



SUSTAINABILITY ACCOUNTING STANDARD
RESOURCE TRANSFORMATION SECTOR

CHEMICALS

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) # RT0101
Prepared by the
Sustainability Accounting Standards Board®

MARCH 2015
Provisional Standard

CHEMICALS

Sustainability Accounting Standard

About SASB

The Sustainability Accounting Standards Board (SASB) provides sustainability accounting standards for use by publicly listed corporations in the U.S. in disclosing material sustainability information for the benefit of investors and the public. SASB standards are designed for disclosure in mandatory filings to the Securities and Exchange Commission (SEC), such as the Form 10-K and 20-F. SASB is an independent 501(c)3 non-profit organization. Through 2016, SASB is developing standards for more than 80 industries in 10 sectors.

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for the Chemicals industry.

SASB Sustainability Accounting Standards are comprised of **(1) disclosure guidance and (2) accounting standards on sustainability topics** for use by U.S. and foreign public companies in their annual filings (Form 10-K or 20-F) with the U.S. Securities and Exchange Commission (SEC). To the extent relevant, SASB Standards may also be applicable to other periodic mandatory filings with the SEC, such as the Form 10-Q, Form S-1, and Form 8-K.

SASB Standards identify sustainability topics at an industry level, which may constitute material information—depending on a company’s specific operating context— for a company within that industry. SASB Standards are intended to provide guidance to company management, which is ultimately responsible for determining which information is material and should therefore be included in its Form 10-K or 20-F and other periodic SEC filings.

SASB Standards provide companies with standardized sustainability metrics designed to communicate performance on industry level sustainability topics. When making disclosure on sustainability topics, companies can use SASB Standards to help ensure that disclosure is standardized and therefore decision-useful, relevant, comparable, and complete.

SASB Standards are intended to constitute “suitable criteria” as defined by AT 101.23 - .32¹ and referenced in AT 701², as having the following attributes:

- *Objectivity*—Criteria should be free from bias.
- *Measurability*—Criteria should permit reasonably consistent measurements, qualitative or quantitative, of subject matter.
- *Completeness*—Criteria should be sufficiently complete so that those relevant factors that would alter a conclusion about subject matter are not omitted.
- *Relevance*—Criteria should be relevant to the subject matter.

Industry Description

Companies 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 Chemicals industry manufactures and sells products globally, and is commonly segmented into basic (commodity) chemicals, agricultural chemicals, and specialty chemicals. Basic chemicals, the largest segment, includes bulk polymers, petrochemicals, inorganic chemicals, and other industrial chemicals. Agricultural chemicals include fertilizers, crop chemicals, and agricultural biotechnology. Specialty chemicals include paints and coatings, agrochemicals, sealants, adhesives, dyes, industrial gases, resins, and catalysts

¹ http://pcaobus.org/Standards/Attestation/Pages/AT101.aspx#ftn.at_101_fn7

² <http://pcaobus.org/Standards/Attestation/Pages/AT701.aspx>

Guidance for Disclosure of Material Sustainability Topics in SEC Filings

1. Industry-Level Sustainability Disclosure Topics

For the Chemicals industry, SASB has identified the following sustainability disclosure topics:

- Greenhouse Gas Emissions
- Air Quality
- Energy & Feedstock Management
- Water Management
- Hazardous Waste Management
- Safety & Environmental Stewardship of Chemicals & Genetically Modified Organisms
- Product Design for Use-phase Efficiency
- Political Spending
- Health, Safety, and Emergency Management

2. Company-Level Determination and Disclosure of Material Sustainability Topics

Sustainability disclosures are governed by the same laws and regulations that govern disclosures by securities issuers generally. According to the U.S. Supreme Court, a fact is material if, in the event such fact is omitted from a particular disclosure, there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of the information made available.”^{3, 4}

SASB has attempted to identify those sustainability topics that are reasonably likely to have a material effect on the financial condition or operating performance of companies within each SICS industry. SASB recognizes, however, that each company is ultimately responsible for determining what information should be disclosed within the context of Regulation S-K and other guidance.

