SASB STANDARDS

Now part of IFRS Foundation

Chemicals

Sustainability Accounting Standard

RESOURCE TRANSFORMATION SECTOR

Sustainable Industry Classification System® (SICS®) RT-CH

Under Stewardship of the International Sustainability Standards Board

INDUSTRY STANDARD | VERSION 2023-12

IFRS Sustainability

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ABOUT THE SASB STANDARDS

As of August 2022, the International Sustainability Standards Board (ISSB) of the IFRS Foundation assumed responsibility for the SASB Standards. The ISSB has committed to maintain, enhance and evolve the SASB Standards and encourages preparers and investors to continue to use the SASB Standards.

IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (IFRS S1) requires entities to refer to and consider the applicability of disclosure topics in the SASB Standards when identifying sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects. Similarly, IFRS S1 requires entities to refer to and consider the applicability of metrics in the SASB Standards when determining what information to disclose regarding sustainability-related risks and opportunities.

In June 2023, the ISSB amended climate-related topics and metrics in the SASB Standards to align them with the industry-based guidance accompanying IFRS S2 *Climate-related Disclosures*. In December 2023, the ISSB amended the non-climate-related topics and metrics in connection with the International Applicability of SASB Standards project.

Effective Date

This version 2023-12 of the Standard is effective for all entities for annual periods beginning or after January 1, 2025. Early adoption is permitted for all entities.

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INTRODUCTION

Overview of SASB Standards

The SASB Standards are a set of 77 industry-specific sustainability accounting standards ("SASB Standards" or "Industry Standards"), categorised pursuant to the Sustainable Industry Classification System® (SICS®).

SASB Standards include:

1. **Industry descriptions** – which are intended to help entities identify applicable industry guidance by describing the business models, associated activities and other common features that characterise participation in the industry.

2. **Disclosure topics** – which describe specific sustainability-related risks or opportunities associated with the activities conducted by entities within a particular industry.

3. **Metrics** – which accompany disclosure topics and are designed to, either individually or as part of a set, provide useful information regarding an entity's performance for a specific disclosure topic.

4. **Technical protocols** – which provide guidance on definitions, scope, implementation and presentation of associated metrics.

5. **Activity metrics** – which quantify the scale of specific activities or operations by an entity and are intended for use in conjunction with the metrics referred to in point 3 to normalise data and facilitate comparison.

Entities using the SASB Standards as part of their implementation of ISSB Standards should consider the relevant ISSB application guidance.

For entities using the SASB Standards independently from ISSB Standards, the *SASB Standards Application Guidance* establishes guidance applicable to the use of all Industry Standards and is considered part of the Standards. Unless otherwise specified in the technical protocols contained in the Industry Standards, the guidance in the SASB Standards Application Guidance applies to the definitions, scope, implementation, compilation and presentation of the metrics in the Industry Standards.

Historically, the *SASB Conceptual Framework* set out the basic concepts, principles, definitions and objectives that guided the SASB Standards Board in its approach to setting standards for sustainability accounting.

Use of the Standards

SASB Standards are intended to aid entities in disclosing information about sustainability-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term. An entity determines which Industry Standard(s) and which disclosure topics are relevant to its business, and which associated metrics to report. In general, an entity should use the SASB Standard specific to its primary industry as identified in SICS® . However, companies with substantial business in multiple SICS® industries should refer to and consider the applicability of the disclosure topics and associated metrics in additional SASB Standards.

The disclosure topics and associated metrics contained in this Standard have been identified as those that are likely to be useful to investors. However, the responsibility for making materiality judgements and determinations rests with the reporting entity.

Industry Description

Entities in the Chemicals industry transform organic and inorganic feedstocks into more than 70,000 diverse products with a range of industrial, pharmaceutical, agricultural, housing, automotive and consumer applications. The industry commonly is segmented into basic (commodity) chemicals, agricultural chemicals and specialty chemicals. Basic chemicals, the largest segment by volume produced, include bulk polymers, petrochemicals, inorganic chemicals and other industrial chemicals. Agricultural chemicals include fertilisers, crop chemicals and agricultural biotechnology. Specialty chemicals include paints and coatings, agrochemicals, sealants, adhesives, dyes, industrial gases, resins and catalysts. Larger entities may produce basic, agricultural and specialty chemicals, but most entities are specialised. Chemicals entities typically manufacture and sell products globally.

SUSTAINABILITY DISCLOSURE TOPICS & METRICS

Table 1. Sustainability Disclosure Topics & Metrics

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tonnes (t) CO_2-e, Percentage (%)	RT-CH-110a.1
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	RT-CH-110a.2
Air Quality	Air emissions of the following pollutants: (1) NO_X (excluding N_2O), (2) SO_X, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)	Quantitative	Metric tonnes (t)	RT-CH-120a.1
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable and (4) total self-generated energy [1]	Quantitative	Gigajoules (GJ), Percentage (%)	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	Quantitative	Thousand cubic metres (m^3), Percentage (%)	RT-CH-140a.1
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	RT-CH-140a.2
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	RT-CH-140a.3
Hazardous Waste Management	(1) Amount of hazardous waste generated, (2) percentage recycled	Quantitative	Metric tonnes (t), Percentage (%)	RT-CH-150a.1
Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests	Discussion and Analysis	n/a	RT-CH-210a.1

continued...

[1] Note to **RT-CH-130a.1** – The entity shall discuss its efforts to reduce energy consumption and/or improve energy efficiency throughout the production processes.

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TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Workforce Health & Safety	(1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	Quantitative	Rate	RT-CH-320a.1
	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Discussion and Analysis	n/a	RT-CH-320a.2
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	Presentation currency	RT-CH-410a.1
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	Quantitative	Percentage (%) by revenue, Percentage (%)	RT-CH-410b.1
	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human or environmental impact	Discussion and Analysis	n/a	RT-CH-410b.2
Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Quantitative	Percentage (%) by revenue	RT-CH-410c.1
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	n/a	RT-CH-530a.1
Operational Safety, Emergency Preparedness & Response	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR) [2]	Quantitative	Number, Rate	RT-CH-540a.1
	Number of transport incidents [3]	Quantitative	Number	RT-CH-540a.2

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production by reportable segment[4]	Quantitative	Cubic metres (m^3) or metric tonnes (t)	RT-CH-000.A

[2] Note to **RT-CH-540a.1** – The entity shall describe incidents with a severity rating of 1 or 2, including root causes, outcomes and corrective actions implemented in response.

