1,026 (2021: 996) pending applications. During 2022, Kemira applied 34 (2021: 36) new patents.

Transition to renewable resources is one core element in Kemira's product portfolio strategy. This is advanced through our focus on renewable raw materials innovation and our trailblazing public target of increasing our biobased products revenue by 2030. Replacing fossil raw materials with more sustainable ones is advanced in many ways. The mass balance concept, which enables quick expansion towards biobased and sustainable products, having significantly lower carbon footprints compared to traditional products, is one of our approaches. This means that renewable raw materials can be utilized in existing production infrastructures creating identical product quality and performance in making conventional products. Kemira uses the ISCC PLUS\* certification system for the mass-balance accreditation, because it is a globally widely recognized system and is also adopted by our suppliers and specific customers. Kemira produces certified biobased products in ISCC accredited manufacturing facilities in Austria, Italy and the UK, and globally supplies them to customers in water-intensive industries. In 2022 Kemira was the first company in the world to sell ISCC PLUS certified polyacrylamide (PAM) polymers.

\*ISCC PLUS is a sustainability certification program for renewable raw materials for all markets and sectors without regulation

## Materials

The renewable materials used include mainly starches, tall oil, and fatty acid derivatives.

The recycled input materials are industrial by-products and recycled materials from external partners. These materials include mainly inorganic materials such as scrap iron, ferrous sulfate and spent pickling liquor bath. Industrial by-products are mainly from smelters, as well as steel and metal manufacturing. Inorganic byproducts and recycled materials are mainly used in the production of inorganic coagulants, which are used in water treatment.

Materials	GRI disclosure	2022	2021	2020
Total raw materials used, million metric tons	301-1	2.48	2.51	2.21
Renewable raw materials, %	301-1	3.3	3.6	3.6
Renewable raw materials as a share of carbon-containing raw materials, %	301-1	19.7	21.3	15.8
Recycled raw materials, %	301-2	38.2*	37.7*	28.0
Carbon-containing raw materials, %		16.6	17.0	23.1

\*Recycled materials % for the year of 2021 and 2022 are higher than previous years due to that more volume of spent pickling liquor bath is being reported.

## Energy

### ENERGY CONSUMPTION AND MANAGEMENT

Energy costs amount to approximately 12% (9% in 2021) of our total sourcing spend. By continually improving energy efficiency at manufacturing sites, we are consistently reducing our energy usage, emissions and associated costs.

In 2022, our operations in Finland accounted for 41% (42% in 2021) of our total energy consumption. The USA accounted for 31% (30% in 2021), and other countries accounted for the remaining 28% (28% in 2021).

A substantial portion of our energy management activities is focused on the most energy-intensive sites, which include seven sodium chlorate manufacturing plants in Finland, USA, Uruguay and Brazil. Electricity is our most important energy source, accounting for 70% (71% in 2021) of the total energy input. Sodium chlorate plants purchased 90% (90% in 2021) of the electricity, which is the main raw material in the chlorate manufacturing electrolysis process.

Kemira has its most significant energy consuming European sites certified (Äetsä, Joutseno and Helsingborg) according to the ISO 50001:2018 standard. Additionally the sites in San Giorgio and Fredrikstad are certified.

As an energy-intensive company, we strive to reduce our climate and environmental impact in energy purchases. Our most important measures in mitigating our climate impact can be found in the climate target section.

A summary of Kemira's energy consumption within and outside of the organization is the following table.

## ENERGY BALANCE, GWh

	GRI disclosure	2022	2021	2020
<b>Total fuel and purchased energy input</b>		<b>4,492</b>	<b>4,932</b>	<b>4,692</b>
Consumed fuel as energy source		792	831	743
Non-renewable	302-1a	792	831	743
Renewable	302-1b	0	0	0
Purchased electricity	302-1c	3,157	3,517	3,301
Non-renewable		2,198	2,502	2,477
Renewable		959	1,014	825
Purchased heat and steam	302-1c	543	584	648
Non-renewable		330	310	283
Renewable		212	274	364
<b>Total fuel and purchased energy input by source</b>	302-1a, b	<b>4,491</b>	<b>4,932</b>	<b>4,692</b>
Non-renewable		3,320	3,644	3,503
Renewable		1,171	1,288	1,189
<b>Total energy sold/delivered off-site</b>		<b>506</b>	<b>535</b>	<b>471</b>
Heat <sup>1</sup> sold/delivered off-site	302-1d	426	453	390
Electricity sold/delivered off-site	302-1d	80	82	81
<b>Total energy consumption<sup>2</sup></b>	302-1e	<b>3,986</b>	<b>4,397</b>	<b>4,221</b>
<b>Change in total energy consumption<sup>3</sup></b>	302-4	<b>-411</b>	<b>176</b>	<b>-142</b>
Production volume, thousand metric tons		5,339	5,517	4,946
<b>Energy intensity, GWh per thousand metric tons of production<sup>4</sup></b>	302-3	<b>0.75</b>	<b>0.80</b>	<b>0.85</b>

1. Sum of steam, district heat, condensate, and other heat delivered off-site.

2. The amount of fuel consumed plus purchased electricity and heat minus heat and electricity sold.

3. Comparison of total energy consumption to the previous year.

4. Kemira has calculated the energy intensity by dividing total energy consumption with the annual production volume. Energy intensity is strongly dependent on the types of production mix.

## ENERGY EFFICIENCY ENHANCEMENT PROGRAM

During 2022 we continued implementing our E3plus (Energy Efficiency Enhancement) program established in 2010. The E3plus program aims to reduce the overall specific energy consumption, measured as kWh per tonne of product, at each of our manufacturing sites.

The key focus areas of the E3plus program are:

- Continuing the global alignment of energy efficiency management across all Kemira sites
- Focused and thorough E3 Energy Reviews to identify improvement projects and support their implementation at our manufacturing sites
- Technical and economic evaluation of investment projects to improve energy efficiency
- Further development of the Kemira energy efficiency management system, improving energy management, and obtaining and maintaining ISO 50001:2018 certification in 5 selected manufacturing sites.

Our global Energy Management Team (EMT) coordinates, steers and supports energy management activities across all regions. Members of the EMT represent the top management of our manufacturing sites, as well as our global energy sourcing management.

Kemira participates in the voluntary national Energy Efficiency Agreement in Finland ("[Energiatehokkuussopimus](#)") for the period 2017–2025. This Agreement is a part of Finland's national ratification of the EU's response to the Paris Climate Agreement. The total savings reported to the National Energy Authority in Finland ("Energiavirasto") since 2017 are 122 GWh/a, equivalent to approximately 3.7 MEur/a.

Our energy efficiency measures and activities focus on sites which have the highest energy consumption. There are 15 sites that consume approximately 90% of the energy in Kemira, and contribute approximately 85% of the company Scope 1 and Scope 2 emissions. Site-specific energy efficiency targets are defined for the largest energy consuming sites, based on energy consumption baseline data, the findings of E3 Energy Reviews, and the availability of resources.



During 2022 energy savings were additionally achieved through the implementation of 61 (41 in 2021) projects across Kemira’s operations, saving a total of 12,478 (28,228 in 2021) MWh/a of energy, equivalent to EUR 0.8 (1.2 in 2021) million savings. The cumulative cost savings of more than 610 (550 through 2021) projects implemented since the start of the E3plus program in 2010, now totals EUR 14.0 million (13.2 in 2021).

ENERGY CONSUMPTION OUTSIDE OF THE ORGANIZATION

Some of our sodium chlorate manufacturing sites provide energy in the form of byproduct fuel (hydrogen) to third-party organizations that use the fuel for manufacturing processes and energy generation activities. The downstream hydrogen consumption by the organizations outside of Kemira offsets the use of carbon-containing fuels for their industrial and energy generating activities, and therefore, offers potential for CO<sub>2</sub>e emissions reductions for those organizations. Since the use of the hydrogen by the organizations does not result in CO<sub>2</sub>e emissions, Kemira reports 0 for its Scope 3, Category 11 emissions. A summary of the energy consumed outside of Kemira is provided below.

HYDROGEN CONSUMPTION OUTSIDE OF KEMIRA, GWh

	2022	2021	2020
Hydrogen consumption outside of Kemira, GWh	262	189	249

KEMIRA ENERGY EFFICIENCY INDEX

The Kemira Energy Efficiency Index measures the ratio of energy use to production volumes normalized to a 2012 benchmark for our 15 large manufacturing sites covering approximately 90% of energy consumption. The baseline is 100 and a number less than that indicates an improvement. The figure for 2022 is the lowest in measurement history, i.e. energy efficiency has improved. The index is not affected by changes in production volumes but may be affected by the product mix.

KEMIRA ENERGY EFFICIENCY INDEX PERFORMANCE

2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
95.6	96.7	97.2	96.5	97.1	97.4	96.9	97.7	99.1	98.9	100

Greenhouse gas (GHG) emissions

DIRECT AND INDIRECT EMISSIONS SOURCES

Kemira’s GHG emissions are primarily CO<sub>2</sub>, and negligible emissions of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Kemira estimates GHG emissions using factors in terms of CO<sub>2</sub>e and does not specifically estimate and report mass emissions of CH<sub>4</sub> and N<sub>2</sub>O since CO<sub>2</sub> comprises over 99% of CO<sub>2</sub>e emissions.

The majority of the electricity used at our Kemira manufacturing sites is obtained from external providers. Many Kemira facilities consume steam and heat generated on-site.

Direct (Scope 1) GHG emissions from Kemira’s manufacturing sites are from the following sources:

- Generation of steam, heat and electricity: these Scope 1 emissions result from the combustion of fuels such as natural gas, hydrogen, and fuel oil used by boilers and internal combustion engines, and these fuels and others such as propane, diesel, and gasoline used by mobile sources such as forklifts.
- Our sodium chlorate sites use byproduct hydrogen gas in their boilers to offset the use of carbon-containing fuels.
- Emissions from physical or chemical processing of carbon-containing feedstock, raw materials and chemicals such as natural gas, sodium and calcium carbonate, and coke.
- Emissions from our transportation fleet in North America.

Indirect (Scope 2) GHG emissions consist of the CO<sub>2</sub>e from the generation of purchased or acquired electricity, heating, and steam consumed by an organization. Our sites purchase or acquire electricity, heating, and steam resources from either the local municipal authority or private company, or from a separate manufacturing facility located within the same industrial complex.

Other indirect (Scope 3) GHG emissions are a consequence of Kemira’s business activities but occur from sources not owned or controlled by our company.

## GHG EMISSIONS (kt CO<sub>2</sub>e) FROM MANUFACTURING SITES

	GRI disclosure	2022	2021	2020
<b>Total GHG emissions<sup>1</sup></b>		<b>4,425</b>	<b>4,537</b>	<b>4,328</b>
Direct (Scope 1) GHG emissions <sup>2a</sup>	305-1	139	160	136
Biogenic Direct (Scope 1) GHG emissions <sup>2b</sup>	305-1c	0	0	0
Energy indirect (Scope 2) emissions: market-based <sup>3</sup>	305-2	677	696	749
Energy indirect (Scope 2) emissions: location-based		655	723*	845
Other indirect emissions: Scope 3 <sup>4</sup>	305-3a	3,609	3,681*	3,443*
Other indirect emissions: Scope 3 Biogenic emissions	305-3c	0	0	0
<b>Change in total GHG emissions</b>	<b>305-5</b>	<b>-112</b>	<b>209*</b>	<b>-143*</b>
Production volume, thousand metric tons		5,339	5,517	4,946
<b>GHG emissions intensity, tCO<sub>2</sub>e per metric tons of production<sup>5</sup></b>	<b>305-4</b>	<b>0.83</b>	<b>0.82</b>	<b>0.88</b>

\* Updates to data were provided by sites during 2022 data collection.

1. Scope 1 + Scope 2 market-based + Scope 3.

2a. GHG emissions from sources that are owned or controlled by Kemira (Scope 1 of the WRI/WBCSD GHG Protocol). GHG emissions are calculated as CO<sub>2</sub>e which includes CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>.

2b. GRI Standard specifies reporting of biogenic emissions reported starting in 2017.

3. GHG emissions from the generation of purchased electricity, steam and heat that is consumed by Kemira (revised Scope 2 of the WRI/WBCSD GHG Protocol). Market-based emissions are used for target setting and following progress. Location-based emissions are also shown, but these are not used for other indicators. The sources for the emission factors used are the IEA, the UK government's Department for Environment, Food and Rural Affairs (DEFRA), Motiva Ltd. and energy utility companies.

4. GHG emissions from Kemira's value chain (Scope 3 of WRI/ WBCSD GHG Protocol). Scope 3 emissions have changed due to an improvement in the calculation method for purchased goods and services. Kemira has implemented a volume-based approach for Categories 1 and 2 where factors are available.

5. Kemira has calculated the GHG emissions intensity as the ratio of total GHG emissions per production volume. Direct GHG emissions (Scope 1), indirect GHG emissions from energy consumption (Scope 2 market-based) and other indirect GHG emissions (Scope 3) are included.

Kemira operates a transportation fleet in North America to deliver products to customers and raw materials to our manufacturing sites. The GHG emissions associated with the fleet are not included in the table above or in our climate target for our manufacturing sites. Beginning in 2019, Kemira obtained reliable fuel consumption data from our suppliers to estimate Scope 1 emissions related to our North America transportation fleet. The table below summarizes the emissions estimated since 2019. Kemira will continue to report these Scope 1 emissions in addition to the Scope 1 emissions from our manufacturing operations.

