Nouryon

Your partner in essential solutions for a sustainable future

Version May 2024

Sustainability Report 2023 – Executive Summary

Nouryon is Contributing to a Sustainable Future

Our Commitment:
We partner with our customers, suppliers, and employees to deliver innovative solutions, drive progress, and create a safe and sustainable today and tomorrow for everyone.

CONTINUOUSLY IMPROVE
our safety and environmental performance

Key sustainable development goals:

GROW AND INNOVATE
to create sustainable solutions enabling customers to be more sustainable

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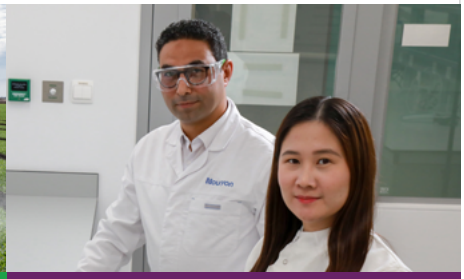


ENGAGE AND PARTNER
with employees, customers, suppliers, and society to drive sustainable progress

Key sustainable development goals:

Compliance and Ethics are the Foundation of Our Commitment

- SpeakUp! Hotline and Non-Retaliation Policy
- Code of Business Conduct & Ethics and Business Partner Code of Conduct
- 100% of our in-scope[1] employees completed mandatory Compliance trainings
- Conflict-minerals risk assessment and due diligence
- Anti-Corruption Policy
- Modern slavery and forced labor risk assessment

Our memberships and partnerships

UN Global Compact · Responsible Care® Good Chemistry at Work · HÅLLBAR KEMI · ICOS CAPITAL · TOGETHER FOR SUSTAINABILITY

Our 2023 ratings

CDP A- score Climate Change

EcoVadis Gold Rating

[1] Office-based employees and site management

Continuously Improve our Safety and Environmental Performance

Sustainability is at the core of Nouryon's operations. We are focused on continually improving our safety performance and further reducing our environmental footprint for the benefit of our employees, contractors, customers, communities, and the environment. In 2022, Nouryon established a GHG emission reduction roadmap with tangible actions to achieve the Company's 2030 targets. Between 2019 and 2023, Nouryon decreased its total absolute Scopes 1 and 2 greenhouse gas (GHG) emissions by 14% and 33% of the Company's energy came from renewable sources such as hydro, wind, solar, biomass for power, and steam from waste biomass.

- -78% process safety incident rate (PSIR) and -3% OSHA incident rate (OIR)[2]
- 2023 Responsible Care Company Award and 13 awards from the TCC
- 33% of total energy is based on renewable sources
- Eco-efficiency tracking in place at 100% of manufacturing sites
- 14% reduction in total absolute Scopes 1 and 2 greenhouse-gas emissions
- 42% of total electricity consumption from renewable sources

Our ambitions and targets

Safety ambition: Zero injuries and harm

- By the end of 2030, we have targeted reducing our absolute Scope 1 & 2 GHG emissions by **40%**, vs. a 2019 base year
- By the end of 2030, we have targeted reducing our total waste intensity by **10%**, and water consumption intensity by **10%**, vs. a 2019 base year[3]

- By 2050, we aspire to be a **net zero** organization

2030 — 2050

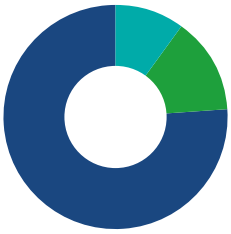
Progress towards our targets

We aim to reduce our GHG emissions and achieve our 2030 targets and 2050 aspiration by focusing on key areas: Carbon Operational Excellence, Energy Transition, Innovation and Value Chain Collaboration. 2023 examples of progress include:

Scopes 1 and 2:

- The new steam boiler at our Kvarntorp facility in Sweden replaces liquefied petroleum gas with biofuel, resulting in a 38% decrease in Scope 1 emissions in 2023 compared to 2022, and an anticipated 90% eventual reduction in Scope 1 emissions at this site.
- 25 out of 60 manufacturing sites operated by Nouryon are now sourced with renewable and/or low carbon electricity, comprising 54% of the total electricity we use globally.
- In South America, all nine locations we operate in Brazil used electricity from renewable sources. Additionally, our site in Jundiaí, Brazil, achieved the status of carbon neutral from operations (Scopes 1 and 2), joining the other five carbon neutral from operations sites Nouryon operates in the country.
- In Europe, all our sites in Belgium, Sweden and Finland use 100% electricity from renewable and/or low carbon sources. In addition, Cologne and Greiz in Germany, and Deventer and Herkenbosch in the Netherlands, are also using 100% renewable or low carbon electricity.
- In North America, we signed a 30-year power purchase agreement (PPA) with Convergent Energy and Power to supply 2-megawatt (MW) of solar power to our manufacturing site in Morris, IL, US. Aditionally, three of our four sites in Texas, US, will start receiving electricity from renewable sources at the end of December 2024.
- In Asia, 100% of our electricity consumption in Ningbo and Jiaxing, China, originated from renewable sources in 2023. Another site in Guangzhou, China, runs on 100% electricity from renewable energy and includes an onsite solar field.

Scope 1, 2, and 3 estimated emissions (2023)



Scope 1	10%
Scope 2	14%
Scope 3	76%

[2] Reductions of both PSIR and OIR between 2019 and 2023.
[3] The base year selected for Scope 1 and Scope 2 emissions is 2019, as it the first year Nouryon reported Environmental Health and Safety metrics as an independent company.

Grow and Innovate to Create Sustainable Solutions Enabling Customers to be More Sustainable

As a leading global provider of sustainable solutions, we are dedicated to helping our customers achieve their sustainability goals and to growing in our attractive end-markets. These are areas in which we have a privileged position, and we pursue them by investing resources.

- 32% of Revenue from Eco-Premium Solutions[4]
- Megatrends drive Growth for our Sustainable Solutions
- 74% of our R&D product pipeline focused on solutions with sustainability benefits[5]
- 13 strategically located Innovation and Application Centers
- ISCC PLUS certification for MCA production at our Delfzijl site, the Netherlands
- Retention rate of more than 95% over the past six years of our top 250 customers

Eco-Premium Solutions

Our Eco-Premium Solutions are products that offer significant sustainability benefits over mainstream alternatives in the market while providing the same or better functionality. The sustainability benefits of our Eco-Premium Solutions can include one or more of the following: lower toxicity, lower emissions and waste, lower energy use, improved energy efficiency, less land use, improved health effects, more efficient use of natural resources or raw materials, improved safety (during production, transport, handling). We classify a sustainability benefit underlying an Eco-Premium Solution as 'significant' when a particular benefit demonstrates at least a 10% lower impact on the specific criteria. We also ensure that a given solution does not have adverse effects on any of the other criteria. In 2023, 32% of our revenue came from the sale of Eco-Premium Solutions.

Eco-Solutions

To highlight the crucial sustainability value drivers within our end-markets, we have introduced a new metric for our product innovation pipeline, named Eco-Solutions[6]. These are product and product line innovations that we plan to introduce in the future based on success. They emphasize key sustainability drivers such as whether product innovations in our research and development (R&D) pipeline are bio-based or biodegradable, as these are vital components of product sustainability in our end-markets.

Product innovations are assessed by product safety and regulatory criteria. Solutions are not expected to be regulated in a way that restricts their intended application over the next five years. In addition, Eco-Solutions have either:

- a sustainable feedstock index greater than 50%[7];
- are biodegradable[8];
- bring a significant environmental footprint advancement[9]

If products meet more strict criteria, they may be considered circular[10].

[4] Our Eco-Premium Solutions are products that offer significant sustainability benefits over mainstream alternatives in the market while providing the same or better functionality.
[5] In 2023.
[6] The scope of the Eco-Solutions metric includes all active New Product Introduction projects in stages 3 (creation), or 4 (scale-up), and excludes stages 1 (screening), 2 (feasibility), and 5 (launch and monitor).
[7] The sustainable feedstock index is calculated based on the content of the final Nouryon product and is an assessment of what share of the product is derived from either bio-based organic materials, abundant inorganic materials and/or recycled materials.
[8] The biodegradability criteria apply to all intentionally added components in the product and is applied only for solutions that will be used in applications which have been assessed to be relevant such as home and personal care applications and agricultural applications. It does not apply for example to certain applications in which our products are used as intermediates.
[9] Sustainability advancement is the improved environmental impact of the solution as compared with the incumbent solution along the full life cycle. The improvement must be significant, meaning greater than 10% when comparing the Nouryon product's cradle-to-grave impact vs. the incumbent solution.
[10] The circularity criteria are that products must have a Sustainable Feedstock Index of 100% and will be either biodegrade or do not contain substances that inhibit the possibilities for recycling in their respective application.