[3] Note to **RT-CH-540a.2** – The entity shall describe significant transport incidents, including their root causes, outcomes and corrective actions implemented in response.

[4] Note to **RT-CH-000.A** – Production should be disclosed for each of the entity's reportable segments and production is reported as weight for solid products and volume for liquid and gas products.

Greenhouse Gas Emissions

Topic Summary

Chemical manufacturing generates direct (Scope 1) greenhouse gas (GHG) emissions from fossil fuel combustion in manufacturing and cogeneration processes, as well as process emissions from the chemical transformation of feedstocks. GHG emissions may result in regulatory compliance costs or penalties and operating risks for chemicals entities. However, the financial effects may vary depending on the magnitude of emissions and the prevailing emissions regulations. The industry may be subject to increasingly stringent regulations as countries try to limit or reduce emissions. Entities that cost-effectively manage GHG emissions through greater energy efficiency, the use of alternative fuels or manufacturing process advances may benefit from improved operating efficiency and reduced regulatory risk, among other financial benefits.

Metrics

RT-CH-110a.1. Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations

1 The entity shall disclose its gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

1.1 Emissions of all GHGs shall be consolidated and disclosed in metric tonnes of carbon dioxide equivalent (CO_2-e) and calculated in accordance with published 100-year time horizon global warming potential (GWP) values. To date, the preferred source for GWP values is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2014).

1.2 Gross emissions are GHGs emitted into the atmosphere before accounting for offsets, credits or other similar mechanisms that have reduced or compensated for emissions.

2 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

2.1 Acceptable calculation methodologies include those that conform to the GHG Protocol as the base reference, but provide additional guidance, such as industry- or region-specific guidance. Examples include:

2.1.1 *Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources* published by the US Environmental Protection Agency (EPA)

2.1.2 India GHG Inventory Program

2.1.3 ISO 14064-1

2.1.4 *Petroleum Industry Guidelines for Reporting GHG Emissions*, 2nd edition, 2011, published by Ipieca

2.1.5 *Protocol for the quantification of greenhouse gas emissions from waste management activities* published by Entreprises pour l'Environnement (EpE)

2.1.6 WBCSD *Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain*

2.2 GHG emissions data shall be consolidated and disclosed according to the approach with which the entity consolidates its financial reporting data, which generally is aligned with the 'financial control' approach defined by the *GHG Protocol*, and the approach published by the Climate Disclosure Standards Board (CDSB) that is described in REQ-07, 'Organisational boundary', of the *CDSB Framework for reporting environmental and social information*.

3 The entity shall disclose the percentage of its gross global Scope 1 GHG emissions covered under an emissions-limiting regulation or programme intended to limit or reduce emissions directly, such as cap-and-trade schemes, carbon tax/fee systems, and other emissions control (for example, command-and-control approach) and permit-based mechanisms.

3.1 Examples of emissions-limiting regulations may include:

3.1.1 California Cap-and-Trade (California Global Warming Solutions Act)

3.1.2 European Union Emissions Trading Scheme (EU ETS)

3.1.3 Quebec Cap-and-Trade (Quebec Environment Quality Act)

3.2 The percentage shall be calculated as the total amount of gross global Scope 1 GHG emissions (CO_2-e) covered under emissions-limiting regulations divided by the total amount of gross global Scope 1 GHG emissions (CO_2-e).

3.2.1 For emissions subject to more than one emissions-limiting regulation, the entity shall not account for those emissions more than once.

3.3 The scope of emissions-limiting regulations excludes emissions covered under voluntary emissions-limiting regulations (for example, voluntary trading systems), as well as reporting-based regulations.

4 The entity may discuss any change in its emissions from the previous reporting period, including whether the change was because of emissions reductions, divestment, acquisition, mergers, changes in output or changes in calculation methodology.

5 In the case that current reporting of GHG emissions to the CDP or other entity (for example, a national regulatory disclosure programme) differs in terms of the scope and consolidation approach used, the entity may disclose those emissions. However, primary disclosure shall be according to the guidelines described above.

6 The entity may discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

RT-CH-110a.2. Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

1 The entity shall discuss its long- and short-term strategy or plan to manage its Scope 1 greenhouse gas (GHG) emissions.

1.1 Scope 1 emissions are defined and shall be calculated according to the methodology contained in *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (GHG Protocol), Revised Edition, March 2004, published by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD).

1.2 The scope of GHG emissions includes the seven GHGs covered under the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

2 The entity shall discuss its emission reduction target(s) and analyse its performance against the target(s), including, if relevant:

2.1 The scope of the emission reduction target (for example, the percentage of total emissions to which the target is applicable);

2.2 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target;

2.3 The percentage reduction against the base year, with the base year representing the first year against which emissions are evaluated towards the achievement of the target;

2.4 The time lines for the reduction activity, including the start year, the target year and the base year;

2.5 The mechanism(s) for achieving the target; and

2.6 Any circumstances in which the target or base year emissions have been, or may be, recalculated retrospectively or the target or base year has been reset.

3 The entity shall discuss the activities and investments required to achieve the plans or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4 The entity shall discuss the scope of its strategies, plans or reduction targets, such as whether they pertain differently to different business units, geographies or emissions sources.

5 The entity shall discuss whether its strategies, plans, or reduction targets are related to, or associated with, emissions limiting or emissions reporting-based programmes or regulations (for example, the EU Emissions Trading Scheme, Quebec Cap-and-Trade System, California Cap-and-Trade Program), including regional, national, international or sectoral programmes.