## GHG EMISSIONS FROM NORTH AMERICAN TRANSPORTATION FLEET

	2022	2021	2020
Thousand metric tons CO <sub>2</sub> e	10.3	11.5	18.1

### Other indirect (Scope 3) GHG emissions

Purchased goods and services (including capital goods) cover 80% (79% in 2021), and transportation and distribution emissions (upstream and downstream) 12% (13% in 2021) of our Scope 3 emissions. Fuel and energy related activities are 7% (7% in 2021) of overall Scope 3 emissions.

Kemira uses a hybrid approach of volume-based and spend-based data and emission factors to estimate emissions associated with purchased goods and services. Approximately three quarters of our total Scope 3 data is volume-based. This hybrid approach is considered to be more representative of our emissions profile because the influence of raw material costs fluctuations is eliminated and Scope 3 emissions are associated with the actual amounts of goods and services used in our production processes. Furthermore, this approach aligns with our ongoing collaboration with our value chain partners to obtain product-specific carbon footprints and life cycle assessments that are based on material consumption. In 2023, Kemira will launch a supplier-engagement program to collect product carbon footprint data ("primary data") from our suppliers to improve our Scope 3 emissions estimate process. The transition from secondary data to supplier-provided primary data will identify opportunities to reduce our Scope 3 emissions, establish our Scope 3 SBTi target, and support our strategies to decarbonize the lifecycle of our products.

Kemira continues to improve our transportation and distribution data collection and emissions methodologies, and has increased our collaboration with our business partners to improve the accuracy of the Scope 3 emissions estimates.

## OTHER INDIRECT (SCOPE 3) GHG EMISSIONS BY CATEGORIES (kt CO<sub>2</sub>e)

	GRI disclosure	2022	2021	2020
<b>Total Scope 3 emissions</b>	<b>305-3d</b>	<b>3,609</b>	<b>3,681<sup>^^</sup></b>	<b>3,443<sup>^^</sup></b>
1. Purchased goods and services		2,887	2,891 <sup>^^</sup>	2,627 <sup>^^</sup>
2. Capital goods*		*	*	*
3. Fuel and energy related activities		244	268	200
4. Upstream transportation and distribution <sup>^</sup>		288	312	260
5. Waste generated in operations		20	24	100
6. Business travel**		5	5	5
7. Employee commuting**		10	10	10
8. Upstream leased assets (leased offices)**		10	10	10
9. Downstream transportation and distribution <sup>^</sup>		144	161	230
11. Use of sold products		0	0	0
12. End-of-life treatment of sold products		1	1	1

\* Emissions of Category 2: Capital goods are included in Category 1: Purchased goods and services.

\*\* Categories 6–8 historically contribute less than 2% each year. 2019 - 2021 were assumed to be at the same level as historical years despite actual emissions likely to be lower due to changes in work practices related to COVID-19.

<sup>^</sup> Calculation methodology is based on the GLEC framework methodology for downstream and internal movements paid by Kemira. Other logistics scenarios are calculated using the prior methodology.

<sup>^^</sup> Calculation methodology for Categories 1 and 2 changed as described above, which results in changes to the total emissions. Specifically, Kemira updated the emissions factors used in its calculation to account for the location of the activity and adjustments to the published factors to account for physical properties of its materials such as concentration. For example, if the published factor is based on 100% concentration of a material, Kemira adjusted the factor to account for different concentrations used (such as a 50% concentration).

Category 11 emissions were estimated to be zero or close to zero, as Kemira does not sell combustible fuels, products that form GHG emissions during use, or products that contain GHG. The hydrogen provided to third-parties is zero-carbon fuel.

Category 12 covers all products sold. If a product is not known to have a new lifecycle, it is classified as waste.

The calculation is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and a supporting guidance document Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain. Scope 3 emissions have been calculated since 2012. GHG emission are calculated as CO<sub>2</sub>e. The sources for the emission factors used include the guidance document for the Chemical Sector, the DEFRA, the IEA, Ecoinvent, CEFIC and ECTA. Data covers all of Kemira's production sites according to Kemira consolidation rules. The margin of error for Scope 3 calculations is +/- 20%.

NOTE: Category 10 Processing of sold products is not calculated because it cannot be reasonably tracked; Category 13 Downstream leased assets is not relevant to chemical sector; Category 14 Franchises is not relevant to chemical sector; Category 15 Investments: No information available.

## CLIMATE TARGET

In 2022, Kemira updated our existing climate target as part our commitment to the SBTi. Our target reduction for our Scope 1 and Scope 2 market-based GHG emissions from our manufacturing sites was raised from 30% to 50% by 2030 compared to a 2018 baseline of 930 thousand metric tons CO<sub>2</sub>e. Kemira is currently evaluating a quantitative reduction target for our Scope 3 emissions under SBTi. Our Scope 1+2 and Scope 3 targets will be submitted to SBTi for approval by June 2024. Our long-term ambition remains to be carbon neutral by 2045 for combined Scope 1 and Scope 2 market-based GHG emissions. Our long-term ambition will also be evaluated as part of our SBTi commitment.

Kemira's Scope 1 and Scope 2 market-based GHG emissions in 2022 were 816 (856 in 2021) thousand metric tons CO<sub>2</sub>e. Assuming a linear decrease from the 2018 baseline of 930 thousand metric tons CO<sub>2</sub>e to the targeted emission rate of 461 thousand metric tons CO<sub>2</sub>e by 2030, Scope 1 and Scope 2 market-based emissions in 2022 would be approximately 774 thousand metric tons CO<sub>2</sub>e. This corresponds to a 5.5% difference  $[(816-774)/774 \times 100\%]$  between actual 2022 emissions and the projected 2022 emissions from the 2018 base year using the SBTi methodology). Kemira's emissions in 2022 are slightly above the level expected to meet the updated 2030 climate target. However, as part our preparations to submit our SBTi for validation, Kemira has ongoing near-term projects which are expected to further reduce our emissions in line with the more ambitious target.

Kemira's short-term focus for achieving our climate target is energy efficiency projects (as discussed in the Energy Efficiency Enhancement Program - E3plus section) and power purchase agreements (PPAs) for our most energy intensive sites. Kemira also continues to evaluate zero-carbon fuel and feedstock projects for our largest natural gas consuming sites. During 2022, our largest manufacturing site (located in Sweden) renewed an electricity sourcing contract (October 2022 through December 2023) that includes Guarantees of Origin (GoO) from wind power for 50% of the site's sourced electricity consumption. This will reduce Scope 2 emissions from the site by approximately 13 thousand metric tons CO<sub>2</sub>e per year, and the site will have 75% of its electricity consumption demand from zero emission sources.

Scope 3 emissions, and in particular, emissions from purchased goods and services, are the majority of Kemira GHG emissions. Therefore, engagement with our value chain partners will be one of the primary actions taken to reduce our Scope 3 emissions. Kemira uses resources such as the EcoVadis platform to assess the overall sustainability programs (including GHG emissions) of its suppliers. The efforts in early 2022 resulting in our June 2022 SBTi commitment included a review of our raw material suppliers and the cradle-to-gate emissions associated with their products. An inventory of emission factors and material trends over time was prepared to identify the most appropriate emissions data to use in our Scope 3 process, and to identify opportunities to improve our supplier engagement process.

Our portfolio of product carbon footprints (PCFs) continues to expand, allowing us to provide our global customers with up-to-date product climate impact information. For 2023, we look to expand the scope of our PCFs in response to increasing demand.

## CLIMATE RISK SCENARIO ANALYSIS

In 2022, Kemira conducted an initial climate risk scenario analysis in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) framework. The analysis evaluated Kemira's climate risk from a global company perspective, as well as a sampling of risk from a local perspective using three manufacturing sites (two sites in Europe and one site in the USA) and four business functions (Product Stewardship and Regulatory Affairs, Product Development, Supply Chain Management, and Sourcing). The analysis resulted in a process that can be used at all manufacturing sites and functions within Kemira over time to fully assess our climate risks as a company.

Kemira evaluated the climate-related transition and physical risks and opportunities that are most relevant to Kemira and its value chain in the short-term (2030); medium-term (2030–2050), and long-term (2050 and beyond). The most material risks considering both likelihood and financial impacts on a company basis are summarized below:

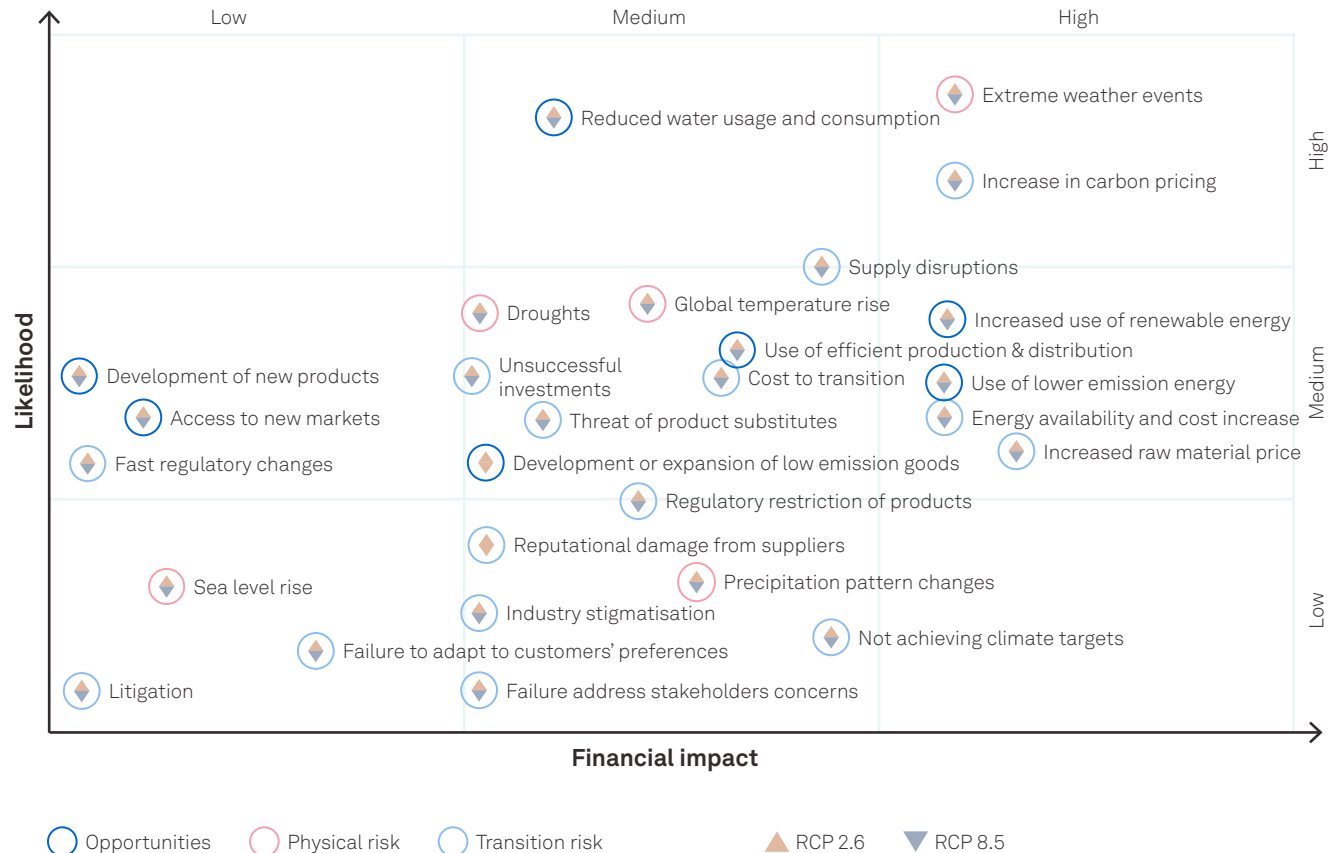
- Increases in carbon pricing (transition risk) due to legislation and global markets in response to a transition to low carbon economies.
- Extreme weather events (physical risk) such as hurricanes, floods, and extreme winters that impact transportation, sourcing, and site operations.

Transition risks are expected to impact operations in Europe sooner and more significantly than other areas of the world based on current and emerging regulations. Kemira's operations in the southeastern USA are particularly at risk to physical risks such as hurricanes, flooding, and droughts. A general increase in extreme weather events is expected across the globe.

Climate-related opportunities are associated with emerging markets such as textiles and wood fibers (renewable materials) and in response to more stringent regulations for water quality (a current key segment for Kemira).

The figure below presents the financial impacts and likelihood of risks over time identified in this analysis.

**MATRIX DISPLAYS THE FINANCIAL IMPACT AND LIKELIHOOD OF RISKS OVER TIME, WITH THEIR RELEVANCE IN BOTH SCENARIOS\***



\* Matrix formulated based on overall data of three sites and four business functions. Covers only short-term time (until 2030).

## Other emissions to air

Kemira does not produce, import, or export ozone depleting substances (ODS). The use of ODS at Kemira sites (where they have not already been replaced by approved substitutes due to local regulations) is limited to comfort or process cooling applications. Since these applications use closed loop systems, emissions from ODS would only result from leaks. Kemira's preventive maintenance programs minimize the potential for leaks and implement corrective actions in the event a leak is discovered.

Kemira almost exclusively uses hydrogen and natural gas for its on-site steam and heat requirements. Mobile equipment are either electric or use fuels such as natural gas, propane, and low-sulfur diesel fuel. Therefore, Kemira's air emissions of NO<sub>x</sub>, carbon monoxide, and SO<sub>x</sub> from combustion processes are not a material topic for Kemira. Kemira's emissions of dust, acid gases, and volatile organic compounds (VOC) are associated with its material handling and manufacturing processes. These releases also are not a material topic for Kemira. Kemira reports these emissions for completeness.