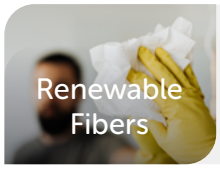
Product Carbon Footprints (PCFs) and Life Cycle Assessments (LCAs)

We provide LCAs for select products upon request from customers. Nouryon uses LCA's to assess and improve the environmental performance of our products in the value chain.

A product carbon footprint (PCF) is one of the many environmental impact categories resulting from the LCA. It sums the total greenhouse gas (GHGs) emissions – CO_2, and other greenhouse gases (expressed as CO_2 equivalent) – generated by a product during its life cycle. PCFs provide our customers with valuable information for assessing GHG emissions and provide transparency regarding the GHGs associated with our products. In conducting an LCA, primary data is used for Nouryon's manufacturing activities, while secondary data is in general used for other activities.

We will continue to evaluate the PCFs of our products to satisfy customer and societal needs for reduced emissions as we aspire to be a Net Zero organization by 2050.

We are responding to continued growth in customer sustainability demands with our innovative solutions

	Customer sustainability drivers	How we are responding	% Eco-Premium Solutions	Innovation examples
 Agriculture and Food	• Biodegradable • Lower carbon footprint • Bio-based	• **Innovations:** sustainable innovation pipeline focused on increasing share of biobased and biodegradability, resulting in new product launches • **Start-ups:** investing in emerging and sustainable technologies • **Product data:** responding to increasing customers demand lifecycle assessment (LCA) requests. Piloting LCAs, aligned with new "Together for Sustainability" standards[11] • **Acquisitions:** recent acquisitions expand our sustainable product offering • **Ratings:** CDP A-Climate score and EcoVadis Gold rating	~22%	Agrilan®
 Home and Personal Care	• Biodegradable • Bio-based • Fossil-free • Lower carbon footprint		~44%	SolAmaze®
 Natural Resources	• VOC-free • Biocide-free • Reduced environmental impact		~30%	WITBREAK™ OILFIELD DEMULSIFIERS Witbreak® NEO
 Paints and Coatings	• VOC-free • Biocide free paint • Lower carbon footprint		~62%	Bermocoll® Bermocoll® Flow
 Polymer Specialties	• Circular strategies (using recycled or renewable materials)		~22%	Perkadox® Perkadox® PM Trigonox® Trigonox® 501
 Renewable Fibers	• Lower carbon footprint		~57%	Partnership with Renewcell on sustainable textile recycling

[11] Together for Sustainability is an industry consortium of chemical companies, with combined annual sales over €500 billion, focused on supply chain sustainability. In 2022, TfS launched new guidelines that will require more LCA reporting.

Engage and Partner with Employees, Customers, Suppliers, and Society to Drive Sustainable Progress

Nouryon actively engages and partners with our employees, customers and suppliers to drive progress. We empower our people to successfully deliver on our Company purpose and strategy through our Values: 'We aim high', 'We own it', and 'We do it right'. These form the backbone of our performance-driven culture.

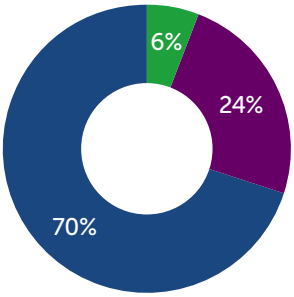
- 36% gender and ethnic diversity represented on our Board of Directors[12]
- 23% of mid-level managers and above are female in 2023[13]
- We joined Together for Sustainability (TfS)
- 66% of our supplier spend assessed for CSR risk using the EcoVadis Risk IQ tool[14]
- Global Mentoring Program
- Five Business Resource Groups (BRGs)[15]

Driving Sustainability with Our Suppliers

In 2023, Nouryon made considerable strides in enhancing the sustainability of our supply chain by assessing 90% of our suppliers for Corporate Social Responsibility (CSR) risks with the EcoVadis Risk IQ tool, while 66% of suppliers' CSR performances were measured using an EcoVadis score. Additionally, Nouryon became a member of TfS, a global coalition of 53 chemical companies dedicated to improving sustainability practices across the chemical industry. As part of TfS, Nouryon pledged to drive sustainability not only internally but also among suppliers, particularly in standardizing and refining Scope 3 GHG emissions calculations, which are a significant component of the industry's carbon footprint.