6 Disclosure of strategies, plans or reduction targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

Air Quality

Topic Summary

In addition to greenhouse gases (GHGs), chemical manufacturing may produce air emissions including sulphur dioxides (SOx), nitrogen oxides (NOx) and Hazardous Air Pollutants (HAPs). As with GHGs, these emissions typically stem from fuel combustion and feedstock processing. Relative to other industries, the Chemicals industry is a more significant source of some of these emissions. Entities face operating costs, regulatory compliance costs, regulatory penalties in the event of non-compliance and capital expenditures related to emissions management, although related financial effects may vary depending on the magnitude of emissions and the prevailing regulations. As such, an entity that actively manages the issue through technological process improvements or other strategies may mitigate such impacts, improve financial performance and enhance brand value.

Metrics

RT-CH-120a.1. Air emissions of the following pollutants: (1) NO_X (excluding N_2O), (2) SO_X, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)

1 The entity shall disclose its emissions of air pollutants, in metric tonnes per pollutant, released into the atmosphere.

1.1 The scope of the disclosure includes air pollutants associated with the entity's direct air emissions resulting from all the entity's activities and sources of emissions, which may include stationary or mobile sources, production facilities, office buildings and transportation fleets.

2 The entity shall disclose its emissions of (1) oxides of nitrogen (NO_X), reported as NO_X.

2.1 The scope of NO_X includes NO and NO_2 but excludes N_2O.

3 The entity shall disclose its emissions of (2) oxides of sulphur (SO_X), reported as SO_X.

3.1 The scope of SO_X includes SO_2 and SO_3.

4 The entity shall disclose its emissions of (3) non-methane volatile organic compounds (VOCs).

4.1 VOCs are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate and methane, that participates in atmospheric photochemical reactions, except those designated under applicable jurisdictional laws or regulations as having negligible photochemical reactivity.

4.2 If applicable regulatory definitions of VOCs conflict with this definition, the entity may define VOCs in accordance with the applicable jurisdictional legal or regulatory definition. In this case, the entity shall identify the source of the definition.

5 The entity shall disclose its emissions of (4) hazardous air pollutants (HAPs).

5.1 HAPs are defined as those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

6 The entity may discuss the calculation method for its emissions disclosure, such as whether data is from continuous emissions monitoring systems (CEMS), engineering calculations or mass balance calculations.

Energy Management

Topic Summary

Chemical manufacturing is typically energy-intensive, with energy used to power processing units, cogeneration plants, machinery and non-manufacturing facilities. The type of energy used, amount consumed and energy management strategies depends on the type of products manufactured. Typically, fossil fuels such as natural gas and natural gas liquids are the predominant form of non-feedstock energy used, while purchased electricity also may be a significant share. Therefore, energy purchases may be a significant share of production costs. An entity's energy mix may include energy generated on-site, purchased grid electricity and fossil fuels, and renewable and alternative energy. Trade-offs in the use of energy sources include cost, reliability of supply, related water use and air emissions, and regulatory compliance and risk. As such, an entity's energy intensity and energy sourcing decisions may affect its operating efficiency and risk profile over time.

Metrics

RT-CH-130a.1. (1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable and (4) total self-generated energy

1 The entity shall disclose (1) the total amount of energy it consumed as an aggregate figure, in gigajoules (GJ).

1.1 The scope of energy consumption includes energy from all sources, including energy purchased from external sources and energy produced by the entity itself (self-generated). For example, direct fuel usage, purchased electricity, and heating, cooling and steam energy are all included within the scope of energy consumption.

1.2 The scope of energy consumption includes only energy directly consumed by the entity during the reporting period.

1.3 In calculating energy consumption from fuels and biofuels, the entity shall use higher heating values (HHV), also known as gross calorific values (GCV), which are measured directly or taken from the Intergovernmental Panel on Climate Change (IPCC).

2 The entity shall disclose (2) the percentage of energy it consumed that was supplied from grid electricity.

2.1 The percentage shall be calculated as purchased grid electricity consumption divided by total energy consumption.

3 The entity shall disclose (3) the percentage of energy it consumed that was renewable energy.

3.1 Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro and biomass.

3.2 The percentage shall be calculated as renewable energy consumption divided by total energy consumption.

3.3 The scope of renewable energy includes renewable fuel the entity consumed, renewable energy the entity directly produced and renewable energy the entity purchased, if purchased through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs) or Guarantees of Origin (GOs), a Green-e Energy Certified utility or supplier programme, or other green power products that explicitly include RECs or GOs, or for which Green-e Energy Certified RECs are paired with grid electricity.

3.3.1 For any renewable electricity generated on-site, any RECs and GOs shall be retained (not sold) and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.2 For renewable PPAs and green power products, the agreement shall explicitly include and convey that RECs and GOs be retained or replaced and retired or cancelled on behalf of the entity for the entity to claim them as renewable energy.

3.3.3 The renewable portion of the electricity grid mix that is outside of the control or influence of the entity is excluded from the scope of renewable energy.

3.4 For the purposes of this disclosure, the scope of renewable energy from biomass sources is limited to materials certified to a third-party standard (for example, Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification or American Tree Farm System), materials considered eligible sources of supply according to the *Green-e Framework for Renewable Energy Certification*, *Version 1.0* (2017) or Green-e regional standards, or materials eligible for an applicable jurisdictional renewable portfolio standard.

4 The entity shall disclose (4) the amount of energy self-generated by the entity as an aggregate figure, in gigajoules (GJ).

4.1 The entity may disclose the amount of self-generated energy sold to an electric utility or end-use customer.

4.2 The entity may disclose the amount of self-generated energy that was renewable energy, where renewable energy is defined above.

5 The entity shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kilowatt hours (kWh) to GJ (for energy data including electricity from solar or wind energy).

Note to **RT-CH-130a.1**

1 The entity shall discuss its efforts to reduce energy consumption or improve energy efficiency throughout the manufacturing and production processes.

2 The entity shall discuss implementation of Green Chemistry Principle 6, 'Design for Energy Efficiency', including, if relevant, efforts such as conducting reactions at ambient temperature and pressure, reducing key materials that require energy-intensive processing (for example, distillation and drying), using excess steam and heat to generate energy, improving catalytic processes, and other process improvements that result in gains in energy efficiency.