Emissions are estimated based on direct measurements, published emissions factors, mass balance, or estimates based on similar operations or engineering.

### AIR EMISSIONS OTHER THAN GHGS (T)

	GRI Disclosure	2022	2021	2020
NO <sub>x</sub>	305-7a.i	170	168	163
SO <sub>x</sub>	305-7a.ii	51	60	57
Persistent organic compounds (POP)	305-7a.iii	0	0	0
VOC	305-7a.iv	785	1,020	370
Hazardous air pollutants	305-7-a.v	135	114	11
Particulate matter (dust)	305-7a.vi	79	62	40
Carbon monoxide	305-7a.vii	187	226	Not calculated
Hydrochloric acid	305-7a.vii	116	144	Not calculated

## Water

### WATER MANAGEMENT

Kemira ensures that all its employees at all manufacturing sites have access to Water, Sanitation and Hygiene (WASH). Through our Sustainability and EHSQ Policy and Nature Stewardship program, we strive to minimize water consumption and minimize the negative impact of water discharge activities on the quality of receiving water bodies. Kemira's manufacturing processes require water primarily for use as cooling water and process water.

We are continuously evaluating opportunities to decrease water withdrawal, consumption, discharge, and associated impacts through water recycling and reuse, and process redesign and optimization. Where possible, water is recycled and/or reused at our sites to reduce water withdrawal, consumption, and discharge. Product portfolio is regularly assessed to identify opportunities to reduce freshwater use in products.

Wastewater and cooling water discharges at the manufacturing sites are regulated by environmental permits of the manufacturing sites and associated Environmental Impact Assessments (EIA), including the profile of the receiving waterbody. Wastewater generated from Kemira's manufacturing processes are primarily treated in third-party wastewater treatment plants prior to discharge to a waterbody. Cooling water does not usually require treatment prior to discharge.

Kemira uses the EcoVadis platform to assess sustainability of its suppliers. Water management is included as one criteria in EcoVadis platform. In EcoVadis, suppliers are requested to meet certain standards and continuously improve in the area of environment including environmental compliance, waste, air emissions, climate change, water and groundwater, wastewater, energy, nuisance (noise and odor), land use & biodiversity, soil and hazardous chemicals. Scope and results of 2022 EcoVadis assessment are presented in chapter Sustainability Assessments and Audits of Suppliers earlier in this report.

## WATER TARGET

In 2021 Kemira introduced a new water target to improve our water management to Leadership level based on CDP Water Security scoring methodology by the end of 2025 (score A/A-). Kemira answered to CDP's Water Security full questionnaire for the first time in 2021 and achieved score B (Management level). The 2022 score remained as B (Management level) even if the scoring criteria was stringent. Based on scoring report Kemira's overall water management improved compared to 2021.

## WATER RISK ASSESSMENT

Kemira updated its water risk assessment in spring 2022. On site level, identification, assessment and responding to water risks is included in the sites' EHSQ Risk Assessment process. Site specific EHSQ Risk Assessments are audited on regular basis internally by Kemira's Global EHSQ function and externally by accredited ISO 14001 auditors. Environmental impacts and risks (including water-related impacts and risks) have been initially assessed as part of the Environmental Impact Assessments during the environmental permitting process of the sites. Permit compliance is supervised and controlled by the local environmental authorities by regular inspections and regular environmental reporting to the authorities. Environmental permits are revised and updated as required by local legislation and regulators. At global level, water related risks are included in the Global level Environmental Aspects and Impacts Assessment and EHSQ Risk Assessment which are updated and reviewed minimum every three years.

Water-related risks are further assessed by Global EHSQ function annually using WRI's Aqueduct tool to identify sites in water stress areas and WWF Risk Filter for overall basin risk

and operational risk at manufacturing sites located in water stress areas. Kemira has 9 sites (14 % of the sites) located within water stressed areas (areas of "High" or "Extremely High" water stress - that is, areas in which more than 40% of available water is used by industry, household and agriculture). WRI Aqueduct identified that 3 Kemira's sites are in "High" and 6 sites are in "Extremely high" water stress areas. The scenario analysis ("Pessimistic") showed that by 2040, 8 sites would be in "High" and 7 sites would be in "Extremely high" water stress areas. The WWF Water Risk Filter showed that 8 Kemira's sites are in "High" overall basin risk areas and the scenario analysis ("Pessimistic") identified that by 2050, 13 sites would be in "High" and 4 sites would be in "Very high" overall basin risk areas, with no sites identified in "Extreme" overall basin risk areas. In both WRI Aqueduct and the WWF Water Risk Filter scenario analyses, the "Pessimistic" pathway was used to foresee the worst possible outcome. Kemira's goal however is to progress towards the "Optimistic" pathway instead by further developing its water management strategy aligned with the SDG Goal 6 to mitigate major negative water impacts in the future.

As part of Kemira's 2022 CDP Water Security disclosure, water-related risks with potential to have significant (>EUR 1 million) financial or strategic impact in site's business (3 to 6 years into the future) have been identified at some manufacturing sites. Considering the scenario assessments and based on internal data received from the sites, 21 sites were selected for a more detailed water risk assessment including interviews and/or operational risk assessment using WWF Water Risk Filter. No site specific substantive risks were identified within the timeframe of 3 to 6 years into the future considering mitigation measures at the sites. The substantive financial or strategic impact on Kemira's business is defined as financial implications above EUR 10 million.



## WATER WITHDRAWAL, CONSUMPTION AND DISCHARGE TRENDS

Total water withdrawal decreased 9% compared to 2021 and 5% compared to 2020. The total water consumption decreased 5% compared to 2021 and 6% compared to 2020. The water withdrawal intensity (m<sup>3</sup> per metric tons of production) decreased 6% from 2021 and 12% from 2020. Most of the water withdrawal is used for cooling water purposes (92%). The total water discharges decreased 9% compared to 2021 and 5% compared to 2020. Most of the water discharge is cooling water and other water that requires no treatment (97%). Water withdrawal and discharges decreased mostly due to decrease of production and in particular decrease of water intensive products.

Kemira's goal is to continuously decrease freshwater use intensity. Freshwater use intensity has decreased by approximately 8% from 2021 and 17% from the baseline year 2019 due to process improvements and a decrease in the proportion of water intensive products. Freshwater use intensity is defined by Kemira as m<sup>3</sup> water withdrawn minus use of cooling water and produced water per metric ton of production.

## WATER WITHDRAWAL AND FRESHWATER USE (MEGALITERS)

	2022	2021	2020
<b>Process water withdrawal, total</b>	6,364	7,001	7,147
Surface water withdrawal - Process	587	644	664
Groundwater withdrawal - Process	279	273	285
Seawater withdrawal - Process	0	0	0
Produced water - Process	69	75	67
Third party water withdrawal - Process	5,411	5,987	6,042
Rain water - Process	18	22	90
<b>Cooling water withdrawal, total</b>	76,376	83,454	79,974
Surface water withdrawal -Cooling	55,297	61,006	60,294
Groundwater withdrawal - Cooling	1,988	2,193	1,935
Seawater withdrawal - Cooling	18,060	19,113	16,667
Produced water - Cooling	97	85	77
Third party water withdrawal - Cooling	934	1,058	1,001
Rainwater - Cooling	0	0	0
<b>Other water, total</b>	232	420	348
Surface water withdrawal - Other	0	12	12
Groundwater withdrawal - Other	59	108	68
Seawater withdrawal - Other	0	0	0
Produced water - Other	0	0	0
Third party water withdrawal - Other	173	291	204
Rainwater - Other	1	9	65
Water withdrawal intensity, m <sup>3</sup> per metric ton of production	16	17	18
Freshwater use, m <sup>3</sup>	6,509	7,315	7,275
Freshwater use intensity, m <sup>3</sup> per metric ton of production	1.2	1.3	1.5
Production volumes, thousands of metric tons	5,339	5,517	4,946

Freshwater use intensity is defined as m<sup>3</sup> water withdrawn minus use of cooling water and produced water per ton of production, i.e. surface water (process and other), groundwater (process and other) and third-party withdrawal (process and other) is included in the calculation of water use.

Other water includes water used in ancillary operations such as water used as potable water, sanitary water and cleaning and washing of premises used for ancillary operations such as outdoor areas outside of production, workshops, offices and toilets.

## OVERVIEW OF WATER FLOWS (MEGALITERS)

GRI disclosure		2022	2022	2021	2021	2020
		All areas	Areas with water stress	All areas	Areas with water stress	
<b>Water withdrawal by sources, total</b>	<b>303-3</b>	82,973	489	90,875	515	87,470
Surface water		55,902	1	61,693	0	61,125
Ground water		2,326	147	2,573	228	2,288
Seawater		18,060	0	19,113	0	16,667
Produced water		166	73	160	85	144
Total third-party water		6,518	268	7,336	201	7,247
Third-party water by source	Surface water	N/A	196	N/A	139	N/A
	Groundwater	N/A	72	N/A	62	N/A
	Seawater	N/A	0	N/A	0	N/A
<b>Water discharges by destination, total</b>	<b>303-4</b>	76,939	207	84,360	294	80,730*
Surface water		57,006	N/A	62,869	N/A	61,880
Ground water		0	N/A	0	N/A	0
Seawater		18,088	N/A	19,296	N/A	16,869
Total third-party water		1,845	N/A	2,194	N/A	1,981*
Third-party water sent for use to other organizations		2	N/A	3	N/A	7*
Water discharge by treatment	No treatment (mainly cooling water)	74,678	N/A	81,688	N/A	78,286
	Own treatment	416	N/A	478	N/A	463
<b>Water consumption</b>	<b>303-5</b>	6,178	282	6,515	221	6,740

\* Updates to data were provided by sites during 2022 data collection.

A breakdown of volumes by freshwater (<1,000 mg/L Total Dissolved Solids) and seawater (>1,000 mg/L Total Dissolved Solids) is not provided since only one site uses seawater as cooling water and discharges the cooling water back to seawater after cooling.

Produced water as defined in GRI 303 is generated in Kemira's two tall oil plants in which water is extracted from raw material in process and water as steam condensate for steam from off-site source is categorized as produced water.

Water consumption consists of the water withdrawn and incorporated into products, evaporated, consumed by humans, or otherwise unusable by others such that it is not released back to surface water, groundwater, seawater, or a third-party.

Water discharges in 2022 include 144 megaliters of wastewater from off-site sources that is not included in calculation of water consumption.

Water storage is not a significant water-related impact at our manufacturing sites and therefore, is not reported in our disclosure.

Wastewater generated from Kemira's manufacturing processes are primarily treated in third-party wastewater treatment plants. 82% of Kemira's wastewater that is required to be treated is treated at third-party wastewater treatment plants with no data available on direct effluent to water bodies. 18% of treated water is treated at own treatment plants. Kemira's most significant direct emissions to waterbodies include BOD, COD, TDS and TSS discharges. COD and TSS emissions are primarily associated with two manufacturing sites that have on-site wastewater treatment plants, while TDS emissions mostly originate from one site with cooling water discharge to surface water. The overall effluent emissions are therefore minor at Kemira.

## TOTAL DIRECT EFFLUENT EMISSIONS BY QUALITY (METRIC TONS)

	2022	2021	2020
Biochemical oxygen demand (BOD)	0.2	0.2	0.9
Chemical oxygen demand (COD) <sup>1)</sup>	8.6	8.1	32.8
Total dissolved solids (TDS) <sup>2)</sup>	15.1	14.8	27.2 <sup>4)</sup>
Total suspended solids (TSS) <sup>3)</sup>	9.8	16.7	

1) Discharges from one biological wastewater treatment plant constitutes more than 80% of total COD and suspended solids discharges in Kemira. The decrease in discharge of COD between 2020 and 2021 is due to operational changes and therefore changes in the composition of the wastewater and thus lower oxygen content.

2) TDS effluent emissions originate mostly from one site with cooling water discharge to surface water.

3) TSS effluent emissions originate mostly from one site with on-site wastewater treatment.

4) For 2020, the data is only available for combined total solids.

## Waste

### WASTE MANAGEMENT

Through our Sustainability and EHSQ Policy and Nature Stewardship program, Kemira strives to minimize the amount of industrial and municipal waste generated through consistent material flow management and improvements to the efficiency of manufacturing processes. Waste in Kemira is disposed or recovered in compliance with statutory requirements.

Kemira's GRI inventory of direct wastes include seven waste categories. Most significant waste categories include chemical waste and wastewater. Some wastewater streams are defined as waste in local environmental permits and reported as waste to local environmental authorities and therefore also reported as waste as part of Kemira's sustainability reporting. Kemira is continuously working internally and together with its waste handling companies to decrease amount of waste directed to disposal by process optimization and finding recovery options for waste streams that are directed to disposal with focus on waste that is disposed on landfills and incinerated with no energy recovery. Wastewater classified as waste is mostly recovered by combination of wastewater treatment and incineration with energy recovery. Kemira has no own waste disposal, e.g., own active landfills for waste disposal. All waste is collected by third party waste handling companies that have permits to receive and manage waste. All waste is managed by third party companies in compliance with local regulations. This is ensured as part of sourcing of waste management services.