Regulation S-K, which sets forth certain disclosure requirements associated with Form 10-K and other SEC filings, requires companies, among other things, to describe in the Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) section of Form 10-K “any known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations. If the registrant knows of events that will cause a material change in the relationship between costs and revenues (such as known future increases in costs of labor or materials or price increases or inventory adjustments), the change in the relationship shall be disclosed.”

Furthermore, Instructions to Item 303 state that the MD&A “shall focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.”²

The SEC has provided guidance for companies to use in determining whether a trend or uncertainty should be disclosed. The two-part assessment –prescribed by the SEC, based on probability and magnitude, can be applied to the topics included within this standard:

- First, a company is not required to make disclosure about a known trend or uncertainty if its management determines that such trend or uncertainty is not reasonably likely to occur.

³ TSC Industries v. Northway, Inc., 426 U.S. 438 (1976).

⁴ C.F.R. 229.303(Item 303)(a)(3)(ii).

- Second, if a company’s management cannot make a reasonable determination of the likelihood of an event or uncertainty, then disclosure is required unless management determines that a material effect on the registrant’s financial condition or results of operation is not reasonably likely to occur.

3. Sustainability Accounting Standard Disclosures in Form 10-K

a. Management’s Discussion and Analysis

For purposes of comparability and usability, that companies should consider making disclosure on sustainability topics in the MD&A, in a sub-section titled “**Sustainability Accounting Standards Disclosures**.”⁵

b. Other Relevant Sections of Form 10-K

In addition to the MD&A section, it may be relevant for companies to disclose sustainability information in other sections of Form 10-K, including, but not limited to:

- **Description of business**—Item 101 of Regulation S-K requires a company to provide a description of its business and its subsidiaries. Item 101(c)(1)(xii) expressly requires disclosure regarding certain costs of complying with environmental laws:

Appropriate disclosure also shall be made as to the material effects that compliance with Federal, State and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, may have upon the capital expenditures, earnings and competitive position of the registrant and its subsidiaries.

- **Legal proceedings**—Item 103 of Regulation S-K requires companies to describe briefly any material pending or contemplated legal proceedings. Instructions to Item 103 provide specific disclosure requirements for administrative or judicial proceedings arising from laws and regulations that target discharge of materials into the environment or that are primarily for the purpose of protecting the environment.
- **Risk factors**—Item 503(c) of Regulation S-K requires filing companies to provide a discussion of the most significant factors that make an investment in the registrant speculative or risky, clearly stating the risk and specifying how a particular risk affects the particular filing company.

c. Rule 12b-20

Securities Act Rule 408 and Exchange Act Rule 12b-20 require a registrant to disclose, in addition to the information expressly required by law or regulation, “such further material information, if any, as may be necessary to make the required statements, in light of the circumstances under which they are made, not misleading.”

More detailed guidance on disclosure of material sustainability topics can be found in the **SASB Conceptual Framework**, available for download via <http://www.sasb.org/approach/conceptual-framework/>.

⁵ [SEC \[Release Nos. 33-8056; 34-45321; FR-61\] Commission Statement about Management’s Discussion and Analysis of Financial Condition and Results of Operations](#): “We also want to remind registrants that disclosure must be both useful and understandable. That is, management should provide the most relevant information and provide it using language and formats that investors can be expected to understand. Registrants should be aware also that investors will often find information relating to a particular matter more meaningful if it is disclosed in a single location, rather than presented in a fragmented manner throughout the filing.”

Guidance on Accounting for Material Sustainability Topics

For each sustainability topic included in the Chemicals industry Sustainability Accounting Standard, SASB identifies accounting metrics.

SASB recommends that each company consider using these sustainability accounting metrics when preparing disclosures on the sustainability topics identified herein;

As appropriate—and consistent with Rule 12b-20⁶—when disclosing a sustainability topic identified by this Standard, companies should consider including a narrative description of any material factors necessary to ensure completeness, accuracy, and comparability of the data reported. Where not addressed by the specific accounting metrics, but relevant, the registrant should discuss the following, related to the topic:

- The registrant's **strategic approach** to managing performance on material sustainability issues;
- The registrant's **relative performance** with respect to its peers;
- The **degree of control** the registrant has;
- Any **measures the registrant has undertaken** or **plans to undertake** to improve performance; and
- Data for the registrant's **last three completed fiscal years** (when available).