2.1 Relevant strategies to discuss include the use of incremental improvement, the implementation of best practice technology, the use of emerging technologies, and the development of 'game changers', consistent with the International Council of Chemical Associations (ICCA) Technology Road Map.

3 The entity may disclose the aggregate energy savings (in gigajoules) achieved through such efforts and processes.

Water Management

Topic Summary

Used primarily for cooling, steam generation and feedstock processing, water is a critical input in chemicals production. Long-term historical increases in water scarcity and cost, and expectations of continued increases—because of over-consumption and reduced supplies resulting from population growth and shifts, pollution and climate change—show the importance of water management. Water scarcity may result in a higher risk of operational disruption for entities with water-intensive operations, and can increase water procurement costs and capital expenditures. Meanwhile, chemical manufacturing may generate process wastewater that must be treated before disposal. Non-compliance with water quality regulations may result in regulatory compliance and mitigation costs or legal expenses stemming from litigation. Reducing water use and consumption through increased efficiency and other water management strategies may result in lower operating costs over time and may mitigate financial effects of regulations, water supply shortages and community-related disruptions of operations.

Metrics

RT-CH-140a.1. (1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress

1 The entity shall disclose the amount of water, in thousands of cubic metres, withdrawn from all sources.

1.1 Water sources include surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities.

2 The entity may disclose portions of its supply by source if, for example, significant portions of withdrawals are from non-freshwater sources.

2.1 Fresh water may be defined according to the local laws and regulations where the entity operates. If no legal definition exists, fresh water shall be considered to be water that has less than 1,000 parts per million of dissolved solids.

2.2 Water obtained from a water utility in compliance with jurisdictional drinking water regulations can be assumed to meet the definition of fresh water.

3 The entity shall disclose the amount of water, in thousands of cubic metres, consumed in its operations.

3.1 Water consumption is defined as:

3.1.1 Water that evaporates during withdrawal, use and discharge

3.1.2 Water that is directly or indirectly included in the entity's product or service

3.1.3 Water that does not otherwise return to the same catchment area from which it was withdrawn, such as water returned to another catchment area or the sea

4 The entity shall analyse all its operations for water risks and identify activities that withdraw and consume water in locations with High (40–80%) or Extremely High (>80%) Baseline Water Stress as classified by the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct.

5 The entity shall disclose water withdrawn in locations with High or Extremely High Baseline Water Stress as a percentage of the total water withdrawn.

6 The entity shall disclose water consumed in locations with High or Extremely High Baseline Water Stress as a percentage of the total water consumed.

RT-CH-140a.2. Number of incidents of non-compliance associated with water quality permits, standards and regulations

1 The entity shall disclose the total number of incidents of non-compliance, including violations of a technology-based standard and exceedances of quantity or quality-based standards.

2 The scope of disclosure includes incidents governed by applicable jurisdictional statutory permits and regulations, which include the discharge of a hazardous substance, violation of pre-treatment requirements or total maximum daily load (TMDL) exceedances.

3 The scope of disclosure shall only include incidents of non-compliance that resulted in a formal enforcement action(s).

3.1 Formal enforcement actions are defined as governmental actions that address a violation or threatened violation of water quantity or quality laws, regulations, policies or orders, and can result in administrative penalty orders, administrative orders and judicial actions, among others.

4 Violations shall be disclosed, regardless of their measurement methodology or frequency. These include violations for:

4.1 Continuous discharges, limitations, standards and prohibitions that are generally expressed as maximum daily, weekly and monthly averages; and

4.2 Non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge and mass or concentration of specified pollutants.

RT-CH-140a.3. Description of water management risks and discussion of strategies and practices to mitigate those risks

1 The entity shall describe its water management risks associated with water withdrawals, water consumption and discharge of water or wastewater.

1.1 Risks associated with water withdrawals and water consumption include risks to the availability of adequate, clean water resources, which include:

1.1.1 Environmental constraints —such as operating in water-stressed regions, drought, concerns of aquatic impingement or entrainment, interannual or seasonal variability, and risks from the impact of climate change

1.1.2 Regulatory and financial constraints —such as volatility in water costs, stakeholder perceptions and concerns related to water withdrawals (for example, those from local communities, non-governmental organisations and regulatory agencies), direct competition with and impact from the actions of other users (for example, commercial and municipal users), restrictions to withdrawals because of regulations, and constraints on the entity's ability to obtain and retain water rights or permits

1.2 Risks associated with the discharge of water or wastewater include the ability to obtain rights or permits related to discharges, regulatory compliance related to discharges, restrictions to discharges, the ability to maintain control over the temperature of water discharges, liabilities, reputational risks and increased operating costs because of regulation, stakeholder perceptions and concerns related to water discharges (for example, those from local communities, non-governmental organisations and regulatory agencies).

2 The entity may describe water management risks in the context of:

2.1 How risks may vary by withdrawal source, including surface water (including water from wetlands, rivers, lakes and oceans), groundwater, rainwater collected directly and stored by the entity, and water and wastewater obtained from municipal water supplies, water utilities or other entities; and

2.2 How risks may vary by discharge destinations, including surface water, groundwater or wastewater utilities.

3 The entity may discuss the potential effects that water management risks may have on its operations and the time line over which such risks are expected to manifest.

3.1 Effects include those associated with costs, revenue, liabilities, continuity of operations and reputation.

4 The entity shall discuss its short- and long-term strategies or plans to mitigate water management risks, which include:

4.1 The scope of its strategy, plans, goals or targets, such as how they relate to various business units, geographies or water-consuming operational processes.

4.2 Any water management goals or targets it has prioritised, and an analysis of performance against those goals or targets.

4.2.1 Goals and targets include those associated with reducing water withdrawals, reducing water consumption, reducing water discharges, reducing aquatic impingements, improving the quality of water discharges and regulatory compliance.

4.3 The activities and investments required to achieve the plans, goals or targets, and any risks or limiting factors that might affect achievement of the plans or targets.

4.4 Disclosure of strategies, plans, goals or targets shall be limited to activities that were ongoing (active) or reached completion during the reporting period.