Significant waste generated upstream in Kemira's value chain include waste generated by raw material suppliers. Kemira uses EcoVadis platform to assess sustainability of its suppliers. Waste management is included as one criteria in EcoVadis platform. Scope and results of 2022 EcoVadis assessment are presented in chapter Sustainability Assessments and Audits of Supplier earlier in this report.

Waste generated downstream in Kemira's value chain include mostly products disposed of by Kemira's customers and packaging waste. Kemira operates in B2B business environment. Kemira's products are most often a small fraction of customers' products and some of Kemira's products are disposed or recovered as waste with customer waste. In I&W sector, Kemira's water treatment products are disposed or recovered after use depending on the client's application. In P&P sector, Kemira's products are mostly used in paper and cardboard products. Paper and cardboard waste is generally mostly recovered, either recycled or incinerated with energy recovery. Approximately 90% of Kemira's products transportation to customers is bulk transportation with in practice no packaging waste generated. Approximately 5% of products are transported to customers in Intermediate Bulk Containers (IBCs) that are mostly recycled. Approximately 5% of products are transported to customers in other packaging such as drums, bags and other packaging that are assumed to be mostly recovered, either recycled or incinerated with energy recovery, but no data on recovery and disposal method is available.

### TOTAL WASTE GENERATION AND DISPOSAL

Waste data is collected by seven composition categories including chemical waste (filter cake, disposed products and other chemical waste), sludge, metallic waste, mineral waste from construction and demolition and other mineral waste, soils, wastewater and other waste. In recovery and disposal method definitions, Kemira follows local environmental permits.

Total waste generated in Kemira in 2022 was 107.7 thousand metric tons that is 8% less than in 2021 (117.0 thousand metric tons) and 28% less than in 2020 (150.2 thousand metric tons).

### HAZARDOUS WASTE

Total hazardous waste generated in Kemira in 2022 was 24.7 thousand metric tons. Approximately 23% of Kemira's waste is hazardous waste. Volume of hazardous waste reduced significantly by approximately 5% compared to 2021 and by approximately 48% compared to 2020. The main reason for the significant reduction from 2021 to 2020 was cease of operation in December 2020 at a site that accounted for 47% of total hazardous waste generated in 2020 due to disposal of stormwater potentially impacted by acrylamide. Disposal of stormwater at the site as hazardous waste was done in accordance with local legislation and regulations. Approximately 40% of Kemira's total hazardous waste is diverted from disposal and approximately 60% is directed to disposal.

## NON-HAZARDOUS WASTE

Total non-hazardous waste generated in Kemira in 2022 was 83.0 thousand metric tons. Approximately 77% of Kemira's waste is non-hazardous waste. The total amount of non-hazardous waste decreased by approximately 9% from 2021. This is primarily due to reduction in production and less non-production related demolition and soil waste. Approximately 14% of Kemira's non-hazardous waste is diverted from disposal and approximately 86% is directed to disposal.

## WASTE COMPOSITION (THOUSAND METRIC TONS)

GRI disclosure		2022			2021		
		Waste generated	Waste diverted from disposal	Waste directed to disposal	Waste generated	Waste diverted from disposal	Waste directed to disposal
<b>Weight of waste, total</b>	<b>306-3</b>	107.7	21.5	86.2	117.0	40.5	76.5
Chemical waste		32.5	6.8	25.8	33.6	8.8	24.9
Filter cake		15.5	2.8	12.8	19.6	5.2	14.4
Disposed products		0.7	0.2	0.4	0.8	0.2	0.6
Other chemical waste		16.3	3.8	12.5	13.2	3.3	9.9
Sludges		5.0	3.2	1.8	5.7	4.0	1.6
Metallic waste		0.5	0.5	0.0	0.4	0.4	0.0
Mineral waste from construction and demolition		1.5	1.5	0.0	1.6	1.6	0.0
Soils		6.6	6.5	0.1	5.9	1.1	4.7
Wastewater		55.2	0.6	54.7	62.4	21.8	40.6
Other waste		6.3	2.5	3.9	7.4	2.7	4.6

Wastes reported for the first time in accordance with GRI 306: Waste 2020 including reporting by waste category in 2021 and therefore waste composition not available for previous years.

## WASTE DIVERTED FROM DISPOSAL BY RECOVERY OPERATION (THOUSAND METRIC TONS)

	GRI disclosure	2022	2021	2020
<b>Weight of waste diverted from disposal, total</b>	<b>306-4c</b>	21.5	40.5	44.1
<b>Hazardous waste</b>	<b>306-4b</b>	10.0	8.3	4.7
Preparation for reuse		0.0	0.0	0.0
Recycling		5.1	7.2	3.9
Other recovery operations		4.9	1.0	0.7
<b>Non-hazardous waste</b>	<b>306-4d</b>	11.5	32.3	39.4
Preparation for reuse		0.1	0.2	6.2
Recycling		7.6	27.7	7.1
Other recovery operations		3.8	4.3	26.1

## WASTE DIRECTED TO DISPOSAL BY DISPOSAL OPERATION (THOUSAND METRIC TONS)

	GRI disclosure	2022	2021	2020
<b>Weight of waste directed to disposal, total</b>	<b>306-5c</b>	86.2	76.5	106.0
<b>Hazardous waste</b>	<b>306-4b</b>	14.7	17.5	42.9
Incineration (with energy recovery)		5.1	4.9	9.3
Incineration (without energy recovery)		0.4	0.8	1.4
Landfilling		1.6	1.6	1.9
Other disposal operations		7.6	10.3	30.5
<b>Non-hazardous waste</b>	<b>306-4d</b>	71.5	59.0	63.2
Incineration (with energy recovery)		53.2	41.4	35.9
Incineration (without energy recovery)		0.2	0.2	0.2
Landfilling		14.4	13.4	23.1
Other disposal operations		3.7	4.1	3.8

Waste disposal method was determined based on information in environmental permits and provided by waste disposal contractors.

All waste presented in tables above is either diverted from disposal or directed to disposal off-site. There was no onsite disposal in Kemira in 2022.

Weight of waste diverted from disposal decreased from 2021 mostly due to change of classification of a significant recycled waste fraction to by-product at one site in 2021.

## PRODUCTION WASTE, WASTE TARGET AND RECOVERY RATE

Most of Kemira's waste is production waste. Other waste categories are non-production waste and disposed products that are defined as follows:

- Non-production waste:
  - Expired or outdated raw materials.
  - Contaminated soil or debris from a spill.
  - Construction and demolition waste, including waste (reusable and non-reusable) associated with plant or site closures.
  - Biomass from gardening and pruning activities.
  - Laboratory/warehouse cleanouts.
  - Non-routine tank/railcar cleaning wastes.
- Disposed products:
  - Kemira's products that have been disposed or recovered by third-party disposal company.

## WASTE CATEGORIES (THOUSAND METRIC TONS)

	2022	2021	2020
Production waste	94.6 (88%)	103.1 (88%)	128.8 (86%)
Non-production waste	12.4 (11%)	13.1 (11%)	19.7 (13%)
Disposed Products	0.7 (1%)	0.8 (1%)	1.7 (1%)

Kemira's target is to reduce disposed production waste intensity by 15% by 2030. In the target we measure disposed production waste. It includes both hazardous and non-hazardous waste. It excludes waste that is recovered, e.g., via recycling, reuse and incineration with energy recovery. It is expressed as an intensity, metric tons of waste per thousand metric tons of production. Baseline is 2019 at 4.6 and target is 3.9 by 2030. The intensity in 2022 was 4.4, that is slightly more compared to 4.3 in 2021. The increase is mostly due to disposal of accumulated production waste from previous years at one site and increase of disposed production waste at two of our polymer sites associated with product portfolio and raw material changes. Kemira continues to identify opportunities and make actions to decrease disposed waste generation in cooperation with waste handling companies and using product line specific data. Calculation of the target is presented in the table below.

Kemira is following recovery rate of production waste. Recovery rate of production waste was decreased slightly from 2021 mostly due to change of classification of a significant recycled waste fraction to by-product at one site in 2021. Calculation of recovery rate of production waste is presented in the table below.

## PRODUCTION WASTE BY TYPE AND DISPOSAL METHOD (THOUSAND METRIC TONS), WASTE TARGET AND RECOVERY RATE

	2022	2021	2020
<b>Hazardous waste</b>	<b>16.9</b>	<b>20.7</b>	<b>42.1</b>
Preparation for reuse	0.0	0.0	0.0
Recycling	5.0	6.9	3.8
Other recovery operations	0.9	1.0	0.7
Incineration (with energy recovery)	4.9	4.8	8.9
Incineration (without energy recovery)	0.3	0.7	1.3
Landfilling	1.5	1.5	0.8
Other disposal operations	4.4	5.8	26.6
<b>Non-hazardous waste</b>	<b>77.7</b>	<b>82.4</b>	<b>86.7</b>
Preparation for reuse	0.1	0.2	6.2
Recycling	4.5	26.4	3.9
Other recovery operations	2.4	2.8	26.0
Incineration (with energy recovery)	53.2	37.4	35.9
Incineration (without energy recovery)	0.1	0.1	0.1
Landfilling	13.8	11.5	10.7
Other disposal operations	3.7	3.9	3.8
<b>Grand total</b>	<b>94.6</b>	<b>103.0</b>	<b>129.0</b>
Total disposed production waste <sup>3)</sup>	23.7	23.6	20.9
Recovery rate of production waste, % <sup>2),3)</sup>	75	77	80
Disposed production waste intensity (Kemira waste target) metric tons per metric tons of production <sup>1),3)</sup>	4.4	4.3	4.2
Production volumes, thousand metric tons	5,339	5,517	4,946

1) Incineration (without energy recovery), Landfilling and Other disposal operations are included in calculation of the waste target (disposed production waste intensity). Incineration (with energy recovery) is considered as recovery operation in the target calculation.

2) Preparation for reuse, Recycling, Other recovery operations and Incineration (with energy recovery) are considered as recovery operations in calculation of recovery rate of production waste.

3) The target calculation and recovery rate calculation excludes disposed waste at Fortier site that was closed in late 2020. Exclusion is 22.4 kt in 2020. At the time of setting the target it was known that the site will be closed and decided to be excluded from the target.

## WASTE RECOVERED FROM LANDFILL

Kemira continues to recover raw material from a landfill at the manufacturing site of water treatment chemicals in Pori, Finland. The primary raw material in the process in process (ferrous sulphate) was supplied by a titanium dioxide plant in the same industrial park. However, the supplier's operations were discontinued following a fire in 2017. In response to the raw material supply interruption, Kemira identified a closed, on-site landfill as an alternate supply of ferrous sulphate. The end-of-waste criteria of the EU Waste Framework Directive was applied in the environmental permitting process to facilitate the reuse of a former waste. Since the landfill mining started, Kemira has utilized approximately 600,000 metric tons of ferric sulphate from the landfill as a raw material and there is additional capacity available for use, putting some 30 years of accumulated industrial by-product back into our circular economy. In 2022, in total approximately 182,000 metric tons of ferrous sulphate was recovered from the landfill.



## WASTE GENERATED IN SITE CLOSURE PROJECTS

Kemira's sustainability reporting in accordance with GRI standards is limited to operating manufacturing sites. Kemira supports waste recovery and circular economy in its all operations. In addition to manufacturing sites, waste is generated in site closure projects. In 2022, the demolition project to demolish production buildings of a site closed in 2013 in Vaasa, Finland was completed. In total approximately 55,000 metric tons of waste including mostly concrete and bricks was generated during the demolition. Approximately from 40,000 to 45,000 metric tons of the concrete and brick waste will be recovered - approximately half at the site in upgrade of the onsite landfill and half off-site. Other recovered materials include materials such as metal wood and plastics.

Another site closure project is on-going at the manufacturing site in Pierre Bénite, France. Total demolition waste amount in 2022 was approximately 2,200 metric tons (mostly concrete and metal) and 25% could be recovered.

## SIGNIFICANT SPILLS<sup>1</sup>

Kemira's definition of a significant spill includes a spill resulting in one or more of the following:

- A spill or leak of more than 1,000 kg of a hazardous chemical (those chemicals identified as hazardous or dangerous by federal, provincial, state or local regulations, or by internationally recognized protocols such as, United Nations dangerous goods classification or assigned a reportable quantity if spilled) outside of secondary containment or to the atmosphere.
- Requirement for immediate reporting of an environmental release/spill to a regulatory agency
- Substantial negative publicity

In 2022 there were 5 significant spills compared to 2 in 2021.

- All of the significant spills occurred at our manufacturing sites. Three incidents were in the USA; one incident was in Uruguay, and one incident was in Finland. The total volume of the significant spills at manufacturing plants was approximately 80 metric tons.

The significant spills did not have a permanent or significant impact on the environment beyond the remediated material. These spills were not reported in Kemira's Financial Statements.

<sup>1</sup> The effluents-related content of the GRI Standard GRI 306: Effluents and Waste 2016 has been superseded by GRI Standard GRI 303: Water and Effluents 2018, and the waste-related content has been superseded by GRI 306: Waste 2020. The spills-related content in GRI 306: Effluents and Waste 2016 remains in effect.

## TRANSPORT OF HAZARDOUS WASTE

In 2022, approximately 24,700 metric tons of hazardous waste were transported by, or on behalf of Kemira, to external suppliers not owned by Kemira. Hazardous waste was not imported or treated by Kemira in 2022.

One of our sites in South America does not have a treatment or disposal option within the country for some of its hazardous wastes. Therefore, it must be shipped to the EU for disposal. In 2022, there were approximately 27 metric tons of hazardous waste exported from South America to Europe for disposal. No hazardous waste between EU countries was exported. In total, less than 1% of the hazardous waste generated in 2022 (less than 1% in 2021) by Kemira was shipped internationally.