SASB recommends that registrants use SASB Standards specific to their primary industry as identified in the [Sustainable Industry Classification System \(SICSTM\)](#). If a registrant generates significant revenue from multiple industries, SASB recommends that it also consider sustainability topics that SASB has identified for those industries and disclose the associated SASB accounting metrics.

In disclosing to SASB Standards, it is expected that registrants disclose with the same level of rigor, accuracy, and responsibility as they apply to all other information contained in their SEC filings.

Users of the SASB Standards

The SASB Standards are intended to provide guidance for companies that engage in public offerings of securities registered under the Securities Act of 1933 (the Securities Act) and those that issue securities registered under the Securities Exchange Act of 1934 (the Exchange Act),⁷ for use in SEC filings, including, without limitation, annual reports on Form 10-K (Form 20-F for foreign issuers), quarterly reports on Form 10-Q, current reports on Form 8-K, and registration statements on Forms S-1 and S-3. Disclosure with respect to the SASB Standards is not required or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

⁶ SEC Rule 12b-20: "In addition to the information expressly required to be included in a statement or report, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made, not misleading."

⁷ Registration under the Securities Exchange Act of 1934 is required (1) for securities to be listed on a national securities exchange such as the New York Stock Exchange, the NYSE Amex, and the NASDAQ Stock Market or (2) if (A) the securities are equity securities and are held by more than 2,000 persons (or 500 persons who are not accredited investors) and (B) the company has more than \$10 million in assets.

Scope of Disclosure

Unless otherwise specified, SASB recommends:

- That a registrant disclose on sustainability issues and metrics for itself and for entities that are consolidated for financial reporting purposes as defined by accounting principles generally accepted in the United States for consistency with other accompanying information within SEC filings⁸
- That for consolidated entities, disclosures be made, and accounting metrics calculated, for the whole entity, regardless of the size of the minority interest; and
- That information from unconsolidated entities not be included in the computation of SASB accounting metrics. A registrant should disclose, however, information about unconsolidated entities to the extent that the registrant considers the information necessary for investors to understand the effect of sustainability topics on the company's financial condition or operating performance (typically, this disclosure would be limited to risks and opportunities associated with these entities).

Reporting Format

Use of Financial Data

In instances where accounting metrics, activity metrics, and technical protocols in this standard incorporate financial data (e.g., revenues, cost of sales, expenses recorded and disclosed for fines, etc.), such financial data shall be prepared in accordance with the accounting principles generally accepted in the United States of America ("US GAAP") and be consistent with the corresponding financial data reported within the registrant's SEC filings. Should accounting metrics, activity metrics and technical protocols in this standard incorporate disclosure of financial data that is not prepared in accordance with US GAAP, the registrant shall disclose such information in accordance with the SEC Regulation G.

Activity Metrics and Normalization

SASB recognizes that normalizing accounting metrics is important for the analysis of SASB disclosures.

SASB recommends that a registrant disclose any basic business data that may assist in the accurate evaluation and comparability of disclosure, to the extent that they are not already disclosed in the Form 10-K (e.g., revenue, EBITDA, etc.).

Such data—termed "activity metrics"—may include high-level business data such as total number of employees, quantity of products produced or services provided, number of facilities, or number of customers. It may also include industry-specific data such as plant capacity utilization (e.g., for specialty chemical companies), number of transactions (e.g., for Internet media and services companies), hospital bed days (e.g., for health care delivery companies), or proven and probable reserves (e.g., for oil and gas exploration and production companies).

⁸ See US GAAP consolidation rules (Section 810).

Activity metrics disclosed should:

- Convey contextual information that would not otherwise be apparent from SASB accounting metrics.
- Be deemed generally useful for an investor relying on SASB accounting metrics in performing their own calculations and creating their own ratios.
- Be explained and consistently disclosed from period to period to the extent they continue to be relevant. However, a decision to make a voluntary disclosure in one period does not obligate a continuation of that disclosure if it is no longer relevant or if a better metric becomes available.⁹

Where relevant, SASB recommends specific activity metrics that—at a minimum—should accompany SASB accounting metric disclosures.