5 For water management targets, the entity shall additionally disclose:

5.1 Whether the target is absolute or intensity-based, and the metric denominator if it is an intensity-based target.

5.2 The time lines for the water management activities, including the start year, the target year and the base year.

5.3 The mechanism(s) for achieving the target, including:

5.3.1 Efficiency efforts, such as the use of water recycling or closed-loop systems;

5.3.2 Product innovations, such as redesigning products or services to require less water;

5.3.3 Process and equipment innovations, such as those that enable the reduction of aquatic impingements or entrainments;

5.3.4 Use of tools and technologies (for example, the World Wildlife Fund Water Risk Filter, the Global Water Tool and Water Footprint Network Footprint Assessment Tool) to analyse water use, risks and opportunities; and

5.3.5 Collaborations or programmes in place with the community or other organisations

5.4 The percentage reduction or improvement from the base year, in which the base year is the first year against which water management targets are evaluated towards the achievement of the target.

6 The entity shall discuss whether its water management practices result in any additional lifecycle impacts or trade-offs in its organisation, including trade-offs in land use, energy production and greenhouse gas (GHG) emissions, and why the entity chose these practices despite lifecycle trade-offs.

Hazardous Waste Management

Topic Summary

Chemical manufacturing may generate hazardous process waste which may include heavy metals, spent acids, catalysts and wastewater treatment sludge. Entities face regulatory and operational challenges in managing waste, since some wastes are subject to regulations pertaining to their transport, treatment, storage and disposal. Waste management strategies include reduced generation, effective treatment and disposal, and recycling and recovery, if possible. Such activities, although requiring initial investment or operating costs, may reduce an entity's long-term cost structure and mitigate the risk of remediation liabilities or regulatory penalties.

Metrics

RT-CH-150a.1. (1) Amount of hazardous waste generated, (2) percentage recycled

1 The entity shall calculate and disclose (1) the total weight of hazardous waste generated, in metric tonnes.

1.1 Hazardous wastes are defined in accordance with the applicable jurisdictional legal or regulatory frameworks where the waste was generated.

2 The entity shall calculate and disclose (2) the percentage of hazardous waste recycled as the weight of hazardous waste generated that was recycled, divided by the total weight in metric tonnes of hazardous waste generated.

2.1 Hazardous waste that is reused, reclaimed or remanufactured shall be considered within the scope of recycled.

2.2 Recycled, reused, reclaimed and remanufactured hazardous waste is defined in accordance with the applicable jurisdictional legal or regulatory frameworks where the waste was generated.

2.3 Materials incinerated, including for energy recovery, shall not be considered within the scope of recycled.

2.3.1 Energy recovery is defined as the use of combustible waste to generate energy through direct incineration, with or without other waste, but with recovery of the heat.

2.3.2 The entity may separately disclose the percentage of hazardous waste generated that was incinerated.

3 The entity may use the United Nations Environmental Programme's (UNEP) *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* for the purposes of defining hazardous waste or recycled hazardous waste for operations located in jurisdictions that lack applicable legal or regulatory definitions.

4 The entity shall disclose the frameworks used to define hazardous waste and recycled hazardous waste, and the quantities and percentages defined in accordance with each applicable framework.

Community Relations

Topic Summary

Chemical entities are important economic contributors to many communities, providing employment opportunities and community development through taxes and capital generation. Meanwhile, issues including environmental policy, community health and process safety have important regulatory, operational, financial and reputational implications for entities. Environmental externalities including air emissions and water use may affect the health of people living near chemical facilities over the long term. Meanwhile, process safety incidents may endanger community health and safety, resulting in regulatory penalties, legal action and mitigation costs. Consequently, chemicals entities may benefit from building strong relationships with communities to mitigate potential operating disruption, reduce regulatory risk, retain top employees, lower the risk of litigation expenses in the event of process safety incidents and ensure a strong social licence to operate. Entities may adopt various community engagement strategies, such as developing community engagement plans, establishing codes and guidelines to ensure alignment of the organisation's interests with those of their surrounding communities, or conducting impact assessments to evaluate projects and mitigate potential adverse impacts.

Metrics

RT-CH-210a.1. Discussion of engagement processes to manage risks and opportunities associated with community interests

1 The entity shall discuss its processes, procedures and practices to manage risks and opportunities associated with community interests in areas where it operates, including:

1.1 The specific community interests addressed, which may include:

1.1.1 economic and labour interests such as capital generation, employment, wages and infrastructure development; and

1.1.2 environmental interests such as those relating to natural resources (for example, energy and water, management of air emissions and waste, facility process safety, safe chemicals management, and transport incidents).

1.2 The underlying references for the entity's processes and procedures, including whether they are codes, guidelines, standards or regulations; and whether they were developed by the entity, an industry organisation, a third-party organisation (for example, a non-governmental organisation), a governmental agency or some combination of these groups.

2 The entity may describe its efforts to mitigate community-related risks and address community concerns, including:

2.1 initiatives that enable mutual value creation for entities and the communities in which they operate, including 'shared' or 'blended' value projects that provide quantifiable benefits to the community and to the entity;

2.2 the use of environmental impact assessments (EIA) and social impact assessments (SIA) that evaluate, manage and mitigate risks;

2.3 engagement with local communities through Community Advisory Panels or equivalent channels; and

2.4 consideration of communications and community recovery needs; participation in the development, implementation and maintenance of community emergency preparedness plans; and an appropriate process for responding to raw material, product, process, waste material and transportation incidents.

3 The entity may report the share of its operations that have undergone environmental or social impact assessments.

4 The entity may describe its efforts to address environmental justice concerns in communities in areas where the entity operates as well as potential operating impacts from regulatory or community action to address environmental justice.

4.1 'Environmental justice' is defined as the fair treatment and meaningful involvement of all people regardless of race, colour, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.

5 The discussion may address how practices apply to business partners such as contractors, subcontractors, suppliers and joint arrangement partners to the extent permissible under the terms of any contractual agreements, and without revealing confidential, proprietary or sensitive information.

Workforce Health & Safety

Topic Summary

Employees in chemical manufacturing facilities face health and safety risks from exposure to heavy machinery, harmful substances, electrical hazards and high pressure and temperatures, among others. Creating an effective safety culture is critical to mitigate safety impacts proactively, which might otherwise result in financial consequences including higher healthcare costs, litigation and work disruption. By maintaining a safe work environment and promoting a culture of safety, entities can minimise safety-related expenses and potentially improve productivity.

