



Sustainability Accounting Standards Board (SASB) Index

2022

BIOTECHNOLOGY & PHARMACEUTICALS

Sustainability Disclosure Topics & Accounting Metrics

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting
Safety of Clinical Trial Participants	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials	HC-BP-210a.1	<p>Bayer, similar to many major pharmaceutical and biotechnology companies, utilizes clinical research organizations (CROs) to deliver some of our clinical trial portfolio. This is done through two models.</p> <ol style="list-style-type: none"> 1. The first model is functional service provision where CRO staff are engaged by Bayer in order to supplement internal resources. In this case, the CRO personnel works on clinical trials using Bayer processes and Bayer IT systems. 2. The second model is where Bayer outsources the clinical trial in full. For these situations, we have large, global CROs with extensive geographical reach, which gives Bayer the opportunity to manage them centrally by appropriate integration into Clinical and Study Teams at the global level. Both Bayer and our CROs adhere to Good Clinical Practice (GCP) and country-specific legal, data privacy, ethical (Declaration of Helsinki) and regulatory requirements. <p>To manage our CRO partners and our outsourcing model, a global process is in place applying to all regions.</p> <p>There are three components of the full outsourcing model:</p> <ol style="list-style-type: none"> 1. Contingent Contracting Model, containing fixed price and bonus/penalty 2. Operating Model, with clear responsibilities and the CRO operating with its own resources, processes and IT systems 3. Risk-based Oversight Model, with Bayer staff focusing on oversight activities that are critical for overseeing patient safety and data integrity <p>To facilitate the full outsourcing model, Bayer works on industry platforms and to recognized regulatory, industry and data standards.</p> <p>With regard to patient safety, assessment and reporting to health authorities, we use Bayer IT systems, people and processes, receiving reports from the investigator. With respect to audit and inspection, these are outlined in our quality agreement, which is appended to the Master Service Agreement, or corresponding supplier agreements. Bayer assesses which clinical sites require audit using a risk-based method. Additional CROs providing supplementary services (e.g. imaging, laboratory analysis) are also utilized and oversight is conducted via a similar mechanism to the full outsourcing model, with Bayer staff focusing on activities that are critical to overseeing patient safety and data integrity.</p> <p>Before any activities can be outsourced to a potential CRO, the CRO is subjected to a qualification process. An integral part of this process is a risk-based assessment whether a GCP qualification audit is required.</p> <p>Bayer publishes information on clinical trials in compliance with the respective local laws. Bayer publishes information on its own clinical trials both in the publicly accessible registers and in its own Clinical Trial Explorer database. Further information about our globally uniform standards, the monitoring of clinical studies and the role of the ethics committees can be found on our website.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Sustainability Report – Chapter 3.8 Product Stewardship – Pharmaceuticals and Consumer Health – Clinical Trials // Clinical Trials website https://pharma.bayer.com/clinical-trials // Ethics in Clinical Trials website https://pharma.bayer.com/worldwide-standards // Bayer Clinical Trials website https://clinicaltrials.bayer.com/ // http://www.clinicaltrials.gov/

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting
	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI)	HC-BP-210a.2	During 2022, no US FDA Good Clinical Practice or pharmacovigilance inspections were conducted, either at clinical investigator sites or at company facilities.
	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries	HC-BP-210a.3	Not reported
Access to Medicines	Description of actions and initiatives to promote access to health care products for priority diseases and in priority countries as defined by the Access to Medicine Index	HC-BP-240a.1	For more information: // Bayer 2022 Sustainability Report – Sustainability Strategy chapter // Bayer 2022 Sustainability Report – Focus on: Access to Health Care chapter // Access to Medicine Foundation 2022 ranking https://accesstomedicinefoundation.org/access-to-medicine-index/report-cards/bayer-ag
	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP)	HC-BP-240a.2	// Bayer 2022 Sustainability Report – Focus on: Access to Health Care chapter // Access to Medicine Foundation 2022 ranking https://accesstomedicinefoundation.org/access-to-medicine-index/report-cards/bayer-ag
Affordability & Pricing	Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved payments and/or provisions to delay bringing an authorized generic product to market for a defined time period	HC-BP-240b.1	Not reported
	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year	HC-BP-240b.2	From 2021 to 2022, the Bayer US portfolio WAC for prescription products increased by 5.1%.
	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year	HC-BP-240b.3	Not reported

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting
Drug Safety	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database	HC-BP-250a.1	See FDA Adverse Event Reporting Website
	Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System	HC-BP-250a.2	See FDA Adverse Event Reporting Website
	Number of recalls issued, total units recalled	HC-BP-250a.3	https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts?search_api_fulltext=Bayer&field_regulated_product_field=All (0 for 2022, 1 for 2021) https://www.accessdata.fda.gov/scripts/ires/index.cfm#tabNav_advancedSearch
	Total amount of product accepted for takeback, reuse, or disposal	HC-BP-250a.4	Whenever possible and within the framework of legal regulations, we make use of the opportunities in our divisions to recycle solvents, catalysts and intermediates and return them to the production process following treatment. For products such as pharmaceuticals and crop protection products, reutilization and recycling are usually prohibited by legislation. The disposal of pharmaceutical products from the Pharmaceuticals and Consumer Health divisions is subject to strict safety criteria. Packaging materials are recycled in line with national regulations as part of the country-specific infrastructure for waste disposal. Through a returns program, we enable doctors' offices and hospitals to send remaining stock or unused supplies of the iodinated X-ray contrast agent Ultravist™ back to us. This in turn makes it possible to properly reuse the iodine in an industrial cycle while at the same time helping to avoid iodine emissions into the environment. // Bayer 2022 Sustainability Report – Chapter 8.4 Environmental Protection and Safety – Waste and Recycling – Disposal, recycling and processing
	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	HC-BP-250a.5	None. All our manufacturing sites are classified as NAI (no action indicated) or VAI (voluntary action indicated) by the FDA.
Counterfeit Drugs	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting	HC-BP-260a.1	// Bayer 2022 Sustainability Report – Chapter 3.5 Product Stewardship – Protection against Product Counterfeiting
	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products	HC-BP-260a.2	// Bayer 2022 Sustainability Report – Chapter 3.5 Product Stewardship – Protection against Product Counterfeiting