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production by reportable segment ¹⁰	Quantitative	Cubic meters (m ³) and/or metric tons (t)	RT0101-A

Units of Measure

Unless specified, disclosures should be reported in International System of Units (SI units).

Uncertainty

SASB recognizes that there may be inherent uncertainty when disclosing certain sustainability data and information. This may be related to variables such as the reliance on data from third-party reporting systems and technologies, or the unpredictable nature of climate events. Where uncertainty around a particular disclosure exists, SASB recommends that the registrant should consider discussing its nature and likelihood.

Estimates

SASB recognizes that scientifically-based estimates, such as the reliance on certain conversion factors or the exclusion of *de minimis* values, may occur for certain quantitative disclosures. Where appropriate, SASB does not discourage the use of such estimates. When using an estimate for a particular disclosure, SASB expects that the registrant discuss its nature and substantiate its basis.

⁹ Improving Business Reporting: Insights into Enhancing Voluntary Disclosures, FASB Business Reporting Research Project, January 29, 2001.

¹⁰ Note to **RT0101-A**—Production should be disclosed for each of the registrant’s reportable segments, where products and service segments are determined according to FASB ASC 280-10 and production is reported as weight for solid products and volume for liquid and gas products.

Timing

Unless otherwise specified, disclosure shall be for the registrant's fiscal year.

Limitations

There is no guarantee that SASB Standards address all sustainability impacts or opportunities associated with a sector, industry, or company, and therefore, a company must determine for itself the topics—sustainability-related or otherwise—that warrant discussion in its SEC filings.

Disclosure under SASB Standards is voluntary. It is not intended to replace any legal or regulatory requirements that may be applicable to user operations. Where such laws or regulations address legal or regulatory topics, disclosure under SASB Standards is not meant to supersede those requirements. Disclosure according to SASB Standards shall not be construed as demonstration of compliance with any law, regulation, or other requirement.

SASB Standards are intended to be aligned with the principles of materiality enforced by the SEC. However, SASB is not affiliated with or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Forward-looking Statements

Disclosures on sustainability topics can involve discussion of future trends and uncertainties related to the registrant's operations and financial condition, including those influenced by external variables (e.g., environmental, social, regulatory, and political). Companies making such disclosures should familiarize themselves with the safe harbor provisions of Section 27A of the Securities Act and Section 21E of the Exchange Act, which preclude civil liability for material misstatements or omissions in such statements if the registrant takes certain steps, including, among other things, identifying the disclosure as "forward-looking" and accompanying such disclosure with "meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the forward-looking statements."

The following sections contain the disclosure guidance associated with each accounting metric such as guidance on definitions, scope, accounting, compilation, and presentation.

The term "shall" is used throughout this document to indicate those elements that reflect requirements of the Standard. The terms "should" and "may" are used to indicate guidance, which, although not required, provides a recommended means of disclosure.

Table 1. Sustainability Disclosure Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under a regulatory program	Quantitative	Metric tons CO ₂ -e, Percentage (%)	RT0101-01
	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emission-reduction targets and an analysis of performance against those targets	Discussion and Analysis	n/a	RT0101-02
Air Quality	Air emissions for the following pollutants: NO _x (excluding N ₂ O), SO _x , volatile organic compounds (VOCs), and hazardous air pollutants (HAPs)	Quantitative	Metric tons (t)	RT0101-03
	Number of production facilities in or near areas of dense population	Quantitative	Number	RT0101-04
Energy & Feedstock Management	Total energy consumed, percentage grid electricity, percentage renewable ¹¹	Quantitative	Gigajoules (GJ), Percentage (%)	RT0101-05
	Percentage of raw materials from renewable resources	Quantitative	Percentage (%) by metric tons	RT0101-06
Water Management	(1) Total water withdrawn, percentage in regions with High or Extremely High Baseline Water Stress and (2) percentage recycled water usage	Quantitative	Cubic Meters (m ³), Percentage (%)	RT0101-07
	Number of incidents of non-compliance with water quality permits, standards, and regulations	Quantitative	Number	RT0101-08
Hazardous Waste Management	Amount of hazardous waste, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	RT0101-09
Safety & Environmental Stewardship of Chemicals & Genetically Modified Organisms	Percentage of products that contain Registration, Evaluation, Authorisation and Restriction of Chemical (REACH) substances of very high concern (SVHC)	Quantitative	Percentage (%) by revenue	RT0101-10
	Percentage of products that contain Class I World Health Organization (WHO) Acute Toxicity Hazard Categories pesticides	Quantitative	Percentage (%) by revenue	RT0101-11
	Discussion of strategy to (a) manage chemicals of concern and (b) develop alternatives with reduced human and/or environmental impact	Discussion and Analysis	n/a	RT0101-12
	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Quantitative	Percentage (%) by revenue	RT0101-13