Metrics

RT-CH-320a.1. (1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees

1 The entity shall disclose (1) its total recordable incident rate (TRIR) for work-related injuries and illnesses.

1.1 An injury or illness is considered a recordable incident if it results in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. Additionally, a significant injury or illness diagnosed by a physician or other licensed healthcare professional is considered a recordable incident, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

1.1.1 First aid is defined as emergency care or treatment for an ill or injured person before regular medical aid can be provided.

1.1.2 The entity may use applicable jurisdictional criteria for definitions of a recordable incident and a non-recordable incident such as first aid. The entity shall disclose the legal, regulatory or industry framework used as the source for these criteria and definitions.

2 The entity shall disclose (2) its fatality rate for work-related fatalities.

3 All disclosed rates shall be calculated as: (statistic count × 200,000) / total number of hours worked by all employees in the year reported.

3.1 The ‘200,000’ in the rate calculation represents the total number of hours 100 full-time workers working 40 hours per week for 50 weeks per year can provide annually.

4 The scope of the disclosure includes work-related incidents only.

4.1 Work-related incidents are injuries and illnesses resulting from events or exposures in the work environment.

4.2 The work environment is the establishment and other locations where one or more employees are working or are present as a condition of their employment.

4.3 The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of work.

4.4 Incidents that occur while an employee is on travel status are work-related if, at the time of the injury or illness, the employee was engaged in work activities in the interest of the employer.

4.5 A work-related incident must be a new case, not a previously recorded injury or illness being updated.

5 The entity shall disclose the rates for each of these employee categories:

5.1 direct employees, defined as individuals on the entity's payroll, whether they are full-time, short service, part-time, executive, labour, salary, seasonal, migrant or hourly employees.

5.2 contract employees, defined as individuals who are not on the entity's payroll, but whom the entity supervises or manages, including independent contractors and those employed by third parties (for example, temp agencies and labour brokers).

6 The scope of the disclosure includes all employees regardless of employee location or type of employment.

RT-CH-320a.2. Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks

1 The entity shall discuss how it assesses, monitors and reduces workforce exposure to long-term (chronic) human health risks which may include:

1.1 corrosives;

1.2 hepatotoxins;

1.3 nephrotoxins;

1.4 neurotoxins;

1.5 sensitisers; and

1.6 known or suspected carcinogens, teratogens, mutagens and reprotoxins.

2 The workforce includes any personnel conducting entity business on behalf of the entity, including all direct employees and contract employees.

2.1 Direct employees are defined as individuals on the entity's payroll, whether they are full-time, short service, part-time, executive, labour, salary, seasonal, migrant or hourly employees.

2.2 Contract employees are defined as individuals who are not on the entity's payroll, but whom the entity supervises or manages, including independent contractors and those employed by third parties (for example, temp agencies and labour brokers).

3 The disclosure shall focus on the entity's workforce in production facilities but may include all employees and contractors if relevant.

4 Relevant efforts to describe might include:

4.1 automation of processes;

4.2 completion of occupational exposure limit reviews;

4.3 implementation of technology to limit harmful worker exposure;

4.4 risk assessments and participation in long-term health studies;

4.5 worker use of personal protective equipment; and

4.6 phasing out, substituting or using safer alternative materials.

5 The entity may describe its implementation of relevant safety management systems which may include the measurement of safety and health performance through metrics and obtaining third-party verification of compliance with relevant jurisdictional safety standards.

Product Design for Use-phase Efficiency

Topic Summary

As increasing resource scarcity and regulations encourage greater materials efficiency and lower energy consumption and emissions, the Chemicals industry may benefit from developing products that enhance customer efficiency. From reducing automobile emissions through materials optimisation to improving building insulation performance, Chemicals industry products can enhance efficiency across many applications. Entities that develop cost-effective solutions to meet customer demand for improved efficiency may benefit from increased revenue and market share, stronger competitive positioning and enhanced brand value.

Metrics

RT-CH-410a.1. Revenue from products designed for use-phase resource efficiency

1 The entity shall disclose its total revenue from products designed to increase resource efficiency during their use-phase.

1.1 Products designed to increase resource efficiency are defined as those that, through their use, can improve energy efficiency, eliminate or lower greenhouse gas (GHG) emissions, reduce raw materials consumption, increase product longevity or reduce water consumption.

1.2 The use-phase is defined as the course over which the entity's product is used by a customer or consumer as a final product or the course over which the entity's product is used by a customer or consumer to generate a final product (for example, in a manufacturing or production process).

2 A product shall be considered to have been designed to increase use-phase resource efficiency if documentation shows that the entity has tested, modelled or otherwise established the increase to resource efficiency its product delivers during its use-phase.

2.1 The scope of disclosure includes products that eliminate emissions during the use-phase, the need for a raw material or the need for a process component like water.

2.2 The scope of disclosure includes products that impart an incremental improvement to resource efficiency, as far as the entity can demonstrate the improvement is meaningful.

2.3 The scope of disclosure excludes products that impart improved resource efficiency in an ancillary, indirect or minimal way (for example, a conventional product that is slightly lighter than the previous generation of the product).

3 Examples of products that increase resource efficiency may include insulation materials, high-albedo paints and coating, fuel additives that result in more efficient combustion, energy-efficient lighting materials, additives or materials that extend the useful life of use-phase products, materials that enable vehicle lightweighting (for example, polymers to replace metals), biofuels, solar films, solar shingles and other renewable energy materials.

Safety & Environmental Stewardship of Chemicals

Topic Summary

Product safety and stewardship is a critical issue for entities in the Chemicals industry. The potential for human health or environmental impacts of chemicals during the use-phase can influence product demand and regulatory risk, which in turn can affect revenues and result in higher operating, regulatory compliance and mitigation expenses. The industry can mitigate regulatory risk and grow market share by developing innovative approaches to manage the potential impacts of products during the use-phase, including developing alternative products with reduced toxicity. This could contribute to shareholder value through improved competitive positioning, greater market share, reduced regulatory risks and higher brand value.