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	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products	HC-BP-260a.3	<p>In addition to the process established in the quality management system, we have introduced a data management tool for the corporate security and legal functions. This enables assessments and reports to be compiled on activities by law enforcement authorities in connection with pharmaceutical counterfeiting that were triggered by information and analyses we submitted.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 3.5 Product Stewardship – Protection against Product Counterfeiting</p>
Ethical Marketing	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	HC-BP-270a.1	Not reported
	Description of code of ethics governing promotion of off-label use of products	HC-BP-270a.2	<p>We do not tolerate any improper exertion of influence on our business partners. As part of our compliance management system, we record and investigate any suspected violation of our responsible marketing principles, irrespective of whether the complaints come from internal or external sources.</p> <p>The most important Bayer Group regulation in this context is our Group Regulation on Anti-Corruption, which is supplemented by the rules of conduct for responsible marketing. Furthermore, we are committed to ethical advertising and communication for all our products and services.</p> <p>Industry codes for pharmaceutical products and medical devices that have been adopted by major national and international associations and organizations also apply to marketing and distribution at Bayer. In many countries, these standards are further underpinned by local codes – all of which apply to prescription pharmaceuticals and some of which also apply to nonprescription medicines, dietary supplements, medical devices and medicated skincare products.</p> <p>All codes of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) serve as a binding minimum global standard for all of Bayer's human pharmaceutical products in their area of application. In addition, Bayer observes the codes of the European Federation of Pharmaceutical Industries and Associations (EFPIA) in its interaction with healthcare professionals and patient organizations. Regarding the advertising of human pharmaceutical products, Bayer complies with the regulations set out in the IFPMA Code of Practice as the minimum global standard, along with those set forth in regional and national codes.</p> <p>The aforementioned codes contain provisions governing, among other matters, advertising materials, the distribution of samples, cooperation with members of specialist groups in connection with speaker and consultancy contracts, and scientific studies. Pharmaceuticals observes the applicable transparency rules (e.g. the Physician Payments Sunshine Act in the United States) and participates in voluntary programs such as the EFPIA Disclosure Code.</p> <p>For more information: // Bayer 2022 Sustainability Report– Chapter 2.6 Corporate Governance – Compliance – Marketing compliance // Bayer Responsible Marketing & Sales website https://www.bayer.com/en/sustainability/responsible-marketing-sales-regulation // Bayer Corporate Compliance Policy website https://www.bayer.com/sites/default/files/bayer-corporate-compliance-policy-en.pdf</p>
Employee Recruitment, Development & Retention	Discussion of talent recruitment and retention efforts for scientists and research and development personnel	HC-BP-330a.1	<p>To maintain an enthusiasm for Bayer among top researchers and scientists, we offer them special development opportunities that are tailored to their requirements. These include new scientific challenges, special advanced training offerings and a career path either as experts or as managers in various Bayer regions, functions or divisions. Through our Science Fellows Community, we talk to our scientific specialists about their own career development. Special mentoring programs are established to support employees' early development and their regular networking with experienced scientists and managers.</p> <p>For more information: // Bayer 2022 Sustainability Report– Chapter 6.6 Employees – Employee Development and Integration</p>

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting																									
	(1) Voluntary and (2) involuntary turnover rate for: (a) executives/senior managers, (b) mid-level managers, (c) professionals, and (d) all others	HC-BP-330a.1	<p>Fluctuation</p> <table border="1"> <thead> <tr> <th></th> <th colspan="2">Voluntary</th> <th colspan="2">Total</th> </tr> <tr> <th>%</th> <th>2021</th> <th>2022</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Women</td> <td>6.7</td> <td>6.2</td> <td>12.6</td> <td>12.1</td> </tr> <tr> <td>Men</td> <td>5.9</td> <td>5.7</td> <td>11.8</td> <td>12.2</td> </tr> <tr> <td>Total</td> <td>6.2</td> <td>5.9</td> <td>12.1</td> <td>12.2</td> </tr> </tbody> </table> <p>For more information on fluctuation by region and by age group: // Bayer 2022 Sustainability Report – Chapter 6.2 Employees – Employee Data</p>		Voluntary		Total		%	2021	2022	2021	2022	Women	6.7	6.2	12.6	12.1	Men	5.9	5.7	11.8	12.2	Total	6.2	5.9	12.1	12.2
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Supply Chain Management	Percentage of (1) entity's facilities and (2) Tier I suppliers' facilities participating in the Rx-360 International Pharmaceutical Supply Chain Consortium audit program or equivalent third-party audit programs for integrity of supply chain and ingredients	HC-BP-430a.1	<p>Bayer is an active member of Rx-360, with representation on the Board of Directors and operational engagement on relevant committees and working groups, such as Audit Operations, Supply Chain Security, Cell & Gene Therapy, and Data Integrity. All of our own relevant facilities are taking part in Rx360. Extremely stringent safety standards for patients and medical professionals apply to pharmaceuticals and medical devices. That's why both the development and manufacture of pharmaceuticals and medical devices are subject to very strict quality requirements.</p> <p>The quality management system of the Pharmaceuticals and Consumer Health divisions is based on internationally recognized standards and applicable legal, regulatory and ethical requirements for all stages of the provision of a pharmaceutical or a medical device – from development to registration, production and distribution. These standards particularly include the rules for good working practice (GxP) in the development and manufacture of pharmaceuticals – such as Good Manufacturing Practice (GMP), Good Distribution Practice (GDP), Good Clinical Practice (GCP), Good Pharmacovigilance Practice (GVP), ISO certifications such as those for the manufacture of medical devices (e.g. ISO 17025 and 13485), and the guidelines of the ICH (International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use).</p> <p>Internal experts and external assessors regularly conduct risk-based audits to verify compliance with the statutory requirements and relevant standards in development and production as well as for registered product specifications. Such audits also cover institutes subcontracted by Bayer, service providers, our suppliers and contract manufacturers. Observations made during these audits are systematically evaluated and compliance with corrective measures verified at regular intervals. The quality requirements derived from regulatory requirements, permits and authorizations, and from relevant standards, are regularly reviewed and integrated into our quality management system.</p> <p>In addition to the internal quality assurance mechanisms, all our sites are regularly inspected by the health authorities of the respective countries to verify compliance with the various national and international requirements, and certified according to the respective product category (e.g. through GMP certificates or in the form of an official producer permit). All our sites received the targeted certifications in 2022.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 3.8 Product Stewardship – Pharmaceuticals and Consumer Health – Quality and safety of pharmaceuticals and medical devices</p>																									
Business Ethics	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery	HC-BP-510a.1	Not reported																									

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	Description of code of ethics governing interactions with health care professionals	HC-BP-510a.2	<p>We do not tolerate any improper exertion of influence on our business partners. As part of our compliance management system, we record and investigate any suspected violation of our responsible marketing principles, irrespective of whether the complaints come from internal or external sources.</p> <p>The most important Bayer Group regulation in this context is our Group Regulation on Anti-Corruption, which is supplemented by the rules of conduct for responsible marketing. Furthermore, we are committed to ethical advertising and communication for all our products and services.</p> <p>Industry codes for pharmaceutical products and medical devices that have been adopted by major national and international associations and organizations also apply to marketing and distribution at Bayer. In many countries, these standards are further underpinned by local codes – all of which apply to prescription pharmaceuticals and some of which also apply to nonprescription medicines, dietary supplements, medical devices and medicated skincare products.</p> <p>All codes of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) serve as a binding minimum global standard for all of Bayer’s human pharmaceutical products in their area of application. In addition, Bayer observes the codes of the European Federation of Pharmaceutical Industries and Associations (EFPIA) in its interaction with healthcare professionals and patient organizations. Regarding the advertising of human pharmaceutical products, Bayer complies with the regulations set out in the IFPMA Code of Practice as the minimum global standard, along with those set forth in regional and national codes.</p> <p>The aforementioned codes contain provisions governing, among other matters, advertising materials, the distribution of samples, cooperation with members of specialist groups in connection with speaker and consultancy contracts, and scientific studies. Pharmaceuticals observes the applicable transparency rules (e.g. the Physician Payments Sunshine Act in the United States) and participates in voluntary programs such as the EFPIA Disclosure Code.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 2.6 Corporate Governance – Compliance – Marketing compliance // Bayer Responsible Marketing & Sales website https://www.bayer.com/en/sustainability/responsible-marketing-sales-regulation // Bayer Corporate Compliance Policy website https://www.bayer.com/sites/default/files/bayer-corporate-compliance-policy-en.pdf</p>