¹¹ Note to **RT0101-05**—The registrant shall discuss its efforts to reduce energy consumption and/or improve energy efficiency throughout the production processes.

Table 1. Sustainability Disclosure Topics & Accounting Metrics (cont.)

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	U.S. Dollars (\$)	RT0101-14
Political Spending	Amount of political campaign spending, lobbying expenditures, and contributions to tax-exempt groups, including trade associations	Quantitative	U.S. Dollars (\$)	RT0101-15
	Five largest political, lobbying, or tax-exempt group expenditures	Quantitative	U.S. Dollars (\$), by recipient	RT0101-16
Health, Safety, and Emergency Management	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR) ¹²	Quantitative	Number, Rate	RT0101-17
	Number of transport incidents ¹³	Quantitative	Number	RT0101-18
	Challenges to the Safety Systems indicator rate (Tier 3)	Quantitative	Rate	RT0101-19
	(1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	Quantitative	Rate	RT0101-20
	Discussion of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Discussion and Analysis	n/a	RT0101-21

¹² Note to **RT0101-17**— The registrant shall describe incidents with a severity rating of 1 or 2, including their root cause, outcomes, and corrective actions implemented in response.

¹³ Note to **RT0101-18**—The registrant shall describe significant transport incidents, including their root cause, outcomes, and corrective actions implemented in response.

Greenhouse Gas Emissions

Description

Chemical manufacturing generates significant direct (Scope 1) GHG emissions from the combustion of fossil fuels in manufacturing and cogeneration processes, as well as process emissions from the chemical transformation of feedstocks. GHG emissions contribute to climate change and create regulatory compliance costs and risks for chemicals companies due to climate change mitigation policies. Financial impacts on companies will vary depending on the specific location of operations and the prevailing emissions regulations. Companies that cost-effectively reduce GHG emissions in their operations through greater energy efficiency, use of cleaner fuels, or manufacturing process improvements can garner financial benefits in the form of lower costs and operating risks or additional revenues from the sale of carbon allowances.

Accounting Metrics

RT0101-01. Gross global Scope 1 emissions, percentage covered under a regulatory program

.01 The registrant shall disclose gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the six GHGs covered under the Kyoto Protocol (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

- Emissions of all gases shall be disclosed in metric tons of carbon dioxide equivalents (CO₂-e), calculated in accordance with published global warming potential (GWP) factors. To date, the preferred source for GWP factors is the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2013).
- Gross emissions are GHGs emitted to the atmosphere before accounting for any GHG reduction activities, offsets, or other adjustments for activities in the reporting period that have reduced or compensated for emissions.
- Disclosure corresponds to section CC8.2 of the Carbon Disclosure Project (CDP) Questionnaire (2015) and REQ-11 of the Climate Disclosure Standards Board (CDSB) *Climate Change Reporting Framework* (CCRF) (2015).

.02 Scope 1 emissions are defined by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD) in [The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard](#), Revised Edition, March 2004 (hereafter, the "GHG Protocol").

- These emissions include direct emissions of GHGs from stationary or mobile sources that include, but are not limited to, equipment, production facilities, office buildings, and transportation (i.e., marine, road, or rail).

.03 GHG emission data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data, which is generally aligned with:

- The Financial Control approach defined by the GHG Protocol and referenced by the [CDP Guidance for companies reporting on climate change on behalf of investors & supply chain members 2013](#) (hereafter, the “CDP Guidance”).¹⁴
- The approach detailed in REQ-1, “Organizational boundary setting for GHG emissions reporting,” of the CDSB CCRF (2015).¹⁵

.04 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the CDP Guidance.