Metrics

RT-CH-410b.1. (1) Percentage of products that contain Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment

1 The entity shall disclose (1) the percentage of its products, by revenue, that contain Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous substances, such that:

1.1 the categories of GHS Health Hazards include ‘Acute toxicity’, ‘Skin corrosion/irritation’, ‘Serious eye damage/eye irritation’, ‘Respiratory or skin sensitization’, ‘Germ cell mutagenicity’, ‘Carcinogenicity’, ‘Reproductive toxicity’, ‘Specific target organ toxicity—Single exposure’, Specific target organ toxicity—Repeated exposure’ and ‘Aspiration hazard’;

1.2 the categories of GHS Environmental Hazards include ‘Hazardous to the aquatic environment’ and ‘Hazardous to the ozone layer’. The basic elements of aquatic hazards include ‘Acute aquatic toxicity’, ‘Chronic aquatic toxicity’, ‘Bioaccumulation potential’ and ‘Rapid degradability’; and

1.3 the entity shall reference the definitions provided by the GHS System for Classification and Labelling of Chemicals.

2 The entity shall calculate and disclose the percentage as the revenue from products that contain substances meeting the criteria of GHS Category 1 and 2 Health and Environmental Hazardous Substances divided by the total revenue from all products.

2.1 The entity shall follow the criteria pertaining to mixtures as established in the GHS guidance.

3 The entity shall disclose (2) the percentage of its products containing Globally Harmonised System of Classification and Labelling of Chemicals Category 1 and 2 Hazardous Substances that have undergone a hazard assessment.

3.1 The percentage shall be calculated as the revenue from products that contain GHS Category 1 and 2 Health and Environmental Hazardous Substances that have undergone a risk assessment divided by the total revenue from products that contain GHS Category 1 and 2 Health and Environmental Hazardous Substances.

3.2 A hazard assessment is defined as a process to identify, implement, document and communicate health, safety and environmental measures to manage risk so that products can be safely used for their intended purposes.

3.3 The entity shall disclose the methodologies used to conduct hazard assessments of its products.

4 The scope of the disclosure includes all products and materials manufactured by the entity.

RT-CH-410b.2. Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human or environmental impact

1 The entity shall discuss (1) its strategy and approach to managing the production of materials, chemicals and substances that may be hazardous to human health or the environment, presenting concerns for consumers, customers (for example, retailers and commercial buyers), regulators or others (for example, non-governmental organisations or scientific researchers).

1.1 Materials, chemicals and substances include individual compounds, classes of chemicals and categories of chemicals.

1.2 The entity shall discuss, at a minimum, how it assesses materials and chemicals for hazardous characteristics and risk traits, including the operational processes employed for these assessments and other actions taken to manage hazards and risks.

1.3 Relevant operational processes may include product formulation and design, product safety testing, risk characterisation, prioritisation of product risks, product labelling, product declarations (for example, material safety data sheets), sharing of information on product risks, accountability for chemicals management within the entity's organisation, communication processes used to share product information within the entity's supply chain and management of new information on product risks.

1.4 Relevant actions to discuss may include the exclusion of substances (for example, use of banned substances lists), use of material substitution assessments, use of tools and management practices, or any other methods that consider the usage of materials, chemicals and substances of concern.

1.5 The entity shall discuss its production and use of chemicals listed under Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Category 1 and Category 2 Health and Environmental Hazardous Substances or equivalent applicable jurisdictional laws or regulations regarding chemicals of concern.

2 The entity shall discuss (2) its strategy and approach to developing alternative processes and chemicals that reduce or avoid the use of substances that may be hazardous to human health or the environment, presenting concerns to consumers, customers (for example, retailers and commercial buyers), regulators or others (for example, non-governmental organisations or scientific researchers).

2.1 Relevant actions to discuss may include the use of chemicals listed as safer alternatives, use of alternative assessments and use of other tools or methods that inform the entity's development of alternative processes and chemicals.

2.2 The entity shall discuss how it uses relevant aspects of the *12 Principles of Green Chemistry* [5], if relevant.

2.2.1 The scope of discussion may include how the entity reduces hazardous chemical synthesis (Principle 3), designs safer chemicals (Principle 4), uses safer solvents and auxiliaries (Principle 5), reduces derivatives (Principle 8) and designs for degradation (Principle 10).

2.2.2 The scope of discussion may include specific production processes and products that have integrated these principles.

[5] Anastas, P. T.; Warner, J. C. *Green Chemistry: Theory and Practice*, Oxford University Press: New York, 1998.

Genetically Modified Organisms

Topic Summary

Some chemical entities produce crop seeds developed using genetically modified organism (GMO) technology. GMO technology has improved some crop yields, including corn and soy, by altering the crop's resistance to pesticides and herbicides and improving drought tolerance, among other factors. At the same time, consumers and regulators in some areas have expressed concern over the use of GMO technology because of perceived health, environmental and social impacts of GMO cultivation and consumption. Thus, entities that employ such technology face both market opportunities and risks related to its use. The adoption of GMO crop technology is significant in some regions, although in other regions regulators have implemented bans, quotas or labelling requirements on GMO-based products. Such product bans or labelling requirements may decrease revenues or increase costs for manufacturers, and regulatory scrutiny and public perception may affect reputational risk. As such, entities that effectively respond to market drivers related to GMO products can mitigate risks and capitalise on opportunities.

Metrics

RT-CH-410c.1. Percentage of products by revenue that contain genetically modified organisms (GMOs)

1 The entity shall disclose the percentage of its products, by revenue, that contain genetically modified organisms (GMOs).

1.1 GMOs are defined as organisms, except for human beings, in which genetic material has been altered in a way that does not occur naturally by mating or natural recombination.

2 The scope of the disclosure includes GMOs defined by applicable jurisdictional laws or regulations.

3 The percentage shall be calculated as the revenue from products that contain GMOs divided by total revenue from all products.