Activity Metrics

SASB Activity Metric	SASB Code
Number of patients treated	Not reported
Number of drugs (1) in portfolio and (2) in research and development (Phases 1-3)	// Bayer 2022 Annual Report – Chapter 1.1.2 Corporate Structure // Bayer 2022 Annual Report – Chapter 1.3 Focus on Innovation – Pharmaceuticals

CHEMICALS

Sustainability Disclosure Topics & Accounting Metrics

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting																												
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	RT-CH-110a.1	<p>In reporting greenhouse gas emissions, we take account of the recommendations of the Greenhouse Gas Protocol (GHG Protocol). Direct emissions from our own power plants, vehicles, waste incineration plants and production facilities (Scope 1) are determined at all environmentally relevant sites whose annual energy consumption exceeds 1.5 terajoules.</p> <hr/> <p>Greenhouse Gas Emissions (Scope 1 and 2)</p> <table border="1"> <thead> <tr> <th>Million metric tons of CO₂ equivalents</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Scope 1: Direct emissions¹</td> <td>2.01</td> <td>1.93</td> <td>1.91</td> </tr> <tr> <td>of which carbon dioxide (CO₂)</td> <td>1.96</td> <td>1.90</td> <td>1.85</td> </tr> <tr> <td>of which ozone-depleting substances</td> <td>0.011</td> <td>0.011</td> <td>0.011</td> </tr> <tr> <td>of which partially fluorinated hydrocarbons (HFCs)</td> <td>0.022</td> <td>0.014</td> <td>0.039</td> </tr> <tr> <td>of which nitrous oxide (N₂O)</td> <td>0.008</td> <td>0.007</td> <td>0.007</td> </tr> <tr> <td>of which methane (CH₄)</td> <td>0.003</td> <td>0.003</td> <td>0.003</td> </tr> </tbody> </table> <p>¹ In line with the GHG Protocol, we also report the direct emissions resulting from the generation of energy for other companies that is sold as a site service. In 2022, these emissions corresponded to 0.13 million metric tons of CO₂ equivalents.</p> <p>In 2022, Bayer was involved in European emissions trading with five plants in total. The CO₂ emissions of these plants amounted to almost 290,000 metric tons.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 7.4 Climate Protection – Greenhouse Gas Emissions // Bayer CDP Report Climate www.bayer.com/cdp-climate</p>	Million metric tons of CO ₂ equivalents	2020	2021	2022	Scope 1: Direct emissions ¹	2.01	1.93	1.91	of which carbon dioxide (CO ₂)	1.96	1.90	1.85	of which ozone-depleting substances	0.011	0.011	0.011	of which partially fluorinated hydrocarbons (HFCs)	0.022	0.014	0.039	of which nitrous oxide (N ₂ O)	0.008	0.007	0.007	of which methane (CH ₄)	0.003	0.003	0.003
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	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	RT-CH-110a.2	<p>We support the Paris Agreement and the objective of limiting global warming to 1.5°C relative to the pre-industrial level. In 2019, therefore, we made climate neutrality at our own sites a Group target for 2030 within our climate program. We plan to attain this target partly by reducing our emissions (Scope 1 and 2) by 42% (reference year: 2019) in absolute terms and partly by offsetting the remaining emissions (Scope 1 and 2). We also strive to reduce the relevant emissions in our value chain (Scope 3) by 12.3% in absolute terms. These reduction goals were confirmed by the Science Based Targets initiative (SBTi). The attainment of these targets is accounted for in the compensation of the Board of Management and LTI-entitled managerial employees. For more information on our Group targets, please see our Sustainability Report 2022 – Chapter 7. Climate Protection.</p> <p>Bayer has undertaken to achieve a net zero target for greenhouse gas emissions throughout the entire value chain by 2050 or earlier. As an external expression of commitment to net zero greenhouse gas emissions, the company also signed the Business Ambition for 1.5°C, a campaign of the SBTi in partnership with the UN Global Compact and the We Mean Business Coalition.</p> <p>// Investment in energy efficiency and renewable energies: to achieve an absolute reduction in our remaining emissions, we intend to invest €500 million in renewable energies and in increasing the energy efficiency of our facilities and buildings by 2030. We are investing in process innovations, more efficient facilities and building technology, and in the implementation and optimization of energy management systems, particularly at our production sites. Capital expenditure projects are underway at various sites to advance the use of climate-neutral technologies such as geothermal energy or emissions-free steam production.</p> <p>// We will offset those of our emissions (Scope 1 and 2) that still remain following reduction through technological measures and cannot be avoided (such as greenhouse gas emissions generated by chemical processes or through business travel) by purchasing certificates from climate protection projects that meet recognized quality standards. By doing so, we aim to achieve climate neutrality for our own sites by 2030. These projects need to have a connection to our business. In this respect, too, we have established specific criteria for procuring certificates from climate protection</p>																												

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting																				
			<p>projects. In this process, we focus on nature-based climate solutions, preferably concerning forestry and agriculture projects. We will also invest in innovative projects to promote the development of voluntary emissions trading.</p> <p>In 2022, we looked at the risks and opportunities stemming from the effects of climate change from various perspectives to better evaluate them in relation to our company and integrate them into our strategy and measures. Climate-related risks are already accounted for in our Group-wide Enterprise Risk Management (ERM) system.</p> <p>// Based on the Paris Agreement, the most important countries and regions in which Bayer operates have committed to limit global warming by reducing their greenhouse gas emissions.</p> <p>// One example is the European Union’s Green Deal, the goal of which is to accelerate the transition to an emissions-free future and achieve climate neutrality by 2050. Consequently, the EU is expected to further increase costs for the emission of greenhouse gases (e.g. through CO2 regulations such as the EU emissions trading system (EU-ETS) or a carbon tax), adjust financing incentives (e.g. through the EU taxonomy) and drive forward technological changes (e.g. through the promotion of renewable energies and hydrogen technologies).</p> <p>// China has committed to attaining net zero emissions by 2060 and is therefore expected to introduce further regulations in this connection.</p> <p>Through our strategy for achieving climate neutrality and reducing greenhouse gas emissions on the pathway to a 1.5°C scenario, we are reducing the risk of additional costs caused by the expected regulations.</p> <p>For more information:</p> <p>// Bayer 2022 Sustainability Report – Sustainability Strategy chapter</p> <p>// Bayer 2022 Sustainability Report – Chapter 7.2 Climate Protection – Climate Strategy</p> <p>// Bayer 2022 Sustainability Report – Chapter 7.3 Climate Protection – Risk and Opportunity Analysis</p> <p>// Bayer 2022 TCFD Report www.bayer.com/tcf</p> <p>// Bayer CDP Report Climate www.bayer.com/cdp-climate</p>																				
Air Quality	Air emissions of the following pollutants: (1) NO _x (excluding N ₂ O), (2) SO _x , (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)	RT-CH-120a.1	<p>Other Direct Air Emissions</p> <table border="1"> <thead> <tr> <th>1,000 metric tons</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>ODS¹</td> <td>0.0043</td> <td>0.0039</td> <td>0.0042</td> </tr> <tr> <td>VOCs²</td> <td>0.69</td> <td>0.43</td> <td>0.46</td> </tr> <tr> <td>NO_x (nitrogen oxides)</td> <td>4.16</td> <td>3.57</td> <td>3.52</td> </tr> <tr> <td>SO_x (sulfur oxides)</td> <td>1.32</td> <td>1.28</td> <td>1.29</td> </tr> </tbody> </table> <p>¹ Ozone-depleting substances (ODS) according to the Montreal Protocol, in CFC-11 equivalents</p> <p>² Volatile organic compounds (VOCs) excluding methane</p> <p>For more information:</p> <p>// Bayer 2022 Sustainability Report – Chapter 8.2 Environmental Protection and Safety – Air Emissions</p>	1,000 metric tons	2020	2021	2022	ODS ¹	0.0043	0.0039	0.0042	VOCs ²	0.69	0.43	0.46	NO _x (nitrogen oxides)	4.16	3.57	3.52	SO _x (sulfur oxides)	1.32	1.28	1.29
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Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy	RT-CH-130a.1	Energy Consumption			
			2020	2021	2022	
			TJ			
			Primary energy consumption	17,836	18,071	17,525
			Natural gas	10,911	10,682	10,287
			Coal	566	608	571
			Liquid fuels	2,901	2,653	2,688
			of which for vehicle fleet/transport	2,480	2,194	2,121
			Waste	416	499	481
			Other ¹	932	1,068	1,162
			Primary energy consumption for third-party companies	2,111	2,561	2,335
			Secondary energy consumption	18,022	16,764	17,947
			Electricity ²	12,166	11,059	12,359
			of which electricity from power grid	11,451	8,325	8,335
			of which electricity from renewable energies	715	2,734	4,024
			Steam	4,485	4,381	4,259
			of which steam from renewable energies	25	82	92
			Steam from waste heat (process heat)	550	574	558
			Cooling energy	691	632	631
			Secondary energy consumption for third-party companies	131	118	140
			Total energy consumption	35,858	34,835	35,472