- The registrant shall consider the CDP Guidance as a normative reference, thus any updates made year-on-year shall be considered updates to this guidance.

.05 The registrant shall disclose the percentage of its emissions that are covered under a regulatory program, such as the European Union Emissions Trading Scheme (EU ETS), Western Climate Initiative (WCI), California Cap-and-Trade (California Global Warming Solutions Act), or other regulatory programs.

- Regulatory programs include cap-and-trade schemes and carbon tax/fee systems.
- Disclosure shall exclude emissions covered under voluntary trading systems and disclosure-based regulations (e.g., the U.S. Environmental Protection Agency (EPA) mandatory reporting rule).

.06 The registrant should discuss any change in its emissions from the previous fiscal year, such as if the change was due to emissions reductions, divestment, acquisition, mergers, changes in output, and/or changes in calculation methodology.

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

.08 The registrant should discuss the calculation methodology for its emissions disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

.09 The registrant should consult the most recent version of each document referenced in this standard at the time disclosure occurs.

¹⁴ “An organization has financial control over an operation if it has the ability to direct the financial and operating policies of the operation with a view to gaining economic benefits from its activities. Generally an organization has financial control over an operation for GHG accounting purposes if the operation is treated as a group company or subsidiary for the purposes of financial consolidation.” *Guidance for companies reporting on climate change on behalf of investors & supply chain members 2013*, p. 95.

¹⁵ This is based on the requirements of International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) on consolidation and equity accounting and is consistent with how information relating to entities within a group or interest in joint ventures/associates would be included on consolidated financial statements, as further detailed in CDSB *Proposals for Boundary Setting in Mainstream Reports*.

RT0101-02. Description of long-term and short-term strategy or plan to manage Scope 1 emissions, including emission-reduction targets and an analysis of performance against those targets

.10 The registrant shall discuss the following, where relevant:

- The scope, such as whether strategies, plans, and/or reduction targets pertain differently to different business units, geographies, or emissions sources;
- Whether strategies, plans, and/or reduction targets are related to or associated with an emissions disclosure (reporting) or reduction program (e.g., EU ETS, RGGI, WCI, etc.), including regional, national, international, or sectoral programs; and
- The activities and investments required to achieve the plans, and any risks or limiting factors that might affect achievement of the plans and/or targets.

.11 For emission-reduction targets, the registrant shall disclose:

- The percentage of emissions within the scope of the reduction plan;
- The percentage reduction from the base year;
 - The base year is the first year against which emissions are evaluated towards the achievement of the target.
- Whether the target is absolute or intensity based, and the metric denominator if it is an intensity-based target;
- The timelines for the reduction activity, including the start year, the target year, and the base year. Disclosure shall be limited to activities that were ongoing (active) or reached completion during the fiscal year; and
- The mechanism(s) for achieving the target, such as energy efficiency efforts, energy source diversification, carbon capture and storage, etc.

.12 Where necessary, the registrant shall discuss any circumstances in which the target base year emissions have been, or may be, recalculated retrospectively or where the target base year has been reset.

.13 Disclosure corresponds with:

- CDSB CCRF (2015) REQ-9, "Management actions."
- CDP questionnaire (2015) CC3, "Targets and Initiatives."

Additional References

[*Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain*](#)

Air Quality

Description

Apart from GHGs, which have global impacts, other air emissions from chemical manufacturing can have significant, localized human health and environmental impacts. As with GHGs, emissions of air pollutants in the Chemicals industry typically stem from the combustion of fuels and the processing of raw materials. Air pollutants include sulfur dioxide (SO₂) and nitrogen oxides (NO_x), which can contribute to acid rain and smog. Relative to other industries, the Chemicals industry is a substantial source of some of these pollutants. Financial impacts on companies will vary depending on the specific location of operations and the prevailing air emissions regulations. Active management of the issue—through technological and process improvements—can mitigate the impacts of increasingly stringent global air quality regulations. Companies can also benefit from operational efficiencies and a lower cost structure over time. Human health impacts and financial consequences of poor air quality management by chemical companies are likely to be exacerbated by the proximity of manufacturing to communities.