We are actively exploring lower-carbon raw materials to address high-emission areas in production processes, thereby effectively reducing the product carbon footprint and Nouryon's upstream Scope 3 emissions. This endeavor is an integral part of our ongoing Carbon Business Strategy, which also focuses on improving our Scope 3 carbon footprint. Nouryon is now certified under the International Sustainability and Carbon Certification standard ISCC PLUS for the production of green monochloroacetic acid (MCA) in the Netherlands, becoming the world's first producer of green MCA derived from sustainable sources. Green MCA presents a major step forward in reducing the product carbon footprint for Nouryon and our customers.

Share of Total Raw Materials



20% of organic raw materials are from renewable sources

- Organic: renewable, bio-based
- Organic: fossil-fuel derived (petrochemicals)
- Inorganic (e.g. salt, minerals, clay)

Supporting Responsible Palm Oil

Palm oil is a key bio-based feedstock in our operations. We support the industry benchmark for sustainable palm oil, represented by the Roundtable on Sustainable Palm Oil (RSPO), and have secured RSPO Mass Balance (MB) certification at five of our facilities.

[12] Board Members who are female and/or of a US racial/ethnic minority.
[13] Mid-level managers are defined as the management paygrade below the first senior executive level. Source data, December 2023.
[14] Based on policies, actions, results. For more information: https://ecovadis.com
[15] Nouryon Women's Network, Pride Network, Veterans Network, BOOST, and Kaleidoscope.

Environment (1/2)[16, 17]

	Unit	2019	2020	2021	2022	2023	Progress toward target[18]
Company carbon footprint							
Total absolute direct and indirect emissions market-based (Scopes 1 and 2)	Thousand tonnes CO_2e	1,506	1,488	1,467	1,498	1,294	-14%
Carbon intensity (Scopes 1 and 2 combined)	Kg CO_2e/Tonne of production	408	416	395	411	384	n/a
Direct absolute GHG emissions (Scope 1)[19,20]	Thousand tonnes CO_2e	588	604	620	636	563	n/a
Direct GHG emissions (Scope 1) intensity	Kg CO_2e/Tonne of production	159	169	167	174	167	n/a
Indirect GHG emissions market-based (Scope 2)[21,22]	Thousand tonnes CO_2e	918	884	847	862	731	n/a
Indirect GHG emissions market-based (Scope 2) intensity	Kg CO_2e/Tonne of production	249	247	228	236	217	n/a
Indirect GHG emissions location-based (Scope 2)	Thousand tonnes CO_2e	1,276	1,196	1,199	1,254	1,241	n/a
Calculated Scope 3 total absolute GHG emissions	Thousand tonnes CO_2e				4,427	4,097	n/a
Total absolute GHG emissions (Scope 1, Scope 2 market-based, and Scope 3)	Thousand tonnes CO_2e				5,926	5,391	n/a
Direct emissions, covered by emissions-limiting regulations	% of direct emissions	22%	25%	25%	27%	24%	n/a
Energy Management							
Total energy consumption[23]	Mln GJ	30.4	30.7	32.7	33.4	31.5	n/a
Total energy consumption intensity[23]	Gj/Tonne of production	8.24	8.59	8.81	9.15	9.34	n/a
Percentage renewable energy consumed[24]	%	30%	38%	38%	34%	33%	n/a
Percentage renewable electricity consumed	%	36%	48%	49%	39%	42%	n/a
Percentage energy from grid electricity	%	62%	61%	60%	59%	61%	n/a
Energy consumption from unbundled RECs[25]	MWh				40,312	59,554	n/a
Carbon offsets purchased[26]	Tonnes CO_2				200	127	n/a
Total self-generated electricity	Mln GJ	-	-	-	-	-	n/a
Air Quality							
NOx absolute emissions	Tonnes	471	482	513	527	468	n/a
NOx emission intensity	Kg/Tonne of production	0.13	0.13	0.14	0.14	0.14	n/a
SOx absolute emissions	Tonnes	3,533	3,135	3,288	3,333	3,446	n/a
SOx emission intensity	Kg/Tonne of production	0.96	0.88	0.89	0.91	1.02	n/a
VOC absolute emissions	Tonnes	669	1,172	1,938	1,792	1,853	n/a
VOC absolute emission intensity	Kg/Tonne of production	0.18	0.33	0.52	0.49	0.55	n/a
Hazardous air pollutants	Tonnes			374	357	408	n/a
Hazardous air pollutants intensity	Kg/Tonne of production			0.10	0.10	0.12	n/a
Emission to Water – Chemical Oxygen Demand (COD)							
COD absolute emissions to surface water	Tonnes	845	768	896	854	836	n/a
COD emission intensity to surface water	Kg/Tonne of production	0.23	0.21	0.24	0.23	0.25	n/a
COD absolute emissions to external wastewater treatment	Tonnes	15,257	16,515	17,917	18,447	15,380	n/a
COD emission intensity to external wastewater treatment	Kg/Tonne of production	4.13	4.60	4.81	5.04	4.56	n/a