¹ For example biomass

² The proportion of primary energy sources used in generating the electricity consumed depends on the respective electricity mix of our energy suppliers.

Primary and secondary energy consumption is usually dependent on the production volume: the more that is produced, the greater the energy consumption and also the associated greenhouse gas emissions. Energy management systems such as ISO 50001 help to identify potential energy savings both in production processes and when developing new production processes or converting existing ones. This not only conserves valuable energy resources, but also takes into account economic factors associated with long-term savings. In our Report to CDP, we also describe the projects to save energy that were implemented at various sites.

Investment in efficiency measures and renewable energies: to achieve an absolute reduction in our remaining emissions, we intend to invest €500 million in renewable energies and in increasing the energy efficiency of our facilities and buildings by 2030.

We are investing in process innovations, more efficient facilities and building technology, and in the implementation and optimization of energy management systems, particularly at our production sites. Capital expenditure projects are underway at various sites to advance the use of climate-neutral technologies such as geothermal energy or emissions-free steam production.

For more information:

- // [Bayer 2022 Sustainability Report](#) – Sustainability Strategy chapter
- // [Bayer 2022 Sustainability Report](#) – Chapter 7.2 Climate Protection – Climate Strategy
- // [Bayer 2022 Sustainability Report](#) – Chapter 7.5 Climate Protection – Energy
- // Bayer CDP Report Climate www.bayer.com/cdp-climate

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting																																								
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	RT-CH-140a.1	<p>Water Use by Source</p> <table border="1"> <thead> <tr> <th>Million m³</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Groundwater</td> <td>21.1</td> <td>20.6</td> <td>21.3</td> </tr> <tr> <td>Surface water</td> <td>15.3</td> <td>10.1</td> <td>8.5</td> </tr> <tr> <td>Rainwater</td> <td>4.0</td> <td>6.0</td> <td>2.8</td> </tr> <tr> <td>Drinking water</td> <td>13.2</td> <td>15.2</td> <td>16.7</td> </tr> <tr> <td>Recycled wastewater from third parties</td> <td>0.8</td> <td>0.7</td> <td>0.6</td> </tr> <tr> <td>Other¹</td> <td>2.1</td> <td>1.6</td> <td>2.2</td> </tr> <tr> <td>Water content of raw materials²</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> </tr> <tr> <td>Total water use</td> <td>57</td> <td>55</td> <td>53</td> </tr> <tr> <td>of which in water-scarce areas or areas threatened by water scarcity³</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table> <p>¹ Ultrapure water, mineral water ² Partly released by chemical reaction ³ As defined by the World Resources Institute, Aqueduct Water Risk Atlas</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 8.3 Environmental Protection and Safety – Water and Wastewater // Bayer CDP Report Water www.bayer.com/cdp-water</p>	Million m ³	2020	2021	2022	Groundwater	21.1	20.6	21.3	Surface water	15.3	10.1	8.5	Rainwater	4.0	6.0	2.8	Drinking water	13.2	15.2	16.7	Recycled wastewater from third parties	0.8	0.7	0.6	Other ¹	2.1	1.6	2.2	Water content of raw materials ²	0.7	0.7	0.7	Total water use	57	55	53	of which in water-scarce areas or areas threatened by water scarcity ³	3	3	3
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	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	RT-CH-140a.2	// Bayer 2022 Sustainability Report – Chapter 8.5 Environmental Protection and Safety – Environmental Incidents																																								
	Description of water management risks and discussion of strategies and practices to mitigate those risks	RT-CH-140a.3	<p>Responsible water usage is a cornerstone of our commitment to sustainable development and is described in the Group Regulation on HSE Management and HSE Key Requirements. Clean water in sufficient quantities is essential for the health of people, animals and plants. That is why it is crucial that industrial water usage will continue not to lead to local problems such as water shortages for the people living in the catchment areas of our production sites. In our Water Position, we undertake to comply with international, national and local legislation to protect water resources, use them as sparingly as possible and further reduce emissions into water.</p> <p>In our water stewardship strategy, we address a variety of factors connected with water, from operational water use and innovative products, such as drought-resistant crops with a reduced water requirement, to our involvement in the value chain and cooperation with partners. For example, we support the CEO Water Mandate of the UN Global Compact with the goal of working with key stakeholders to develop sustainable strategies for water usage. Since 2021, we have also been a member of the Water Resilience Coalition (WRC), the goals of which substantiate and supplement the ambitions of the CEO Water Mandate at the private-sector level. We also participate in the Water and Climate Leaders group of the World Meteorological Organization (WMO) to improve the global political framework and enhance awareness about this issue among the public. We are currently further developing our water strategy to better address the opportunities and risks associated with water stewardship in the future, especially in view of changing climatic conditions.</p> <p>In our annual response to the CDP Water Disclosure, we report in detail on our handling of water and the company-specific water footprint. This equates to a progress report for the CEO Water Mandate. We received an A- rating in 2022.</p> <p>Sites in water-scarce regions:</p>																																								