## Biodiversity

In 2022, we continued with assessment of Kemira's direct nature-related risks, as well as impacts and dependencies on biodiversity as part of our Nature Stewardship program. We revised the 2021 assessment that identified Kemira's operational sites locations in relation to protected areas and areas of biodiversity importance using the same Integrated Biodiversity Assessment Tool (IBAT). Based on the revision, the majority of Kemira's operational sites (53) are not considered to be located in, or adjacent to, protected areas or areas of biodiversity importance. The location of the Helsingborg site was re-evaluated and based on the reassessment, the site was added to the list of manufacturing sites in relation to protected areas or areas of high biodiversity value.

We used WWF's Biodiversity Risk Filter (BRF) to identify which physical risk categories and indicators are the most relevant for Kemira. The results of the risk filter portfolio and impacts and dependencies evaluation will be used for further biodiversity assessment scoping at Kemira for both direct operations and the suppliers. The initial screening showed Kemira's sites which, based on their location and chemical industry specifics, have the highest risk of direct pressures on biodiversity. Overall, out of 63 Kemira's sites, 3 sites (all within the same industrial area) have high risk score, 35 sites have medium risk score and 25 sites have low risk score. The analysis also showed that pollution is Kemira's most relevant impact indicator with the highest risk scores among the listed direct pressures on biodiversity.

Kemira's manufacturing sites are located in industrial zones and have environmental permits. Based on the environmental impact assessments conducted as part of the environmental permitting of the sites, Kemira's manufacturing sites do not have a direct substantial impact on biodiversity that adversely affect the integrity of a geographic area or change its ecological features and functions, and are not considered to have a direct material impact on the IUCN Red List of Threatened Species. We continue to assess possible direct and indirect impacts of our operations and throughout the value chain as the GRI guidance and recommendations change.

At the end of 2021, Kemira joined a Biodiversity ad-hoc group organized and lead by the Chemical Industry Federation of Finland. The group is the collaboration of several leading Finnish chemical companies. In 2022, the group contributed to the development of the Finnish Chemical Industry Biodiversity goal: Nature Positive, Climate Neutral Chemistry 2045 which includes a Roadmap 2030. The goal was approved by the Chemical Industry Federation board, which is also represented by Kemira's CEO.

### MANUFACTURING SITES IN RELATION TO PROTECTED AREAS OR AREAS OF HIGH BIODIVERSITY VALUE

Geographic location	Type of operation	Position in relation to the protected area or area of high biodiversity value	Size of operational site, ha	Biodiversity value of the protected area or area of high biodiversity value
Fray Bentos, Uruguay	Manufacturing	In the area <sup>1)</sup>	7.0	Important Bird and Biodiversity Area - Terrestrial, Freshwater
Vancouver, Canada	Manufacturing	In the area	0.5	Important Bird and Biodiversity Area - Terrestrial, Marine
Helsingborg, Sweden	Manufacturing	Adjacent	116.2	Nature Reserve - Marine
Pori, Finland	Manufacturing	1) Contains portions <sup>2)</sup> 2) Adjacent <sup>3)</sup>	54.9	1) Important Bird and Biodiversity Area - Terrestrial, Marine 2) Special Protection Area (Birds Directive) - Marine
Krems, Austria	Manufacturing	Adjacent	2.2	1) Important Bird and Biodiversity Area - Terrestrial 2) Special Protection Area (Birds Directive) - Terrestrial
Ostroleka, Poland	Manufacturing	Adjacent	0.4	1) Important Bird and Biodiversity Area - Terrestrial 2) Special Protection Area (Birds Directive) - Terrestrial
Police, Poland	Manufacturing	Adjacent	3.0	Site of Community Importance (Habitats Directive) - Terrestrial
Teesport, UK	Manufacturing	Adjacent	8.1	1) Special Protection Area (Birds Directive) - Marine 2) Site Of Special Scientific Interest (Gb) - Marine
Washougal, USA	Manufacturing	Adjacent	4.5	National Wildlife Refuge - Terrestrial
Wroclaw, Poland	Manufacturing	Adjacent	4.7	Site of Community Importance (Habitats Directive) - Terrestrial

1) "In the area" means the entire area of the manufacturing site is within the protected area or area of high biodiversity value.

2) "Contains portions" means some part of the protected area or area of high biodiversity value lies in the area of the manufacturing site.

3) "Adjacent" is defined by Kemira as a maximum distance of 300 meters from the manufacturing site. The definition is subject to modification in accordance with the updated GRI guidelines.

## Environmental compliance

Kemira's integrated management system is a set of standards, procedures, and practices to achieve environmental goals through continual planning, implementation, evaluation, and review of environmental performance. One of the primary environmental goals of Kemira's management system is compliance with legal requirements. Kemira has identified its legal compliance obligations and implements an Auditing Standard to verify conformance. Kemira regularly conducts EHSQ compliance audits at manufacturing sites, research and development laboratories, and offices. Management system audits are performed on a periodic cycle (typically every 3 years) by Kemira's independent internal auditing team and external bodies. The audits focus on certain elements within the management system based on the risks and opportunities impacting the site, business segment, or Kemira as a whole at the time of the audit. To supplement this audit sampling approach, verification of legal compliance is provided annually as part of the data collection and reporting processes. Kemira's robust integrated management system requires all sites to report non-compliance to the group's Global EHSQ Team using our incident reporting program (Synergi Life).

Kemira received five fines or financial penalties related to a one-time non-compliance with environmental, health, and safety laws and/or regulations in 2022. The five fines (three in China; one in the USA; one in Korea) totaled approximately 11,000 EUR (ranging from approximately 350 EUR to approximately 5500 EUR) and any corrective actions required by the authorities were completed. Kemira does not consider these fines or penalties to be significant based on the criteria used in other sustainability reporting platforms (e.g., fines of at least 10,000 EUR) or based on disclosures of other companies in the chemical industry.

Kemira documented 15 non-compliance incidents as part of its management system processes. These isolated incidents did not result in a significant impact on the environmental, employees, or community, nor did they result in a sanction or other action from an environmental authority that would be considered significant. Any corrective actions required from these incidents were completed.

# Social Performance

## Employment

At the end of 2022, Kemira employed 4,902 people (4,926 in 2021). The employee distribution by region shows that 50% (51%) of Kemira's total workforce were employed in EMEA, and 31% (30%) in the Americas. The number of employees has decreased by 24 (compared to an increase of 5 during 2021). Most of the employees work with permanent and full-time employment contract. Share of temporary contracts as well as part-time workers has been stable. Workers who are legally recognized as self-employed, or individuals other than the ones in Kemira's payroll are not counted in these numbers.

### INFORMATION ON EMPLOYEES AND OTHER WORKERS

#### TOTAL NUMBER OF EMPLOYEES

	2022	2021	2020
<b>Total number of employees*</b>	4,902	4,926	4,921
Female, %	27%	26%	26%
Male, %	73%	74%	74%
White collar, %	59%	59%	59%
Blue collar, %	41%	41%	41%

\* At year end. Workers who are legally recognized as self-employed, or individuals other than the ones in Kemira's payroll are not counted on these numbers.

#### TOTAL NUMBER OF EMPLOYEES BY EMPLOYMENT CONTRACT (PERMANENT AND TEMPORARY), BY GENDER

	2022	2021	2020
<b>Total number of employees</b>	4,902	4,926	4,921
Total permanent	4,817	4,846	4,819
Total fixed term*	85	80	102
<b>Female total</b>	1,305	1,291	1,280
Permanent	1,270	1,257	1,228
Fixed term*	35	34	52
<b>Male total</b>	3,597	3,635	3,641
Permanent	3,547	3,589	3,591
Fixed term*	50	46	50

\*Fixed term meaning temporary employment contract

#### TOTAL NUMBER OF EMPLOYEES BY EMPLOYMENT CONTRACT (PERMANENT AND TEMPORARY), BY REGION

	2022	2021	%, 2022	%, 2021
<b>Total number of employees</b>	4,902	4,926		
Americas	1,525	1,487	31%	30%
APAC	931	923	19%	19%
EMEA	2,446	2,516	50%	51%
<b>Permanent total</b>	4,817	4,846	98%	98%
Americas	1,520	1,486	32%	31%
APAC	931	923	19%	19%
EMEA	2,366	2,437	49%	50%

A temporary (fixed-term) employment contract is a type of employment used mainly in EMEA, atypical for Americas and APAC. In 2022, there were 85 employees (1.7%) with temporary contract (80; 1.6% in 2021).

## TOTAL NUMBER OF EMPLOYEES BY EMPLOYMENT TYPE (FULL-TIME AND PART-TIME), BY GENDER

	2022	2021	2020
<b>Total employees</b>	4,902	4,926	4,921
Total full-time	4,829	4,845	4,832
Total part-time	73	81	89
<b>Female total</b>	1,305	1,291	1,280
Full-time	1,250	1,230	1,215
Part-time	55	61	65
<b>Male total</b>	3,597	3,635	3,641
Full-time	3,579	3,615	3,617
Part-time	18	20	24

The total number of part-time workers is low and for this reason we have not considered it relevant to report those per regions.

## COLLECTIVE BARGAINING AGREEMENTS

The collective bargaining agreements are measured for 'significant locations of operations' referring to countries with 10 or more employees. In Kemira's case, there are 24 such countries and altogether these countries represent 99% of all employees.

In 2022, 2,329 (48%) of Kemira employees globally were covered by collective bargaining agreements (2,366; 48% in 2021). Working conditions and terms of employment of those employees who are not covered by collective agreement, are defined based on company policy, local labor law and legislation.

## TOTAL NUMBER AND RATE OF NEW EMPLOYEE HIRES DURING THE REPORTING PERIOD, BY AGE GROUP, GENDER AND REGION

	Number of new hires			% of new hires		
	2022	2021	2020	2022	2021	2020
<b>Total new hires</b>	626	526	411			
New hires by age group						
<30	259	220	184	41%	42%	45%
30–50	295	247	177	47%	47%	43%
>50	72	59	50	12%	11%	12%
New hires by gender	626	526	411			
Females	192	146	131	31%	28%	32%
Males	434	380	280	69%	72%	68%
New hires by region	626	526	411			
APAC	65	56	28	10%	11%	7%
EMEA	312	275	255	50%	52%	62%
Americas	249	195	128	40%	37%	31%

## TOTAL NUMBER AND RATE OF EMPLOYEE TURNOVER DURING THE REPORTING PERIOD, BY AGE GROUP, GENDER AND REGION

	Turnover			Turnover, %		
	2022	2021	2020	2022	2021	2020
<b>Total turnover</b>	541	403	429	11.0%	8.2%	8.7%
Turnover by age group						
<30	71	58	50	14.1%	12.4%	10.0%
30–50	304	200	193	10.7%	6.8%	6.6%
>50	166	145	186	10.7%	9.4%	12.5%
Turnover by gender	541	403	429			
Females	141	90	95	10.8%	7.0%	7.4%
Males	400	313	334	11.1%	8.6%	9.2%
Turnover by region	541	403	429			
APAC	57	56	53	6.1%	6.1%	5.7%
EMEA	277	173	145	11.3%	6.9%	5.7%
Americas	207	174	231	13.6%	11.7%	15.7%

The total turnover is based on permanent workforce.

## WORKERS, WHO ARE NOT EMPLOYEES (CONTINGENT WORKFORCE)

Contingent workforce are non-Kemira employees, who are employed by a 3rd party partner but perform their work for Kemira. The amount of contingent workers in comparison to the Kemira headcount was 8.2% in 2022 (9.2% in 2021). Typically, contingent workforce provide temporary resourcing mechanism with specified skills and competences, substitution or balance seasonal workload fluctuation.

In addition, Kemira is using external service providers (contractors) which work at Kemira locations. These services cover, for example cleaning, maintenance work and consultancy services. We do not record the number of people but follow the contractor hours as this information is included in the workplace safety indicator TRIF. In 2022, there was approximately 2.5 million hours which equals to about 1,330 FTE (Full Time Equivalents) when assuming 7.5 hours per day and 250 working days per year.

	2022	2021	2020
<b>Total number of contingent workers</b>	403	453	410
Manufacturing	88	106	94
Sales and Field Service	151	182	150
Other professional and office work	164	165	166

## Labor/Management relations

### ANNUAL TOTAL REMUNERATION DEVELOPMENT

Kemira is a global company with operations and employees in multiple countries, and the market remuneration level differ significantly between these countries. To ensure the alignment of the interests of the CEO and the shareholders, the weighting of variable remuneration, and especially long-term incentive plans, in the CEO's total remuneration opportunity is substantial.

The table below sets out the remuneration paid during the respective year, considering that a portion of that remuneration may have been earned during the previous year.

Annual total remuneration development	2022	2021	2020
CEO total remuneration*	€1,453,573	€1,537,148	€1,713,058
CEO total remuneration development YoY	95	90	
Average total remuneration for all employees**	€65,294	€56,254	€58,370
Average total remuneration development YoY	116	96	
Ratio CEO total remuneration vs average total remuneration for all employees	22	27	29
Ratio development YoY	82	94	

\* Paid annual base salary, benefits, defined contribution pension, short- and long-term incentives.

\*\* Employee wages and salaries including accrued short-term incentives, excluding side costs, excluding CEO total remuneration.