Management of the Legal & Regulatory Environment

Topic Summary

The Chemicals industry faces strict regulation governing air emissions, water discharge, chemical safety and process safety, among other issues. Anticipating and adapting to regulatory developments, both in the short and long term, is a critical issue for the industry, as regulatory developments can significantly affect product demand, manufacturing costs and brand value. Therefore, entities with a clear strategy for managing the regulatory environment that aligns corporate performance with sustainable environmental outcomes and accounts for societal externalities may benefit from increased regulatory certainty, stronger brand value and improved competitive positioning.

Metrics

RT-CH-530a.1. Discussion of corporate positions related to government regulations or policy proposals that address environmental and social factors affecting the industry

1 The entity shall identify risks and opportunities related to legislation, regulation or rule-making (hereafter referenced collectively as the 'legal and regulatory environment') associated with environmental and social factors that may have significant financial consequences.

1.1 The scope shall include existing, emerging, and known future risks and opportunities.

1.2 The scope shall include risks and opportunities that exist domestically and internationally.

1.3 The regulatory environment related to environmental and social factors includes those factors related to greenhouse gas emissions, other air emissions, water withdrawals and effluents, hazardous waste, community impacts, product lifecycle management and safety, and process and employee safety.

2 Relevant risks to an entity include:

2.1 risk of increased compliance costs;

2.2 risk of policy reversal (for example, risks associated with changes to existing environmental regulations);

2.3 risk of loss of financial incentives (for example, reduction or elimination of tax deductions);

2.4 risk to reputation because of the entity's stance and actions related to the legal and regulatory environment;

2.5 risk that long-term strategy might be misaligned with the legal and regulatory environment; and

2.6 risk of misalignment with the expectations of customers, investors and other stakeholders.

3 Relevant opportunities may include improved financial conditions (for example, through policies that incentivise chemical manufacturing activities), improved community relations because of the entity's stance and actions related to the legal and regulatory environment, and other benefits resulting from the entity's long-term strategic alignment with the legal and regulatory environment.

4 The entity shall discuss its efforts to manage risks and opportunities associated with each aspect of the legal and regulatory environment outlined in the SASB Chemicals Standard that are relevant to the entity's business and may have significant financial consequences.

5 The entity shall discuss its strategy to manage risks and opportunities associated with each aspect of the legal and regulatory environment it has identified, such as:

5.1 any changes it has made or plans to make to its business structure or business model;

5.2 the development of new technologies or services;

5.3 any changes it has made or plans to make to its operational processes, controls or organisational structures; and

5.4 influencing regulatory or legislative processes and outcomes through interactions with regulators, regulatory agencies, legislators, policymakers, and any others involved in the regulatory or legislative process.

Operational Safety, Emergency Preparedness & Response

Topic Summary

Health, safety and emergency management is a critical issue for entities in the Chemicals industry. Technical failure, human error or external factors such as weather may result in accidental releases of chemical substances into the environment at processing facilities or during storage and transportation. Furthermore, the combustible nature of some chemical substances, combined with the high operating temperatures and pressures involved in manufacturing, increases the risk of explosions, hazardous spills or other emergency situations. Such events may harm workers or people in nearby communities through the release of harmful air emissions and chemical substances, and they may impact the environment adversely. Entities may face operational disruptions, damage to facilities, reputational harm, and increased regulatory compliance and remediation costs in the event of a process incident. As such, strong process safety management may reduce operational downtime, mitigate costs and regulatory risk, and ensure workforce productivity.

Metrics

RT-CH-540a.1. Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)

1 The entity shall disclose its process safety performance using these indicators, consistent with the American National Standards Institute and the American Petroleum Institute's *Process Safety Performance Indicators for the Refining and Petrochemical Industries* Recommended Practice 754 (ANSI/API RP 754):

1.1 Process Safety Incidents Count (PSIC), which is defined as the total (annual) count of all incidents that meet the definition of a Tier 1 Process Safety Event (PSE) in accordance with ANSI/API RP 754.

1.2 Process Safety Total Incident Rate (PSTIR), which is defined as the cumulative (annual) count of Tier 1 incidents normalised by man-hours, is calculated as the PSIC multiplied by 200,000 and divided by the total annual hours worked by employees, contractors and subcontractors.

1.3 Process Safety Incident Severity Rate (PSISR), which is defined as the cumulative (annual) severity-weighted rate of process safety incidents, is calculated as the Total Severity Score for all Tier 1 PSEs multiplied by 200,000 and divided by the total annual hours worked by employees, contractors and subcontractors.

2 The scope of the disclosure includes PSEs occurring at entity-owned or entity-operated facilities.

3 The entity may separately disclose equivalent PSIC and PSTIR metrics for Tier 2 PSEs, as defined by ANSI/API RP 754.

Note to **RT-CH-540a.1**

1 The entity shall describe incidents with a severity rating of Tier 1 or Tier 2, including root causes, outcomes and corrective actions implemented in response (for example, technology improvements or operator training).

RT-CH-540a.2. Number of transport incidents

1 The entity shall disclose the total number of transport incidents, where transport incidents are defined consistent with applicable jurisdictional laws or regulations.

2 A reportable transport incident is defined, irrespective of chemical products contribution, as an incident resulting in:

2.1 a death or injury leading to intensive medical treatment, a stay in hospital of at least one day or an absence from work of more than three days;

2.2 any release of more than 50 kg/L of dangerous goods or more than 1,000 kg/L of non-dangerous goods;

2.3 any damage of more than 50,000 Euros or the local presentation currency equivalent (including environmental clean-up) resulting from a transport incident; or

2.4 an incident leading to direct involvement of authorities or emergency services, evacuation of people or closure of public traffic routes for at least three hours.

3 The entity shall report distribution incidents for all modes of product transport (for example, road, rail or ship).

4 The scope of the disclosure includes all distributions for which the entity has direct oversight as well as those contracted by the entity to a third party (Tier 1 contracts).

Note to **RT-CH-540a.2**

1 The entity shall describe significant transport incidents, including root causes, outcomes and corrective actions implemented in response (for example, technology improvements or driver training).

1.1 Significant transport incidents are considered to be those that require immediate notice of a hazardous materials incident to a governmental authority.

SASB STANDARDS

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