Accounting Metrics

RT0101-03. Air emissions for the following pollutants: NO_x (excluding N₂O), SO_x, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs)

.14 The registrant shall disclose its emissions of air pollutants (in metric tons) that are released to the atmosphere as a result of its activities:

- Direct air emissions from stationary or mobile sources that include, but are not limited to, production facilities, office buildings, marine vessels transporting products, and truck fleets.

.15 The registrant shall disclose emissions released to the atmosphere by emissions type. Substances include:

- Oxides of nitrogen (including NO and NO₂ and excluding N₂O) reported as NO_x.
- Oxides of sulfur (SO₂ and SO₃) reported as SO_x.
- Nonmethane volatile organic compounds (VOCs), 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 by the U.S. Environmental Protection Agency (EPA) as having negligible photochemical reactivity.
 - Where regional and national definitions supersede EPA regulations, such as EC Directive 1999/13/EC and Schedule 1 of the Canadian Environmental Protection Act 1999, the registrant may refer to the relevant regulations on VOCs.
- Hazardous air pollutants (HAPs) are defined by the EPA 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, and are listed [here](#).

.16 This scope does not include CO₂, CH₄, and N₂O, which are disclosed in RT0101-01 as Scope 1 GHG emissions.

- .17 Air emissions data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data, which is aligned with the consolidation approach used for RT0101-01.
- .18 The registrant should discuss the calculation methodology for its emissions disclosure, such as whether data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.

RT0101-04. Number of production facilities in or near areas of dense population

- .19 The registrant shall disclose the number of its production facilities that are located in or near areas of dense population, which are defined as urbanized areas according to U.S. Census Bureau definitions contained in [Federal Register, Vol. 76, No. 164](#), (August 24, 2011).
- Generically, these include urbanized areas with populations greater than 50,000.
 - A list of urbanized areas based on census results from 2010 is available [here](#).
- .20 The scope of disclosure includes production facilities that are located in a census tract or block considered to be in an urbanized area or are within 49 kilometers of an urbanized area.
- .21 For production facilities located outside of the U.S., the registrant shall use available census data to determine whether the facility is located in an urbanized area, as defined by the U.S. Census Bureau:
- In the absence of available or accurate census data, the registrant should use international population density data available from the Columbia University/NASA Socioeconomic Data and Applications Center's (SEDAC) Gridded Population of the World (GPW), v3.

Notes

The 49-kilometer radius is based on the definition of "exposed population" from the U.S. EPA's Office of Pollution Prevention and Toxics User's Manual for RSEI, Version 2.3.2., July 2013: "The exposed population is the population that is likely to come in contact with a chemical. The population differs depending on the exposure pathway modeled. For instance, the population exposed to chemicals released to air is the population in a circle with a radius of 49 km surrounding the facility."

Energy & Feedstock Management

Description

Chemical companies are highly reliant on electrical energy and hydrocarbon feedstocks as inputs for value creation, which account for a significant proportion of total production costs. Approximately one-third of the industry's total GHG emissions (direct and indirect) are from purchased electricity, while natural gas and oil-derived materials represent the vast majority of feedstocks. Since electricity consumption can indirectly contribute to climate change and air pollution through combustion of fossil fuels at the utility level, the cost of grid electricity may increase as utilities face higher regulatory compliance costs. Similarly, the extraction, production, and use of fossil hydrocarbon feedstocks contribute to GHG emissions. With manufacturing plants located worldwide, the likelihood and impact of climate change regulations will vary depending on the location of facilities. A company's energy mix, including the use of electricity generated onsite rather than grid-sourced electricity and the use of alternative energy, can play an important role in influencing both the cost and reliability of energy supply. In addition, the use of alternative, renewable feedstocks could similarly address supply risks and rising costs in the long run. The manner in which a company manages its overall energy and feedstock efficiency and intensity, its reliance on different energy and feedstock types, and its ability to access alternative sources of energy and feedstocks can influence its profitability and risk profile.