## **BENEFITS PROVIDED TO FULL-TIME EMPLOYEES THAT ARE NOT PROVIDED TO TEMPORARY OR PART-TIME EMPLOYEES**

The benefit programs at Kemira differ depending on regional and country specific practices and the programs have been stable across recent years without major changes to the practices. In most countries, the same benefits are offered to full-time and part-time employees and for temporary employees hired directly by Kemira, if the temporary contract exceeds a certain length.

Benefit practices are country specific and typically do not vary between locations and operations. Some exceptions apply, for example some countries offer additional insurance and/or retirement benefits for permanent full-time employees.

## **MINIMUM NOTICE PERIODS REGARDING OPERATIONAL CHANGES**

As stated in our Code of Conduct, all sites are obliged to follow local legislation, regulations and other agreements regarding labor practices, including notice periods. Minimum notice periods are defined in laws or in collective agreements, and are followed in each country accordingly. The time period for the consultation process relating to operational changes varies by country and region, starting from 14 days for smaller changes to up to six months in some countries and for major changes, varying between one to two months in most countries.

## **Workplace safety**

High-performing Environmental, Health, Safety and Quality (EHSQ) management is crucial to our business. We are committed to ensuring safe and responsible working conditions for everyone working for and with Kemira. Our approach is to manufacture and deliver our products and services safely, and to protect our nearby communities. We are building an interdependent safety culture which is driving us towards zero harm in all of our activities. We are continuously striving to improve our ways of working to ensure the safety of our people and working environments. All our work is guided by regulations and external requirements, our Sustainability and EHSQ policy, respective standards and operating practices.

Safety is the foundation for all our operations, and includes all aspects; people safety, environmental safety, process safety, chemical safety, transportation safety and asset integrity. With competent employees and contractors we take effective measures to eliminate hazards, reduce risks and prevent incidents. We communicate openly and honestly, and promote active participation of employees and key stakeholders.

We understand incidents in our operations may have negative consequences for our people, environment and third parties working for us at Kemira sites, or locations where Kemira is present if we fail to manage risks linked to our operations.

## **Occupational health and safety**

Kemira reports its occupational safety performance indicator as Total Recordable Injuries (TRI) which includes permanent injuries and fatalities, lost time incidents, restricted work cases and medical treatment cases covering Kemira employees and contractors working at Kemira own and customer sites. TRI Frequency (TRIF) is measured as Total Recordable Injuries per million working hours.

Kemira uses external service providers (contractors) which work at Kemira locations. These services cover for example maintenance, repair, turnaround, major renovation or specialty work at a Kemira site. We follow the contractor hours as this information is included in the workplace safety indicator TRIF. Third party transportation companies, whether onsite or offsite, are excluded and incidental facility services such as janitorial work, food and drink services, laundry, delivery or other supply/resupply services. In 2022, there were approximately 2.5 million hours which equals to about 1,330 FTE (Full Time Equivalents) when assuming 7.5 hours per day and 250 working days per year.

Our safety performance stayed at the same level in 2022 compared with the performance in 2021. 44 out of 62 sites had zero incidents in 2022. Total number of TRIs in 2022 (2021) was 36 (36) and TRIF was 2.6 (2.7). The overall ratio of contractors' TRIs to total number of TRIs increased from 0.22 to 0.36 when compared with previous year. The first quarter of 2022 was exceptionally challenging. In Q1, we saw an increasing incident trend and Q1 TRIF was 4.1. In response, a global Safety Stand Down was organized at all of our manufacturing site

and systematic permit-to-work training was continued. We also invited all our employees to join the Internal Labour Organization's (ILO) Safety Day by asking them to share a picture or drawing that illustrated what safety meant to them. In the autumn, we launched the "Choose Safety – Every Day" campaign with three internal safety videos. Although we were not able to reach our 2022 TRIF target 1.9, our safety performance stabilized and is comparable to equivalent industrial safety performance levels. To achieve a world class target (<2.0) Kemira will continue to focus on people behavioral choices, last minute risk assessments, correct personal protective equipment and general safety awareness. We will work hard to meet our 2023 target of TRIF 1.9.

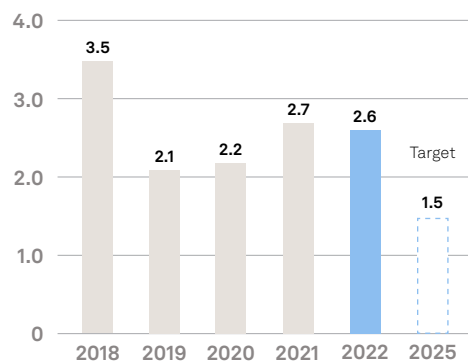
No fatalities have occurred with Kemira employees or contractors since 2005. The number of Lost Time Incidents

(LTIs) remained at the same level as in 2021. Unfortunately, we had one permanent finger injury with a field work employee at a customer location. They were carrying out equipment troubleshooting together with external engineering contractor. While holding and inspecting the valve, the air pressure was accidentally switched on and the sudden pressure closed the valve on the employee's finger, causing a partial amputation of one finger. The incident was reported to authorities according to local reporting requirements and the employee has returned to work doing one's normal work.

Kemira continued to put effort in protecting employees, contractors, drivers and their families from the COVID-19 pandemic, especially in the first quarter. We followed a Careful Return approach with the local COVID-19 management as we transitioned to a Hybrid Work Model.

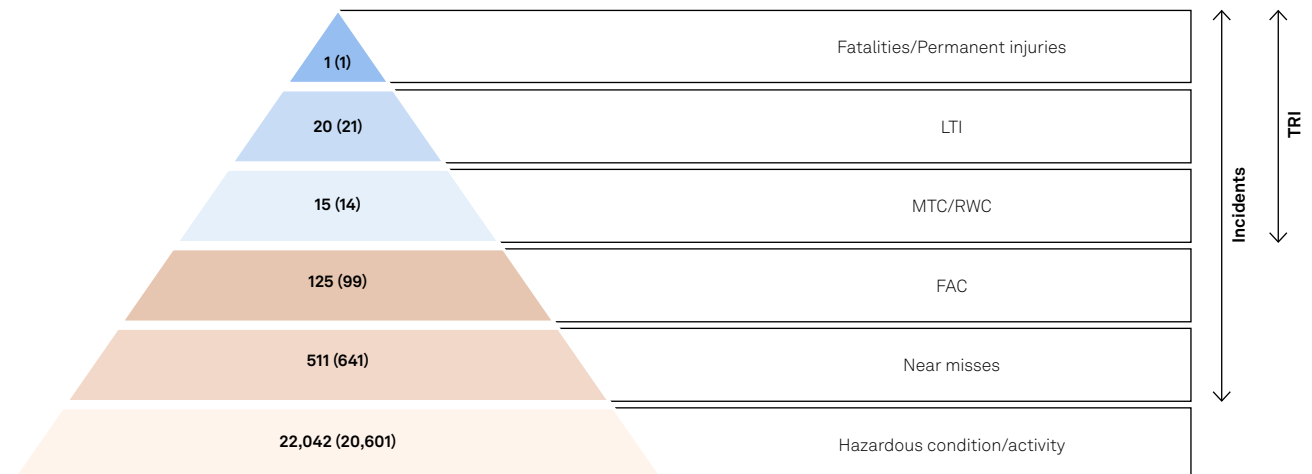
The Behavior Based Safety (BBS) program was continued in 2022. Kemira employees performed over 325,000 individual BBS observations included in 15,674 surveys in 2022. The employee engagement and proactive identification of at-risk behaviors stayed at a good level. We continued our project to refresh our BBS program. As a part of this project we developed a new digitized platform to report observations and initiated a pilot program to test the effectiveness of the program. Our target is to widen the number of observers to further develop our safe ways of working and also increasing safety awareness in the organization. We strongly believe behavior, last minute risk assessments, and robust Permit-to-Work process are crucial factors to achieve our safety targets.

## OUR SAFETY PERFORMANCE (TRIF)



TRIF: Total Recordable Injury Frequency per million hours

## PERSONAL INJURIES PYRAMID 2022 (2021)





Incident classification	Definition
Permanent injury	A work-related injury leads to damage that will indefinitely restrict the employment or other normal activities of an individual.
Lost Time Incidents (LTI)	A work-related injury or illness, suffered by a Kemira employee or contractor resulting in at least one full day of time away from work (this does not to include the day of the injury), as determined by a physician or other licensed health care professional.
Medical Treatment Case (MTC)	Any work-related injury or illness that requires professional medical treatment or a prescription medication. Medical Treatment means beyond first aid level medical attention.
Restricted Work Case (RWC)	A work-related injury or illness that requires the employee to have restricted work, or transfer to another job for at least one full day, as determined by a physician or other licensed health care professional.
Total Recordable Injury (TRI)	TRI is the sum of Fatalities, LTI, RWC, and MTC.
First Aid Case (FAC)	First aid refers to a work related minor injury or illness which can be treated by a first responder or equivalent and does not require a professional physician or paramedic medical attention.
Near Miss	An undesired event in the work environment that under different circumstances could have resulted in harm to people.
Hazardous Condition/Activity	Leading safety indicator reflecting environmental or behavior related hazards at the workplace.

Kemira's commercial sales representatives and field customer service personnel perform many types of work scopes at customer locations. Depending on the product line and customer requirements they can perform tasks such as equipment installation and upkeeping, chemical dosings, test trials, process sampling and analyzing, and inventory management at the customer facility. In 2022, we further developed our tools to identify and document the work related hazards and their controls. In addition, we increased organizational awareness of health and safety requirements and we released new global Standard Operating Procedures. Commercial Sales Representatives completed more than 1,200 job hazard assessments in our online application.

In 2022, Kemira continued systematically reporting process safety incidents (RPSI) based on the ICCA definition. Additionally, we enhanced the investigation of the more serious cases to include assessment of corrective action efficacy, based on the hierarchy of controls. This is

done through a rating scheme presented in the specific guideline that assists investigators of EHSQ related incidents findings in deciding if the actions proposed are powerful enough to prevent re-occurrence. We also undertook a training program focused on two major elements of process safety, contractor management and permit to work. Lastly, we renewed our training on Life Saving Rules.

As part of our competence development program an EHSQ Learning Path was piloted for Field Work personnel in the Americas. Learnings were launched via the Kemira internal learning management system, MyKem, covering all critical EHSQ Standards. In addition, another optional learning path was launched, covering many task specific safety trainings. The goal of the trainings was to increase awareness and competency, developing a good understanding of Kemira risk management methods. Based on the pilot feedback we will create a global or regional plan(-s) for 2023.

The number of Near Miss reports (511), which under different circumstances could have resulted in harm to people, were slightly lower level compared with the previous year (641). The number of Near Misses may have decreased due to Hybrid Work Model, however their number may increase when all Safety Observations and Near Miss cases are reviewed, classified and closed. Based on previous years' statistic a 10% increase is expected in the final 2022 Near Miss total.

One of our important leading safety indicators is Hazardous Conditions/Activities reporting which reflects environmental or behavior related hazards at the workplace. The number of reported Hazardous Conditions/Activities increased and the outcome was 22,042 in 2022 which equals to 4.5 per Kemira employee. The proactive identification of Hazardous Conditions/Activities helps us to identify weak points in our safety management system, and is an example of continuously improving our ways of working and work environment.

Transportation safety overall performance continued to improve compared to the last two years 2021 and 2022. The Kemira Global transportation incident KPI rate is currently less than 1 incident per 10,000 deliveries. Proactive communication and excellent co-operation with the Manufacturing sites, Logistics and PSRA together with ongoing transportation safety audits have contributed to a better performance. New safety programs introduced during the last 1–2

years, for example, the Load Securement Procedure and the Global Sample Shipping Procedure have been tracked to stabilize these processes and to improve safety. Continued support for the sites, Logistics and PSRA regarding transportation related activities and compliance assurance of implemented standards and procedures will help to achieve our goals for 2023.

Unfortunately one major transportation incident occurred in Q4/2022 in EMEA region which resulted in a leak of Hydrochloric acid. The necessary chemical resistance between the product and the tank material wasn't provided. Thanks to the excellent support of local fire brigades in combination with the Kemira incident management, the situation was brought under control very quickly. The gaps identified during the following root-cause analysis have been closed immediately to avoid similar incidents in the future.

## TOTAL RECORDABLE INJURIES

	2022	2021	2020
<b>Total TRI</b>	<b>36*</b>	<b>36</b>	<b>31*</b>
Kemira employees	23	28	21
Contractors working at Kemira site	13	8	10
<b>Regional TRI</b>			
APAC	1	3	1
EMEA	19	21	15
Americas	15	12	14
<b>TRI Frequency</b>			
Global TRIF	2.6	2.7	2.2
Kemira employees	2.0	2.5	1.9
Contractors working at Kemira site	5.2	3.6	3.3
<b>Regional TRIF</b>			
APAC	0.3	1.0	0.3
EMEA	3.5	4.0	2.6
Americas	3.8	3.3	3.4

\*Global Functions 1 TRI

## LOST TIME INCIDENTS

	2022	2021	2020
<b>Total LTI</b>	<b>21</b>	<b>22</b>	<b>19</b>
Kemira employees	15	17	14
Contractors working at Kemira site	6	5	5
<b>Regional LTI</b>			
APAC	1	0	0
EMEA	13	16	12
Americas	7	6	7
<b>LTI Frequency</b>			
Global LTI	1.5	1.6	1.4
<b>Regional LTI</b>			
APAC	0.3	0.0	0.0
EMEA	2.4	3.0	2.1
Americas	1.5	1.6	1.7

## Training and education

### AVERAGE HOURS OF LEARNING PER YEAR PER EMPLOYEE

Kemira continued in 2022 to advance towards its aims to capture all training, education and employee development related hours in the learning management system (LMS). So far, leadership development activities, regional and global competence development and vocational training programs and many local programs are recorded in the LMS. However, some remaining training and development activities are still recorded locally and not covered in these numbers.