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			<p>We aim to identify potential for improvement particularly at sites located in water-scarce areas or in areas identified as being threatened by water scarcity, and to use as little water there as possible. These regions in which water consumption exceeds the available renewable surface and groundwater resources were identified using the Aqueduct Water Risk Atlas of the World Resources Institute (WRI). We had already established water management systems at all relevant sites in water-scarce areas or in areas identified as being threatened by water scarcity by the end of 2020. The relevant Bayer sites here are all locations with annual energy consumption of at least 1.5 terajoules that at the same time account for at least 0.1% our global water consumption.</p> <p>The key characteristics of a sustainable water management policy are a balance between water consumption and availability, and the optimal conservation of water resources. Due to widely varying local situations, each water management system is designed individually on the basis of a detailed risk analysis that takes into account local circumstances and the main parameters of our water supply and disposal. We address the identified risks with locally adapted countermeasures such as the establishment of alternative supply sources, the improvement of wastewater quality or wastewater recirculation. These activities are accompanied by management measures that include regular employee training in water management and participation in roundtables with regulatory authorities and residents.</p> <p>We are aware that climate change will further exacerbate the problem of water scarcity in the future. To avert future risks for our sites and the local communities, we plan to establish suitable water management systems by the end of 2023 at all relevant sites that will be threatened by water scarcity by 2030. We identify such sites using the base scenario of the World Resources Institute (WRI).</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 8.3 Environmental Protection and Safety – Water and Wastewater // Bayer CDP Report Water www.bayer.com/cdp-water // Bayer HSE Management and HSE Key Requirements</p>																
Hazardous Waste Management	Amount of hazardous waste generated, percentage recycled	RT-CH-150a.1	<p>Hazardous Waste Generated¹</p> <table border="1"> <thead> <tr> <th>1,000 metric tons</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Total hazardous waste generated</td> <td>305</td> <td>316</td> <td>276</td> </tr> <tr> <td>of which from production</td> <td>301</td> <td>303</td> <td>273</td> </tr> <tr> <td>of which from construction work</td> <td>4</td> <td>13</td> <td>3</td> </tr> </tbody> </table> <p>¹ Definition of hazardous waste in accordance with the local laws in each instance</p> <p>The proportion of hazardous waste that was recycled was 15%.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 8.4 Environmental Protection and Safety – Waste and Recycling</p>	1,000 metric tons	2020	2021	2022	Total hazardous waste generated	305	316	276	of which from production	301	303	273	of which from construction work	4	13	3
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Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests	RT-CH-210a.1	<p>// Bayer 2022 Sustainability Report – Chapter 1.3 The Company – Value Added</p> <p>// Bayer 2022 Sustainability Report – Chapter 2.2 Corporate Governance – Behavioral Principles (BASE)</p> <p>// Bayer 2022 Sustainability Report – Chapter 2.8 Corporate Governance – Risk Management</p> <p>// Bayer 2022 Sustainability Report – Chapter 2.10 Corporate Governance – Stakeholder Dialogue</p> <p>// Bayer 2022 Sustainability Report – Chapter 8.8 Environmental Protection and Safety – Plant Safety</p> <p>// Bayer 2022 Sustainability Report – Chapter 8.10 Environmental Protection and Safety – Emergency and Crisis Management</p> <p>// Bayer 2022 Sustainability Report – Chapter 9.2 Giving and Foundations – Our Giving in 2022</p>																																
Workforce Health & Safety	(1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	RT-CH-320a.1	<p>Recordable Occupational Injuries¹</p> <table border="1"> <thead> <tr> <th></th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Number of occupational injuries</td> <td>390</td> <td>443</td> <td>413</td> </tr> <tr> <td>of which Bayer employees</td> <td>335</td> <td>377</td> <td>365</td> </tr> <tr> <td>of which employees of contractors under direct Bayer supervision</td> <td>55</td> <td>66</td> <td>48</td> </tr> <tr> <td>Overall rate of occupational injuries (RIR²)</td> <td>0.32</td> <td>0.38</td> <td>0.37</td> </tr> <tr> <td>Rate of occupational injuries with lost workdays (LTRIR³)</td> <td>0.20</td> <td>0.22</td> <td>0.18</td> </tr> <tr> <td>Fatal occupational injuries⁴</td> <td>2</td> <td>2</td> <td>1</td> </tr> <tr> <td>Fatal occupational injuries of employees of contractors not under Bayer supervision⁵</td> <td>4</td> <td>4</td> <td>–</td> </tr> </tbody> </table> <p>2021 figures restated</p> <p>¹ Recordable occupational injuries of Bayer employees and employees of contractors whose accidents occurred under direct Bayer supervision</p> <p>² RIR = Recordable Incident Rate</p> <p>³ LTRIR = Lost Time Recordable Incident Rate</p> <p>⁴ Fatal occupational injuries of Bayer employees and employees of contractors under direct Bayer supervision</p> <p>⁵ These fatalities were not correctly assigned in previous years. The designation of the group of people involved has been corrected.</p> <p>The basis of our reporting on occupational injuries is the Recordable Incident Rate (RIR), which covers all occupational injuries and illnesses suffered by Bayer employees and employees of contractors under the direct supervision of Bayer leading to medical treatment that goes beyond basic first aid. As a result, the RIR covers injuries and occupational illnesses both with and without lost workdays. In 2022, it was at 0.37 cases per 200,000 hours worked, which is equivalent to 413 occupational injuries worldwide (2021: 443). The RIR thus came in below the defined target for 2022 of 0.38. In statistical terms, this means that one recordable incident occurred for more than every 542,000 hours worked. Recordable injuries with lost workdays constituted 204 of the total of 413 occupational injuries, meaning that the corresponding parameter, the Lost Time Recordable Incident Rate (LTRIR), improved slightly from 0.22 in 2021 to 0.18 in 2022. The continued low number of occupational injuries was due in part to increased working from home, which was considerably expanded as a protective measure in connection with the COVID-19 pandemic.</p> <p>Regrettably, one employee lost his life in a work-related accident in 2022. An employee in Argentina was fatally injured when a flexible big bag plummeted. The employee died in hospital as a result of his injuries.</p> <p>For more information:</p> <p>// Bayer 2022 Sustainability Report – Chapter 8.6 Environmental Protection and Safety – Occupational Health and Safety</p>		2020	2021	2022	Number of occupational injuries	390	443	413	of which Bayer employees	335	377	365	of which employees of contractors under direct Bayer supervision	55	66	48	Overall rate of occupational injuries (RIR ²)	0.32	0.38	0.37	Rate of occupational injuries with lost workdays (LTRIR ³)	0.20	0.22	0.18	Fatal occupational injuries ⁴	2	2	1	Fatal occupational injuries of employees of contractors not under Bayer supervision ⁵	4	4	–
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	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	RT-CH-320a.2	The workplaces of our employees and those of contractors under the direct supervision of Bayer are regularly subjected to a comprehensive health-related risk assessment and hazard analysis by Bayer experts that also covers possible exposure of employees to chemicals. Details of this process are specified in the Group Regulation on HSE Management and HSE Key Requirements .																																