[16] For all figures, minor corrections to historical data may be made to improve accuracy or based on methodology updates. Environmental and Energy metrics have been updated to include data from the acquired Polish sites, including historical data back to 2019. this provides a consistent basis for comparing performance on our targets (carbon water, and waste) vs. the base year. In our internal reporting procedures, we recalculate base year data in cases where the change is material (5% or more).
[17] All metrics are calculated according to our Reporting Principles 2023.
[18] Percentage change 2019-2023.
[19] Scope 1 does not include process emissions from other greenhouse gases (CH_4, N_2O, Hydrofluorocarbons, and Perfluorocarbons) and their CO_2 equivalents. For 2023 in Scope 1, this was estimated to be less than 2% and not included.
[20] Including Carbon offsets purchased to compensate for Scope 1 emissions in our carbon neutral sites.
[21] Scope 2 does not include process emissions from the other greenhouse gases CH_4, N_2O, Hydrofluorocarbons, and Perfluorocarbons, as per Nouryon's Reporting Principles 2023.
[22] Including RECs retired on our behalf for utility supplied renewable electricity and other utility contractual instruments.
[23] Energy consumption is expressed in mln GJ which is the sum of the actual consumed by the sites.
[24] Renewable-energy data include renewable fuels such as biomass, purchased renewable steam, and renewable electricity from solar, wind, and hydro power.
[25] RECs retired on our behalf for utility supplied renewable electricity and other utility contractual instruments.
[26] Carbon offsets purchased to compensate for Scope 1 emissions in our carbon neutral sites. Offsets are not included in our emissions inventory (Scopes 1, 2, or 3). These offsets have been certified by the Verified Carbon Standard (VCS), administered by Verra, and retired. For more information, see www.verra.org. Offsets are applied to prior year emissions.

Environment (2/2)

	Unit	2019	2020	2021	2022	2023	Progress toward target[27]
Water Management							
Absolute freshwater intake	Thousand m^3	134,868	147,270	161,652	153,407	151,543	n/a
Freshwater intake intensity	m^3/Tonne of production	36.5	41.1	43.4	41.9	44.9	n/a
Percentage in regions with high water stress	%	2.3%	2.0%	1.6%	2.0%	2.0%	n/a
Absolute freshwater consumption[28]	Thousand m^3	15,427	14,786	14,349	14,497	14,295	n/a
Freshwater consumption[28] intensity	m^3/Tonne of production	4.18	4.12	3.85	3.96	4.24	1%
Percentage in regions with high water stress	%	19%	20%	18%	18%	21%	n/a
Waste Management							
Total absolute waste	Tonnes	62,587	59,449	63,243	68,959	56,393	n/a
Total waste intensity	Kg/Tonne of production	17.0	16.6	17.0	18.9	16.7	-1%
Absolute non-hazardous waste	Tonnes	45,143	41,718	42,146	44,652	35,368	n/a
Non-hazardous waste intensity	Kg/Tonne of production	12.2	11.6	11.3	12.2	10.5	n/a
Absolute hazardous waste	Tonnes	17,444	17,731	21,097	24,306	21,025	n/a
Absolute hazardous waste to landfill	Tonnes	417	465	268	548	193	n/a
Percentage hazardous waste reused	%	24%	28%	33%	24%	26%	n/a
Production							
Performance Formulations	Thousand tonnes	2,028	1,964	1,996	1,912	1,686	n/a
Technology Solutions	Thousand tonnes	1,662	1,622	1,729	1,747	1,689	n/a
Sustainable Sourcing							
Percentage suppliers screened using Risk IQ[29]	% of spend			96%	94%	90%	n/a
Percentage suppliers measured on EcoVadis performance[30]	% of spend			50%	60%	66%	n/a
Percentage suppliers acknowledging our Business Partner Code of Conduct[31]	% of spend			98%	99.74%	99.81%	n/a
Percentage of bio-based raw materials (portion of organic materials)	% of organic portion (by mass)	20%	21%	22%	22%	20%	n/a
Management Systems[32]			Per April, 2021	Per February 28, 2022	Per March 23, 2023	Per December 31, 2023	
Percentage of manufacturing sites with ISO-14001/RC-14001 certifications	%		77%	84%	98%	95%	n/a
Percentage of manufacturing sites with ISO-9001 certifications	%			88%	88%	82%	n/a