Learning hours registered in the system for larger countries in 2022 are:

Country	2022	2021
Finland	5,089	6,427
UK	3,245	4,719
Sweden	4,685	4,327
USA	6,936	7,444
Netherlands	4,014	4,565
China	18,370	31,578
Poland	3,684	3,838

There were variations in some of the biggest countries. The decrease in learning hours globally is partially due to the cycle of recurring mandatory eLearning courses and balancing back to the level before the pandemic.

The globally registered average hours of learning for employees do not differ significantly by gender or white/blue collar distribution in 2022.

### PROGRAMS FOR UPGRADING EMPLOYEE SKILLS AND TRANSITION ASSISTANCE PROGRAMS

Kemira provides each employee with access to the relevant competence development programs and structured learning opportunities to support upgrading of employee skills through on-the-job learning programs (including generic and job-specific competence development), buddy/coaching/mentoring programs and traditional methods like classroom and digital learning.

The scope includes:

- Future competency programs, sustainability and data & analytics, EHSQ / safety culture.
- Leadership development (internal and external) programs.
- Professional & technical competence development programs up-skilling and re-skilling.
- Statutory or compliance related programs.

All of these programs are available based on the position, skills/competence level and career aspirations. With the exception of leadership development programs and other external cost-based programs (pre-approval required), employees can typically enroll and complete the self-paced learning programs available through our LMS (Learning Management System).

Examples of global and regional programs offered during 2022 are listed below:

- Code of Conduct (renewed training launched in November 2022), Anti-corruption, Speak Up, Information Security Awareness and other compliance programs delivered mainly through eLearning.
- Data & analytics and digitalization: Introduction to Data & Analytics at Kemira, Kemira as a Data-Driven Company, Case Studies of Digital Products and Services.
- Sustainability: Introduction to Sustainability at Kemira, Kemira as a Sustainability-Focused Company. First module of the Selling Sustainability training (Introduction to Biobased Products) launched in 2022.
- Learning Solutions for Commercial and Manufacturing roles as part of professional competence development included Value Selling, Negotiation, Insight, Innovation & Creativity, Adaptability, Strategic Thinking, Account Development and Ownership delivered as co-created self-paced eLearning and virtually. New trainings Enterprise Intelligence, SMART Manufacturing, Embracing Transformation and Financial Acumen launched in 2022.
- EHSQ related programs including Sustainability and EHSQ Policy (renewed training launched in May 2022), EHSQ Life Saving Rules and standards and competence development with EHSQ Culture, Risk Management and Root Cause Analysis.
- Project Management Fundamentals and Agile & Scrum Fundamentals.
- Leadership training programs incl. awareness training for all people managers and HR community on the new Leadership Principles.
- High Impact Virtual Experience leadership development workshops made available to all people managers, identified talents and HR.

Kemira also provides transition assistance programs where relevant, with bigger changes to facilitate the continued employability and management of career endings resulting from retirements or termination of employment. These have included:

- Identifying new job opportunities and offering respective training.
- Severance pay.
- Career planning and out-placement/job placement services.

## PERCENTAGE OF EMPLOYEES RECEIVING REGULAR PERFORMANCE AND CAREER DEVELOPMENT REVIEWS

Our global performance and development discussion (PDD) process covers all permanent employees, both white collar and blue collar, who are not absent for an extended time period because of leave, for example. Temporary employees' inclusion in the PDD process is evaluated case-by-case, depending on the length of the contract. During 2022, the implementation of the digital PDD process for blue collars has been expanded to include further countries. However, the adaption rate dropped due to organizational changes and turnover.

## PERCENTAGE OF TOTAL EMPLOYEES BY GENDER AND BY EMPLOYEE CATEGORY WHO RECEIVED A REGULAR PERFORMANCE AND CAREER DEVELOPMENT REVIEW DURING THE REPORTING PERIOD

Performance and Development Discussion (PDD)	Number			%		
	2022	2021	2020	2022	2021	2020
Total permanent employees not absent*	4,820	4,827	4,757			
Employees covered in Global PDD process	4,282	4,567	4,383	89%	95%	92%
Female	1,242	1,189	1,129	98%	98%	97%
Male	3,040	3,378	3,254	86%	93%	91%
White collars	2,822	2,771	2,701	99%	98%	99%
Blue collars	1,460	1,796	1,682	74%	90%	83%

\*All permanent employees, who are not absent for an extended time period, because of leaves, for example, are covered by global performance and development discussion process

## Diversity and equal opportunity

At Kemira, we aspire to build a team and culture that fosters diversity and inclusion. We believe that diversity is one of the greatest contributors to our success. A truly diverse and inclusive culture builds our value as an employer of choice and as the first choice for our customers.

In 2022, we prioritized our Diversity & Inclusion (D&I) roadmap to move us closer to our target – reach top 10% cross-industry norm for diversity and inclusion by 2025. Our D&I index score improved by 2 points since 2021. Our Diversity & Inclusion statement was published during the year and it provides the ground for the Why, the What and the How when talking about diversity and inclusion based on our Code of Conduct.

## DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES

As stated in our Code of Conduct, we respect the diversity, talent and abilities of others. We at Kemira define ‘diversity’ as all the unique characteristics that make up each of us: personality, lifestyle, work experience, ethnicity, religion, gender, sexual orientation, age, national origin, ability and other characteristics. We focus our efforts to attract, develop and retain a workforce that is diverse, and to ensure an inclusive work environment that embraces the strength of our differences. We do not discriminate or treat employees or job applicants unfairly in matters that involve recruiting, hiring, training, promoting, compensation or any other term or condition of employment.

The number of females in executive positions was 31% in 2022, (Directors and above) and has remained on the same level as in 2021 (31%).

**PERCENTAGE OF INDIVIDUALS WITHIN THE ORGANIZATION'S GOVERNANCE BODIES IN EACH OF THE FOLLOWING DIVERSITY CATEGORIES: GENDER, AGE GROUP, OTHER INDICATORS OF DIVERSITY WHERE RELEVANT**

	Total			%		
	2022	2021	2020	2022	2021	2020
<b>Management Board</b>						
<b>Total</b>	8	8	8			
Female	1	1	1	13%	13%	13%
Male	7	7	7	88%	88%	88%
<b>By age group</b>						
<30	0	0	0	—%	—%	—%
30–50	0	1	1	—%	13%	13%
>50	8	7	7	100%	88%	88%
<b>Board of Directors</b>						
<b>Total</b>	8	7	7			
Female	3	1	3	38%	14%	43%
Male	5	6	4	63%	86%	57%
<b>By age group</b>						
<30	0	0	0	—%	—%	—%
30–50	2	1	1	25%	14%	14%
>50	6	6	6	75%	86%	86%

**PERCENTAGE OF EMPLOYEES PER EMPLOYEE CATEGORY IN EACH OF THE FOLLOWING DIVERSITY CATEGORIES: GENDER, AGE GROUP, OTHER INDICATORS OF DIVERSITY WHERE RELEVANT**

	Total			%		
	2022	2021	2020	2022	2021	2020
<b>Total employees</b>	4,902	4,926	4,921	100%	100%	100%
<30	502	466	501	10%	9%	10%
30–50	2,842	2,924	2,930	58%	59%	60%
>50	1,558	1,536	1,490	32%	31%	30%
<b>Female</b>	1,305	1,291	1,280	27%	26%	26%
<30	150	144	158	11%	11%	12%
30–50	856	870	851	66%	67%	66%
>50	299	277	271	23%	21%	21%
<b>Male</b>	3,597	3,635	3,641	73%	74%	74%
<30	352	322	343	10%	9%	9%
30–50	1,986	2,054	2,079	55%	57%	57%
>50	1,259	1,259	1,219	35%	35%	33%

**RATIO OF BASIC SALARY AND REMUNERATION OF WOMEN TO MEN**

Kemira operates a global job structure that is applied to all white-collar employees. The job structure describes job families and the respective job roles with required qualifications and main responsibilities. The job structure links to job grades, which define the salary range and the incentive opportunity for a specific job role. The job grades and salary data information allow Kemira to evaluate, analyze and implement equal remuneration. The main factors impacting the base salary level are the country of employment and location, the job grade of the position, and local requirements related to equity. Other impacting factors include the

experience, tenure and performance of the employee as well as country-specific statutory increases and merit increase opportunities. Incentive payouts are based on measured achievement for pre-defined targets on the company, unit and individual levels. The Disclosure 405-2a describes the ratio of basic salary when considering country of employment and location, and the job grade of the position. Other remuneration elements are not recorded globally and thus not reported.

## RATIO OF THE BASIC SALARY AND REMUNERATION OF WOMEN TO MEN FOR EACH EMPLOYEE CATEGORY, BY SIGNIFICANT LOCATIONS OF OPERATION

Country	Women to men pay ratio 2022	Women to men pay ratio 2021	Women to men pay ratio 2020	White collar headcount 2022
Austria	89%	87%	87%	47
Brazil	94%	94%	91%	134
Canada	94%	89%	89%	129
China	86%	90%	90%	289
Finland	91%	91%	92%	569
Germany	94%	96%	97%	81
Italy	95%	92%	93%	62
South Korea *	93%			49
Netherlands	100%	88%	88%	82
Poland	94%	98%	96%	318
Spain	94%	93%	91%	53
Sweden	98%	100%	95%	138
United Kingdom	96%	95%	94%	91
United States	93%	93%	92%	562
Total for largest countries	93%	93%	92%	2,604

\*South Korea new on list for consideration of large countries.

## Freedom of association and collective bargaining

### OPERATIONS AND SUPPLIERS IN WHICH THE RIGHT TO FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING MAY BE AT RISK

Kemira respects the freedom of association and collective bargaining as stated in our Code of Conduct, and through our commitment to the United Nations Global Compact. We expect our suppliers to respect these same principles and commit to the Code of Conduct for Business Partners. All of our Suppliers (engaged with an SAP Purchase Order) receive a written reference to CoC-BP as part of the Kemira general terms of purchase on the back of the Purchase Order.

To increase Kemira employees' awareness of their rights regarding freedom of association and collective bargaining, we provide regular training on our Code of Conduct.

In 2022, Kemira did not identify any violations of freedom of association or collective bargaining in our own operations, and no evidence has been found to indicate that suppliers would be restricting their employees' opportunities to exercise freedom of association and collective bargaining based on sustainability assessments of our key suppliers, representing approximately 38% of our total spend.

For additional information, see the Integrity section for details of our Code of Conduct training and Ethics and Compliance hotline. Details of the numbers of employees covered by collective bargaining agreements are given in Employment section.

## Human rights

Our Code of Conduct and Code of Conduct for Business Partners set the standard for our human rights approach. In our code we state that we are committed to the principles of The Universal Declaration of Human Rights and the core conventions of the International Labour Organization (ILO) and the United Nations' Global Compact, and we expect our suppliers and business partners to share these principles. Further we work by the United Nations Guiding Principles which require companies to conduct due diligence to protect and respect human rights. We have a public statement for slavery and human trafficking, where our approach to human rights issues is outlined more in detail.

We expect ourselves and business partners to respect fundamental human rights, treat people with dignity, decency and respect, avoid any kind of harassment, discrimination, intimidation, oppression and exploitation, never use any form of forced or child labor, protect employee health and safety, respect freedom of association and collective bargaining, respect the privacy of personal information and pay compensation to employees that complies with applicable wage laws.

A group level Human Rights Impact Assessment was updated in 2021 to identify human rights impacts throughout Kemira operations and value chain. The assessment methodology was based on the United Nations Guiding Principles on Business and Human Rights and the OECD Due Diligence Guidance. The results of the assessment have been further

analyzed during 2022 and implementation of findings will continue going towards 2023. In 2022 Kemira performed a minimum safeguards self assessment in relation to the EU Taxonomy reporting. The conclusion from this assessment is that Kemira meets on group level the EU Taxonomy minimum safeguards of most recognized human rights guidelines and guiding principles. We continue the development of the minimum safeguards management in line with our integrated management system implementation.

To create room for discussion and improve human rights related processes, Kemira has established a Human Rights Council in 2022. The council consists of representatives from relevant functions in the company, covering Environment, Health, Safety and Quality (EHSQ), Global Sourcing, Human Resources, Ethics and Compliance and Corporate Sustainability.

In previous years, our human rights focus has been on increasing overall awareness of human rights related themes throughout the organization and improving the processes and due diligence based on findings in our latest assessment. Main means to increase awareness relate to regular and compulsory training on the Code of Conduct for all employees and since 2015, a basic training on human rights for white collar employees responsible for business relationships. Since 2015 all new hires have participated in this training as part of their induction program. Human rights are evaluated in scope of supplier ethical audits conducted by external audits (following the SMETA protocol).

### KEY ACTIVITIES IN 2022:

- Continued the global 90-day onboarding program for new hires (white collars) that automatically assigns online courses on Code of Conduct and Human Rights and Business. By the end of 2022, 77% of white collar new hires have completed the basic training on Human Rights and Business as part of their onboarding program.
- All relevant sales team members are trained on third party due diligence for potential new business partners and a new process is introduced to further develop our third-party risk management.
- In relation to workplace safety, we further developed our safety culture through the Behavior Based Safety Culture program, target setting, training and communications measure. More information can be found in the Occupational Health and Safety section.
- For product safety we focus on product lifecycle management. For more information, see section Product Stewardship section.
- More information of supplier assessments and audits For more can be found in the supplier Management section.
- Diversity & Inclusion roadmap roll-out has been active in 2022, there has been two networks established, the KemPride and the Kemira Womens networks. More information about this topic can be found in the [Kemira Annual Review 2022](#).
- Evaluation of identified high risks has been done and development items are in place for child and forced labor.