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			<p>Measures derived from this analysis to protect the health of our employees follow the STOP hierarchy: 1) substitution, 2) technical protective measures, 3) organizational protective measures and 4) personal protective measures. These measures and targeted studies are designed to prevent occupational illnesses.</p> <p>In addition to the appraisals by Bayer experts, both our employees and those of contractors are urged to immediately report work-related hazards or dangerous situations to their supervisors or via the compliance hotline. As with accidents that have actually occurred, we conduct incident analyses based on these reports to determine suitable measures to prevent serious accidents from occurring as far as possible.</p> <p>On top of country-specific regulations regarding mandatory examinations, we offer our employees regular medical examinations – in some cases on a mandatory basis – in all countries in which this is legally permissible.</p> <p>Within the context of our occupational health, safety and environmental protection management, Bayer employees and employees of contractors receive extensive training in the prevention of accidents and safety incidents and in promoting and maintaining their own health. The measures range from safety briefings and special training courses on the safe handling of chemical substances to web-based training that highlights the advantages and possibilities of a work environment that promotes health. Overall, more than 58,000 employees completed health and safety training measures in 2022.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 8.6 Environmental Protection and Safety – Occupational Health and Safety // Bayer 2022 Sustainability Report – Chapter 8.7 Environmental Protection and Safety – Biosafety // Bayer 2022 Sustainability Report – Chapter 8.8 Environmental Protection and Safety – Plant Safety</p>
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	RT-CH-410a.1	<p>Global agriculture and food systems are confronted with major challenges, such as climate change (with respect to climate change mitigation as well as climate change adaptation), water scarcity and population growth. Scientists and UN organizations expect the world population to grow to around 10 billion people by 2050 – an increase of around two billion people relative to 2022. In addition, both the Food and Agriculture Organization (FAO) of the United Nations and the World Resources Institute (WRI) envisage a 50% increase in the demand for food and animal feed by 2050. The demand for animal-based protein and thus also for animal feed is expected to increase further, especially in the emerging markets. At the same time, the already limited farmland will decline due to climate change, water problems, soil erosion and other factors. The agricultural sector therefore has to meet the needs of a growing population, while at the same time promoting sustainability and protecting our ecosystems.</p> <p>Intensive agriculture with high yields per hectare of farmland is a crucial factor for ensuring the continued availability of high-quality and affordable food. Agricultural intensification leads to less land being required for the same amount of food produced. While agricultural yields have grown by 60% over the past 40 years, the amount of agricultural land has increased by only 5%. This productivity increase was substantially enabled by technological developments in the areas of plant breeding and – since the 1990s – plant biotechnology as well as management practices such as fertilization, irrigation and crop protection. Insecticides and fungicides have played a crucial part in minimizing harvest losses. Crops compete with weeds for water, nutrients and light, resulting in a potential crop loss of up to 30%. Herbicides are an important tool for reducing this growth competition.</p> <p>Bayer helps farmers cultivate more food for a growing population, improving food security while at the same time reducing the environmental impact of agriculture. Digital technologies play an important role here, as do improved seed and good agricultural practices. To reduce harvest losses caused by insect pests, competitors for nutrients or fungal infestation, we combine our high-performance seeds with the targeted use of crop protection products. We offer farmers a selection of these innovative tools and recommend optimal combinations that enable the use of crop management practices at the correct time and in the correct place for optimal production.</p> <p>Our innovations in the areas of plant breeding and crop protection are designed to further improve both the quality and the quantity of harvests, while ensuring the highest safety standards, and to enhance plants’ resilience against insect pests, diseases and a changing climate. Sales are published in the Bayer 2022 Annual Report.</p> <p>For more information: // Bayer 2022 Annual Report – Chapter 1.3 Focus on Innovation – Crop Science // Bayer 2022 Annual Report – Chapter 2.2.2 Business Development by Division – Crop Science // Bayer 2022 Sustainability Report – Focus on: Agriculture chapter // Bayer 2022 Sustainability Report – Chapter 3.6 Product Stewardship – Crop Science</p>

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	RT-CH-410b.1.	<p>The active ingredients we use in most of our finished products, such as pharmaceuticals and crop protection products, are or contain Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances. Details on sales from relevant products are published in our Bayer 2022 Annual Report.</p> <p>Bayer's finished products, such as pharmaceuticals, crop protection products, seeds and biocides, are subject to very stringent regulations prescribing specific and detailed approval and authorization procedures. As a result, our products cannot be sold on the market until they have been approved by a competent authority or an official registration has been granted. As a condition of their approval, the prescribed efficacy and safety of the individual products must always be demonstrated as proven. An approval therefore only applies for a particular product with the formulation registered in the marketing authorization. Changes in the product composition (such as new formulations for crop protection products) require an additional approval or registration.</p> <p>In addition to the regulation of finished products, extensive statutory regulations also apply to the chemical substances handled by Bayer during product manufacture. Chemical substances are subject to the respective regional chemical regulations. These include REACH in the European Union, the Lautenberg Chemical Safety Act (formerly TSCA) in the United States and the Measures for Environmental Management Registration of New Chemical Substances (MEP Order No. 12) of the Ministry of Ecology and Environment (MEE) in China. To fulfill these requirements, we have formulated Group-wide and division-specific regulations.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Annual Report – Chapter 1.1.2 Group Structure // Bayer 2022 Annual Report – Chapter 2.2.2 Business Development by Division – Crop Science // Bayer 2022 Sustainability Report – Chapter 3.2 Product Stewardship – Regulatory Conditions // Bayer 2022 Sustainability Report – Chapter 3.6 Product Stewardship – Crop Science // Bayer 2022 Sustainability Report – Chapter 3.8 Product Stewardship – Pharmaceuticals and Consumer Health
	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	RT-CH-410b.2	<p>Bayer's finished products, such as pharmaceuticals, crop protection products, seeds and biocides, are subject to very stringent regulations prescribing specific and detailed approval and authorization procedures. As a result, our products cannot be sold on the market until they have been approved by a competent authority or an official registration has been granted. As a condition of their approval, the prescribed efficacy and safety of the individual products must always be demonstrated as proven. An approval therefore only applies for a particular product with the formulation registered in the marketing authorization. Changes in the product composition (such as new formulations for crop protection products) require an additional approval or registration.</p> <p>In addition to the regulation of finished products, extensive statutory regulations also apply to the chemical substances handled by Bayer during product manufacture. Chemical substances are subject to the respective regional chemical regulations. These include REACH in the European Union, the Lautenberg Chemical Safety Act (formerly TSCA) in the United States and the Measures for Environmental Management Registration of New Chemical Substances (MEP Order No. 12) of the Ministry of Ecology and Environment (MEE) in China. To fulfill these requirements, we have formulated Group-wide and division-specific regulations.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Sustainability Report – Chapter 3.2 Product Stewardship – Regulatory Conditions // Bayer 2022 Sustainability Report – Chapter 3.6 Product Stewardship – Crop Science // Bayer 2022 Sustainability Report – Chapter 3.8 Product Stewardship – Pharmaceuticals and Consumer Health