[27] Percentage change 2019-2023.
[28] Total freshwater consumption (excluding once through cooling water intake) [1,000m^3].
[29] In terms of all external spend (product, non-product, energy, logistics, etc.) The Risk IQ tool considers industry segment risk, country risk and EcoVadis scores from the complete EcoVadis database.
[30] Based on policies, actions, results. For more information: https://ecovadis.com/
[31] Tracked by acceptance of a Nouryon Purchase Order or a signed Nouryon contract.
[32] Our ISO certification percentage metric includes sites that have been in our portfolio for one year. This is to allow sufficient time required for activities reviewed by the certification process (e.g., pre-start up safety reviews, management reviews, production, and/or internal audits if relevant). Any exceptions will be identified.

Social

	Unit	2019	2020	2021	2022	2023
Workforce Data[33]						
Global headcount Nouryon employees	#	10,389	9,730	7,771[34]	7,909	8,236
Percentage female in workforce	%	24%	23%	25%	25%	25%
Percentage female mid-level managers and above[35]	%	25%		20%	23%	23%
Percentage employee turnover rate (voluntary and involuntary)	%	17%	14%	14%	15%	13%
Safety[36]						
Total Recordable Incident Rate (TRIR) – Nouryon Employees, temporary workers and contractors	Per 200,000 hours worked	0.26	0.23	0.17	0.30	0.25
Lost Time Incident Rate (LTIR) – Nouryon Employees, temporary workers and contractors	Per 200,000 hours worked	0.07	0.13	0.09	0.16	0.07
Management Systems			Per April 2021	Per February 28, 2022	Per March 23, 2023	Per December 31, 2023
Percentage of manufacturing sites with OHSAS-18001/RC-18001 and ISO45001 certifications	%		39%	39%	44%	42%

Governance

	Unit	2019	2020	2021	2022	2023
Board		Per December 31, 2019	Per December 31, 2020	Per December 31, 2021	Per December 31, 2022	Per December 31, 2023
Directors	#	9	10	11	11	12
Average director tenure (years)	#	1	2	2	3	4
Independent directors	#	8	9	10	10	11
Percentage independent directors (%)	%	89%	90%	91%	91%	92%
Board Diversity		Per December 31, 2019	Per December 31, 2020	Per December 31, 2021		
Women on the Board	#	0	1	3	3	3
Percentage women on the Board	%	-	10%	27%	27%	25%
Board members of racial/ethnic minority	#	0	0	1	1	1
Percentage board members of racial/ethnic minority	%	-	-	9%	9%	8%
Percentage board diversity	%	-	10%	36%	36%	33%
Board Coverage of Sustainability-related Issues						
Frequency of Board updates on sustainability-related issues		Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Board oversight of climate strategy	Y/N	Y	Y	Y	Y	Y
Policies and Statements						
Code of Conduct, anti-discrimination, anti-harassment	Y/N	Y	Y	Y	Y	Y
Anti-corruption, anti-bribery	Y/N	Y	Y	Y	Y	Y
Business Partner Code of Conduct, including suppliers	Y/N	Y	Y	Y	Y	Y
Health, Safety, Environment and Security, including product stewardship	Y/N	N	Y	Y	Y	Y
Palm oil statement	Y/N	N	Y	Y	Y	Y
Sensitive Country Policy	Y/N	N	Y	Y	Y	Y

[33] Workforce data prior to 2021 includes Nobian employees (Nobian's separation from Nouryon occurred in 2021). 2021 workforce data excludes Nobian employees.
[34] Headcount and similar metrics may differ slightly, depending on exact collection date, due to timing of reporting schedules, divestments, and acquisitions, as well as regular workforce fluctuations.
[35] Mid-level managers are defined as the management paygrade below the first senior executive level. Source data, December 2023.
[36] 2023 People Safety data are excluding the sites in Poland, see our Reporting Principles 2023 for additional explanation.