## Customer health and safety

### ASSESSMENT OF THE HEALTH AND SAFETY IMPACT OF PRODUCT AND SERVICE CATEGORIES

According to Kemira's product stewardship policy, we are acting:

- to comply with all applicable chemical regulatory requirements in the countries where we either manufacture and/or sell chemicals covering raw materials, intermediates, processing aids and products
- to make hazard assessments covering regulatory compliance, human health, and safety, as well as environmental protection aspects, as part of the Product Lifecycle Management processes throughout products' lifecycle from development to termination
- to maintain data related to chemical products and substances including raw materials is managed in ERP and is linked to Product Lifecycle Management tool/process
- to proactively identify and manage chemical risks and concerns to build management action plans for the identified unacceptable risks to human health, safety or environment; covering all substances from raw materials to products
- to share information with our stakeholders about the health and safety aspects of products and to ensure that our customers can safely use our products.

Kemira complies with all laws and regulations relating to chemicals and trade. Kemira does not sell any banned products. We continuously screen substances that are covered by any regulatory restrictions, or subject to substitution requirements imposed by non-regulatory stakeholders. We proactively work to mitigate health, safety, environmental and image-related risks.

### PERCENTAGE OF SIGNIFICANT PRODUCT AND SERVICE CATEGORIES FOR WHICH HEALTH AND SAFETY IMPACTS ARE ASSESSED FOR IMPROVEMENT

At the end of 2022, 100% (21 out of 21) of the identified 21 SVHC (Substances of Very High Concern) substances had a management plan approved by the Product lifecycle management team.

### INCIDENTS OF NON-COMPLIANCE CONCERNING THE HEALTH AND SAFETY IMPACT OF PRODUCTS AND SERVICES

We are not aware of any fine, penalty or warning for noncompliance with regulations and voluntary codes regarding our products or services in 2022.

## Marketing and labeling

### REQUIREMENTS FOR PRODUCT AND SERVICE INFORMATION AND LABELING

Kemira's product portfolio consists of seven major product lines and approximately 1,334 different products. All of these products are duly documented and labeled according to legal requirements, including the identification of their hazardous components and information on their safe use. Kemira provides Safety Data Sheets (SDS) for all products, independent of the product safety classification, even if in most jurisdictions Safety Data Sheets are mandatory only for hazardous products. Our IT system for Product Lifecycle Management enables us to prepare SDSs and labels in alignment with the latest regulatory data requirements and in the official languages of the countries where our products are manufactured, stored or sold. In EU member states, the information requirements are stated under REACH regulations with regard to substance properties, exposure, use and risk management measures, and the chemical safety assessment. Registered uses will also be communicated via the updated extended SDSs for downstream users. In addition to the information provided on product labels and Safety Data Sheets, more detailed information about products and their raw material ingredients can be provided on request.



In 2022, the Kemira Product Stewardship & Regulatory Affairs team responded to 4,634 (6,721 in 2021) requests concerning product safety and/or regulatory questions. The response time for those requests is one of our internal key performance indicators (KPIs).

INCIDENTS OF NON-COMPLIANCE CONCERNING PRODUCT AND SERVICE INFORMATION AND LABELING

Our customer complaints management process handles complaints by recording the complaint, investigation, root cause and corrective action determination and implementation and communication with the customers. During the process complaints are classified with a complaint reason from a predefined list. The process and system in use can exclude those complaints that Kemira has met the agreed requirements with the customers. All complaints are actively monitored, evaluated and corrected as required by the quality management system in use at Kemira.

Non-compliance related to product and service information usually refers to insufficient information on the label.

During 2022, a total of 50 customer complaints were recorded relating to labeling or product information, of which 28 cases were in the EMEA region, 19 in the Americas, and 3 in the APAC region. All cases have been investigated and needed corrective actions have been implemented.

During 2022, no incidents of non-compliance with regulations resulting in any fine, penalty or warning were reported within Kemira’s operations.

Socioeconomic compliance

NON-COMPLIANCE WITH LAWS AND REGULATIONS IN THE SOCIAL AND ECONOMIC AREA

We are not aware of any significant fine or non-monetary sanction for noncompliance with laws or regulations in the social and economic area in 2022.

PRODUCT AND SERVICE INFORMATION PROVIDED

Topic	Product and service information provided by Kemira
The sourcing of components of the product or service	Only if requested by customers.
Content, particularly with regard to substances that might produce an environmental or social impact	As required by law, always in SDS and on the labels. Additional information about chemicals in our products for voluntary certification/ compliance schemes such as eco-labeling is also provided to customers upon request and when applicable.
Safe use of the product or service	Safe use of a product or service is communicated in the SDSs and on the labels. Registered uses will be communicated via the extended SDSs. Additional information about the use, dosage and application is provided to customers when applicable.
Disposal of the product and environmental/ social impacts	When legally required, disposal of a product and environmental/social impact are communicated in the SDSs and on the labels.

Public policy and membership in associations

POLITICAL CONTRIBUTIONS

The Kemira Code of Conduct, Kemira Group Sponsorship and Donation policy and the Kemira Group Gifts, Entertainment and Anti-bribery Policy, prohibit any financial support to politicians, political parties or political organizations. No financial or any in-kind political contributions paid by Kemira have come to Kemira’s attention during 2022.

MEMBERSHIP IN ASSOCIATIONS

Kemira is a member of Cefic, the European Chemical Industry Council, and Kemianteollisuus ry, which is a national chemical industry association in Finland.

# The organization and its reporting practices

## Organizational details and activities

In the [Financial Statements](#) section of the Annual Report a list of group subsidiaries and investments in associates can be found. In the referred section Kemira's legal entities are listed and thus also countries of operation.

Below is a short description of downstream entities and relevant business relations. Kemira has divided its business in two segments Pulp & Paper and Industry & Water. There has not been any significant changes in Kemira's sector, value chain or business relationships during 2022. More information on Kemira's main business segments can be found in the [Annual Report](#) and on the [kemira.com](https://kemira.com) homepage.

### PULP & PAPER

The Pulp & Paper segment combines best-in-class application expertise, the latest technologies for advanced process management and a complete chemistry portfolio to serve our customers in the forest industry across different grades from pulp to board, tissue, specialty papers as well as graphical and printing papers. We help customers improve their sustainability, product quality, process and resource efficiency. Our focus is on growth areas in fiber-based applications and renewable materials, such as packaging board and dispersion barrier coatings.

### INDUSTRY & WATER

The Industry & Water business segment enables water intensive industries and municipal water and wastewater treatment operators improve their process and resource efficiency. Our chemistry is used for optimizing all stages of the water cycle – enabling clean water and sanitation as stated in UN SDG 6. In oil and gas applications we enable reduced water and energy use for more efficient well management and improved oil sands tailings treatment. Our focus on the water intensive industries continues and we are constantly evaluating new opportunities for growth within this sector.

## Entities included in the sustainability reporting

### SIGNIFICANT CHANGES TO THE ORGANIZATION AND ITS SUPPLY CHAIN

At the end of the year 2022, Kemira had 62 (63 in 2021) manufacturing sites of which 62 were included in the environmental reporting scope, and 62 in the auditing scope of our integrated management system. There were no significant changes in the company structure, size or ownership. Kemira offices and other non-manufacturing sites are not included in the environmental reporting, as they do not represent a material share of our environmental related processes.

### DEFINING REPORT CONTENT AND TOPIC BOUNDARIES

When defining the relative importance of material topics for reporting purpose we have taken into account our economic, environmental and social impact, stakeholder expectations, our purpose and strategy, and our commitments to the Code of Conduct, United Nations Global Compact, SDGs and Responsible Care® program. According to the GRI 1 Foundation standard, the principles for defining the report content were applied when assessing material topics and boundaries.

## Reporting period, frequency and contact point

### REPORTING PERIOD

The reporting period is from January 1 to December 31, 2022.

### DATE OF MOST RECENT REPORT

Kemira's most recent Annual Report including non-financial information (GRI disclosures) was published on February 17, 2022.

### REPORTING CYCLE

[Kemira's Annual Report](#) is published yearly, by calendar year. The Annual Report consists of Annual Review, Sustainability Report, Corporate Governance Statement (including Remuneration Report) and Financial Statements.

### CONTACT POINT FOR QUESTIONS REGARDING THE REPORT

The contact point for questions is Kemira Communications and Corporate Sustainability. Contact details are available at [kemira.com](https://kemira.com).

## CLAIMS OF REPORTING IN ACCORDANCE WITH THE GRI STANDARDS

- The report is prepared in accordance with the latest GRI standards, now updated based on the new GRI Universal Standards (2021). The latest versions of the topical standards have been used where applicable.
- Communication on Progress (COP) of the United Nations Global Compact at Global Compact Active level by using the GRI-standards reporting principles.

## Restatements of information

- The percentage of ESG investors (33% in 2021) was revised with better calculation methodology. The real percentage for 2021 was 21%.
- GHG emissions data has been updated. For Scope 2 there have been changes in the IEA database and also historical figures have been updated based on those. For Scope 3 emissions a more precise methodology has been used with updated database data for raw materials. Also in this case historical data has been updated.
- In the Remuneration report 2021, the short-term incentives based on performance period 2021 for the Deputy CEO were reported at the level of EUR 54,374 whereas the actual paid in March 2022 was EUR 53,374.

## External assurance report

### EXTERNAL ASSURANCE

The corporate sustainability information presented in the Annual Report are externally assured by an independent third party. Information on the organization's policy and current practice with regard to external assurance can be found in the Assurance statement.

### Independent accountant's assurance report

To the Management of Kemira Oyj.

### SCOPE

We have been engaged by Kemira Oyj (hereafter Kemira) to perform a 'limited assurance engagement,' as defined by International Standards on Assurance Engagements, hereafter referred to as the engagement, to report on Kemira's Annual Review 2022's pages 18-35, Sustainability Report 2022, and the taxonomy KPIs in Financial Statements 2022's pages 9-12, (the "Subject Matter") for the period 1.1.–31.12.2022.

### CRITERIA APPLIED BY KEMIRA

In preparing the Subject Matter, Kemira applied the Global Reporting Initiative Sustainability Reporting Standards and Kemira's own internal reporting principles (Criteria). As a result, the subject matter information may not be suitable for another purpose.

### KEMIRA'S RESPONSIBILITIES

Kemira's management is responsible for selecting the Criteria, and for presenting the Subject Matter in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making

estimates that are relevant to the preparation of the subject matter, such that it is free from material misstatement, whether due to fraud or error.

### ERNST & YOUNG'S RESPONSIBILITIES

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

We conducted our engagement in accordance with the International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE 3000'), and the terms of reference for this engagement as agreed with Kemira on 20.6.2022. Those standards require that we plan and perform our engagement to obtain limited assurance about whether, in all material respects, the Subject Matter is presented in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

### OUR INDEPENDENCE AND QUALITY CONTROL

We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, and have the required competencies and experience to conduct this assurance engagement.

Ernst & Young also applies International Standard on Quality Control 1, Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements, and accordingly 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.

## DESCRIPTION OF PROCEDURES PERFORMED

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

EU Taxonomy regulation is in nature changing and interpretation as well as market practice develops constantly. Therefore, taxonomy reporting is subject to uncertainty and interpretation, and current assumptions might need to be revised in the following years.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the Annual Review 2022's pages 18–35, Sustainability Report 2022, and the taxonomy KPIs in Financial Statements 2022's pages 9–12, and related information, and applying analytical and other appropriate procedures.

Our procedures included:

- a. An update of our knowledge and understanding of Kemira's material sustainability reporting topics, organization and activities,
- b. An assessment of suitability and application of the reporting principles regarding the stakeholders' needs for information,
- c. Interviews with senior management to understand Kemira's corporate responsibility leadership,

- d. Interviews with personnel responsible for gathering and consolidation of the corporate responsibility information to understand the systems, processes and controls related to gathering and consolidating the information,
- e. Assessing corporate responsibility data from internal and external sources and checking the data to reporting information on a sample basis to check the accuracy of the data,
- f. Performing recalculation of reported information and evaluating the correctness of underlying data and narrative disclosures,
- g. Site visit to Äetsä and virtual site visit to Eastover site where we assessed reporting practices.

We also performed such other procedures as we considered necessary in the circumstances.

## CONCLUSION

Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to Annual Review 2022's pages 18–35, Sustainability Report 2022, and the taxonomy KPIs in Financial Statements 2022's pages 9–12, for the period 1.1.–31.12.2022, in order for it to be in accordance with the Criteria.

Helsinki, 13.2.2023

Ernst & Young Oy  
Authorized Public Accountant Firm

Mikko Rytilahti  
Authorized Public Accountant

Nathalie Clément  
Leader of Climate Change and Sustainability Services, EY Finland

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**KEMIRA** is a global leader in sustainable chemical solutions for water-intensive industries. We provide the best-suited products and services to improve our customers' product quality, process, and resource efficiency. Our focus is on pulp & paper, water treatment, and energy sectors. In 2022, Kemira had annual revenue of around 3.6 billion and around 5,000 employees. Kemira shares are listed on the Nasdaq Helsinki Ltd.

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