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Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	RT-CH-410c.1	<p>Bayer is the world's leading agriculture enterprise, with businesses in crop protection, seeds and traits, and digital farming. We offer a broad portfolio of high-value seeds, improved plant traits, innovative chemical and biological crop protection products, digital solutions and extensive customer service for sustainable agriculture.</p> <p>Bayer specializes in high-quality seeds with groundbreaking traits that offer not just higher yields, but also improved weed control and more effective defense against insects. Our genetically modified plants containing <i>Bacillus thuringiensis</i> (Bt) control specific insect pests attempting to directly feed on the plant. Our herbicide-tolerant plants are tolerant to certain herbicides such as glyphosate or dicamba. This enables weeds in fields to be eliminated using herbicides without damaging the crops.</p> <p>Sales are published in the Bayer 2022 Annual Report.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Annual Report – Chapter 1.1.2 Group Structure // Bayer 2022 Annual Report – Chapter 1.2 Strategy and Targets // Bayer 2022 Annual Report – Chapter 1.3 Innovation – Crop Science // Bayer 2022 Annual Report – Chapter 2.2.2 Business Development by Division – Crop Science // Bayer 2022 Sustainability Report – Focus on: Agriculture chapter
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	RT-CH-530a.1	<p>As a global life science enterprise, we are exposed to a wide range of internal and external developments and events that could significantly impact the achievement of our financial and nonfinancial objectives. Opportunity and risk management is therefore an integral part of corporate management at Bayer.</p> <p>We have implemented a holistic and integrated risk management system designed to ensure the continued existence and future target attainment of the Group through the early identification, assessment and treatment of risks. Our risk management system is aligned to internationally recognized standards and principles such as the ISO 31000 standard of the International Organization for Standardization, and is defined and implemented with the help of binding Group regulations.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Annual Report – Chapter 3.2 Opportunity and Risk Report // Bayer 2022 Sustainability Report – Chapter 2.2 Corporate Governance – Behavioral Principles (BASE) // Bayer 2022 Sustainability Report – Chapter 2.3 Corporate Governance – Transparency // Bayer 2022 Sustainability Report – Chapter 2.4 Corporate Governance – Bioethics // Bayer 2022 Sustainability Report – Chapter 2.5 Corporate Governance – Steering and Management Systems // Bayer 2022 Sustainability Report – Chapter 2.6 Corporate Governance – Compliance // Bayer 2022 Sustainability Report – Chapter 2.8 Corporate Governance – Risk Management // Bayer 2022 Sustainability Report – Chapter 2.10 Corporate Governance – Stakeholder Dialogue // Bayer 2022 TCFD Report www.bayer.com/tcfd // Bayer Code of Conduct for Responsible Lobbying https://www.bayer.com/en/sustainability/code-of-conduct-for-responsible-lobbying // Bayer Group Positions https://www.bayer.com/en/sustainability/position-biodiversity

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Operational Safety, Emergency Preparedness & Response	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)	RT-CH-540a.1	<p>Since 2019, we have used the globally standardized key performance indicator (KPI) Process Safety Incident Rate (PSI-R) as an indicator for plant safety. This is integrated into the Group-wide reporting system. Reporting of this indicator is based on the requirements of the International Council of Chemical Associations (ICCA). Process safety incidents (PSIs) refer to incidents during which amounts of chemical substances or energy that exceed defined thresholds leak from their primary containment, such as pipelines, pumps, tanks or drums. The PSI-R indicates the number of process safety incidents per 200,000 hours worked. In 2022, the PSI-R was 0.11 (2021: 0.08). A total of 122 process safety incidents occurred in 2022 (Process Safety Incident Count, PSI-C). In addition, we also indicate the Process Safety Incident Severity Rate (PSI-SR). We report this according to the grading system of the International Council of Chemical Associations (ICCA).</p> <p>Process Safety Incidents¹</p> <table border="1"> <thead> <tr> <th></th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Process Safety Incident Count (PSI-C)¹</td> <td>92</td> <td>96</td> <td>122</td> </tr> <tr> <td>Process Safety Incident Rate (PSI-R)^{1,2}</td> <td>0.08</td> <td>0.08</td> <td>0.11</td> </tr> <tr> <td>Process Safety Incident Severity Rate (PSI-SR)^{1,3}</td> <td>0.21</td> <td>0.14</td> <td>0.16</td> </tr> </tbody> </table> <p>¹ According to ICCA (International Council of Chemical Associations) ² Number of PSI incidents per 200,000 hours worked ³ Degree of severity for all PSI incidents per 200,000 hours worked</p> <p>To prevent substance and energy releases, the causes of PSIs are analyzed and relevant findings are communicated to potentially affected sites throughout the Bayer Group. The reporting thresholds are intentionally set at such a low level that even material and energy leaks that have no impact on employees, the local community or the environment are systematically recorded and reported. We pursue this preventive approach so that weaknesses can be identified and corrected before a more serious incident can occur.</p> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 8.8 Environmental Protection and Safety – Plant Safety</p>		2020	2021	2022	Process Safety Incident Count (PSI-C) ¹	92	96	122	Process Safety Incident Rate (PSI-R) ^{1,2}	0.08	0.08	0.11	Process Safety Incident Severity Rate (PSI-SR) ^{1,3}	0.21	0.14	0.16			
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Number of transport incidents	RT-CH-540a.2	<p>All of the 17 transport incidents in 2022 constituted road transport accidents. Of these transport incidents, six involved the transportation of hazardous materials/dangerous goods (see following table). One of the transport incidents was also an environmental incident. Two of these transport incidents also led to severe personal injuries.</p> <p>Significant¹ Transport and Environmental Incidents 2022</p> <table border="1"> <thead> <tr> <th></th> <th>Transport</th> <th>Environment</th> <th>Personal injury</th> </tr> </thead> <tbody> <tr> <td>Crop Science, Luling, USA, January While a generator was being filled up with fuel, diesel flowed onto a building site.</td> <td>–</td> <td>X</td> <td>–</td> </tr> <tr> <td>Crop Science, Nigel, South Africa, February A truck whose contents also included a Bayer product caught fire. The products burned.</td> <td>X</td> <td>–</td> <td>–</td> </tr> <tr> <td>Crop Science, Paracatu, Brazil, February Two trucks collided, one person died and another was injured. Part of the load of crop protection products was spilled.</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Crop Science, Merzifon, Turkey, May A truck belonging to a transport company and containing Bayer products tipped over and part of the load was spilled.</td> <td>X</td> <td>–</td> <td>–</td> </tr> </tbody> </table>		Transport	Environment	Personal injury	Crop Science, Luling, USA, January While a generator was being filled up with fuel, diesel flowed onto a building site.	–	X	–	Crop Science, Nigel, South Africa, February A truck whose contents also included a Bayer product caught fire. The products burned.	X	–	–	Crop Science, Paracatu, Brazil, February Two trucks collided, one person died and another was injured. Part of the load of crop protection products was spilled.	X	X	X	Crop Science, Merzifon, Turkey, May A truck belonging to a transport company and containing Bayer products tipped over and part of the load was spilled.	X	–	–
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SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting			
			Crop Science, East Hawthorn, Australia, July A truck overturned. Drums containing crop protection products fell into a roadside ditch.	X	-	-
			Crop Science, Beijing, China, August A truck belonging to a transport company and containing Bayer products (crop protection products) caught fire.	X	-	-
			Crop Science, Muscatine, USA, September Owing to a defective seal, a mixture of methanol and methylamine leaked from a tank.	-	X	-
			Crop Science, Thane, India, November A transporter was struck by a bus. One driver died and crop protection products leaked onto the road.	X	-	X

¹ In accordance with the definition and reporting criteria of the ICCA/Responsible Care agreement between the CEFIC and the ECTA, we have reported since 2022 on the significant transport and environmental incidents in connection with the transport of hazardous materials or dangerous goods, or of chemicals.

For more information:

// [Bayer 2022 Sustainability Report](#) – Chapter 8.9 Environmental Protection and Safety – Transportation and Storage Safety

Activity Metrics

SASB Activity Metric	SASB Code	Bayer Reporting
Production by reportable segment	RT-CH-000.A	For more information: // Bayer 2022 Annual Report – Chapter 2.2.2 Business Development by Division – Crop Science

AGRICULTURAL PRODUCTS

Sustainability Disclosure Topics & Accounting Metrics

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting								
Greenhouse Gas Emissions	Gross global Scope 1 emissions	FB-AG-110a.1	See above: Indicator Chemicals – “Greenhouse Gas Emissions – Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations – RT-CH-110a.1”								
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	FB-AG-110a.2	See above: Indicator Chemicals – “Greenhouse Gas Emissions – Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets – RT-CH-110a.2”								
	Fleet fuel consumed, percentage renewable	FB-AG-110a.3	<p>Primary Energy Consumption</p> <table border="1"> <thead> <tr> <th>Terajoules</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Liquid fuels for vehicle fleet/transport</td> <td>2,480</td> <td>2,194</td> <td>2,121</td> </tr> </tbody> </table> <p>For more information: // Bayer 2022 Sustainability Report – Chapter 7.5 Climate Protection – Energy // Bayer CDP Report Climate www.bayer.com/cdp-climate</p>	Terajoules	2020	2021	2022	Liquid fuels for vehicle fleet/transport	2,480	2,194	2,121
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Energy Management	(1) Operational energy consumed, (2) percentage grid electricity, (3) percentage renewable	FB-AG-130a.1	See above: Indicator Chemicals – “Energy Management – (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy – RT-CH-130a.1”								
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	FB-AG-140a.1	See above: Indicator Chemicals – “Water Management – (1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress – RT-CH-140a.1”								
	Description of water management risks and discussion of strategies and practices to mitigate those risks	FB-AG-140a.2	See: Indicator Chemicals – “Water Management – Description of water management risks and discussion of strategies and practices to mitigate those risks – RT-CH-140a.3”								

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting
	Number of incidents of non-compliance associated with water quantity and/or quality permits, standards, and regulations	FB-AG-140a.3	See above: Indicator Chemicals – “Water Management – Number of incidents of non-compliance associated with water quality permits, standards, and regulations – RT-CH-140a.2” For more information: // Bayer 2022 Sustainability Report – Chapter 8.5 Environmental Protection and Safety – Environmental Incidents
Food Safety	Global Food Safety Initiative (GFSI) audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	FB-AG-250a.1	Not applicable
	Percentage of agricultural products sourced from suppliers certified to a Global Food Safety Initiative (GFSI) recognized food safety certification program	FB-AG-250a.2	Not applicable
	(1) Number of recalls issued and (2) total amount of food product recalled	FB-AG-250a.3	Not applicable
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) direct employees and (b) seasonal and migrant employees	FB-AG-320a.1	See above : Indicator Chemicals – “Workforce Health & Safety – (1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees – RT-CH-320a.1” Seasonal and migrant employees are included. Near miss frequency rate (NMFR) is not reported.
Environmental & Social Impacts of Ingredient Supply Chain	Percentage of agricultural products sourced that are certified to a third-party environmental and/or social standard, and percentages by standard	FB-AG-430a.1	We are a member of the renowned organizations Roundtable on Sustainable Palm Oil (RSPO) and Round Table on Responsible Soy (RTRS). As regards palm oil, we use credits according to the book and claim procedure of the Roundtable on Sustainable Palm Oil (RSPO). Beginning in 2022, we will successively transition to the mass balance supply chain standard of the RSPO. For more information: // Bayer Supplier Management website https://www.bayer.com/en/sustainability/supplier-management
	Suppliers’ social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	FB-AG-430a.2	The core principles of our sustainability requirements are established in Bayer’s Supplier Code of Conduct, which is based on our Bayer Human Rights Policy, the principles of the UN Global Compact and the core labor standards of the International Labour Organization (ILO). For more information: // Bayer 2022 Sustainability Report – Chapter 4.2 Procurement – Sustainability in the Supply Chain // Bayer 2022 Sustainability Report – Chapter 5. Human Rights // Bayer Supplier Code of Conduct https://www.bayer.com/sites/default/files/2022-12/Supplier-code-of-conduct-english-version-dec-22.pdf // Bayer Supplier Code of Conduct Guidance https://www.bayer.com/sites/default/files/Bayer_Supplier-code-of-conduct-guidance-EN.pdf

SASB Topic	SASB Accounting Metric	SASB Code	Bayer Reporting
	Discussion of strategy to manage environmental and social risks arising from contract growing and commodity sourcing	FB-AG-430a.3	<p>We expect our suppliers to comply with the requirements of our Supplier Code of Conduct, which is based on our Bayer Human Rights Policy, the principles of the UN Global Compact and the core labor standards of the ILO.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Sustainability Report – Chapter 4. Procurement – Sustainability in the Supply Chain // Bayer 2022 Sustainability Report – Chapter 5. Human Rights // Bayer Supplier Code of Conduct https://www.bayer.com/sites/default/files/2022-12/Supplier-code-of-conduct-english-version-dec-22.pdf // Bayer Supplier Code of Conduct Guidance https://www.bayer.com/sites/default/files/Bayer_Supplier-code-of-conduct-guidance-EN.pdf
GMO Management	Discussion of strategies to manage the use of genetically modified organisms (GMOs)	FB-AG-430b.1	<p>Bayer is the world’s leading agriculture enterprise, with businesses in crop protection, seeds and traits, and digital farming. We offer a broad portfolio of high-value seeds, improved plant traits, innovative chemical and biological crop protection products, digital solutions and extensive customer service for sustainable agriculture.</p> <p>Bayer specializes in high-quality seeds with groundbreaking traits that offer not just higher yields, but also improved weed control and more effective defense against insects. Our genetically modified plants containing <i>Bacillus thuringiensis</i> (Bt) control specific insect pests attempting to directly feed on the plant. Our herbicide-tolerant plants are tolerant to certain herbicides such as glyphosate or dicamba. This enables weeds in fields to be eliminated using herbicides without damaging the crops.</p> <p>Sales are published in the Bayer 2022 Annual Report.</p> <p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Annual Report – Chapter 1.1.2 Corporate Structure // Bayer 2022 Annual Report – Chapter 1.2 Strategy and Targets // Bayer 2022 Annual Report – Chapter 1.3 Innovation – Crop Science // Bayer 2022 Annual Report – Chapter 2.2.2 Business Development by Division – Crop Science // Bayer 2022 Sustainability Report – Focus on: Agriculture chapter
Ingredient Sourcing	Identification of principal crops and description of risks and opportunities presented by climate change		<p>For more information:</p> <ul style="list-style-type: none"> // Bayer 2022 Sustainability Report – Chapter 7.3 Climate Protection – Risk and Opportunity Analysis // Bayer 2022 TCFD Report www.bayer.com/tcfd
	Percentage of agricultural products sourced from regions with High or Extremely High Baseline Water Stress		Not applicable

Activity Metrics

SASB Activity Metric	SASB Code	
Production by principal crop	FB-AG-000.A	Not applicable
Number of processing facilities	FB-AG-000.B	Not applicable
Total land area under active production	FB-AG-000.C	Not applicable
Cost of agricultural products sourced externally	FB-AG-000.D	Not applicable

Masthead

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Klaus Kunz

Email: klaus.kunz@bayer.com

Sebastian Leins

Email: sebastian.leins@bayer.com

Bayer on the internet: www.bayer.com

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