Accounting Metrics

RT0101-05. Total energy consumed, percentage grid electricity, percentage renewable

- .22 The registrant shall disclose total energy consumption from all sources as an aggregate figure in gigajoules or their multiples.
- The scope includes energy purchased from sources external to the organization or produced by the organization itself (self-generated).
 - The scope includes only energy consumed by entities owned or controlled by the organization.
 - The scope includes energy from all sources, including direct fuel usage, purchased electricity, and heating, cooling, and steam energy.
- .23 In calculating energy consumption from fuels and biofuels, the registrant shall use higher heating values (HHV), also known as gross calorific values (GCV), which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
- .24 The registrant shall disclose purchased grid electricity consumption as a percentage of its total energy consumption.
- .25 The registrant shall disclose renewable energy consumption as a percentage of its total energy consumption.

.26 The scope of renewable energy includes renewable fuel the registrant consumes and renewable energy the registrant directly produces, purchases through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs), or for which Green-e Energy Certified RECs are paired with grid electricity.

- For any renewable electricity generated on-site, any RECs must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
- For renewable PPAs, the agreement must explicitly include and convey that RECs be retained and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
- The renewable portion of the electricity grid mix that is outside of the control or influence of the registrant is excluded from disclosure.¹⁶
- Renewable energy is defined as energy from sources that are replenished at a rate greater than or equal to their rate of depletion, consistent with EPA [definitions](#), such as geothermal, wind, solar, hydro, and biomass.

.27 For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources is limited to the following:

- Energy from hydro sources that are certified by the Low Impact Hydropower Institute or that are eligible for a state Renewable Portfolio Standard.
- Energy from biomass sources is limited to materials certified to a third-party standard (e.g., Forest Stewardship Council, Sustainable Forest Initiative, Programme for the Endorsement of Forest Certification, or American Tree Farm System), materials considered "eligible renewables" according to the Green-e Energy National Standard Version 2.5 (2014), and materials that are eligible for a state Renewable Portfolio Standard.

.28 The registrant 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 kWh to gigajoules (for energy data including electricity from solar or wind energy).

Note to **RT0101-05**

.29 The registrant shall discuss its efforts to reduce energy consumption and/or improve energy efficiency throughout the design, manufacturing, and production processes.

.30 The registrant shall discuss implementation of Green Chemistry Principle 6, "[Design for Energy Efficiency](#)," including, where relevant, efforts such as conducting reactions at ambient temperature and pressure, reducing key materials that require energy-intensive processing (e.g., distillation and drying), using excess steam and heat

¹⁶ SASB recognizes that RECs reflect the environmental attributes of renewable energy that have been introduced to the grid, and that a premium has been paid by the purchaser of the REC to enable generation of renewable energy beyond any renewable energy already in the grid mix, absent the market for RECs.

to generate energy, improving catalytic processes, and other process improvements that result in gains in energy efficiency.

- 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](#).

.31 The registrant may choose to disclose the aggregate energy savings (in gigajoules) achieved through such efforts and processes.

RT0101-06. Percentage of raw materials from renewable resources

.32 The registrant shall disclose the percentage of the raw materials (by metric tons) it consumed in production of products that were derived from renewable resources, where:

- Renewable resources are defined as those that are replenished at a rate greater than or equal to their rate of depletion, such that they can provide yields over an infinite time horizon, which is aligned with EPA [definitions](#).
- Examples of raw materials from renewable resources include, but are not limited to, carbohydrates, oils, and/or proteins extracted from common crop sources, such as corn, soy, wheat, and sugar beets, among others.

.33 The percentage is calculated as the total weight of raw materials from renewable resources divided by the total weight of all raw materials for products.

- The scope of raw materials in the denominator of the percentage calculation includes all inputs that are processed to be sold as a finished good, including renewable feedstocks, hydrocarbon feedstocks, and monomers, among others, prior to any loss, shrinkage, or waste.
- The weight of raw materials and renewable raw materials should be calculated as the amount of materials in inventory at the beginning of the reporting period, plus any purchase of materials made during the reporting period, less any materials in raw materials inventory on hand at the end of the reporting period.

Water Management

Description

Water is becoming an increasingly scarce resource worldwide due to population growth, rapid urbanization, and climate change. Water scarcity can result in higher supply costs and higher risk of shortages for companies with water-intensive operations. Chemical plants use relatively large quantities of water, primarily for cooling, steam generation, and chemical processing. Furthermore, chemical processing can generate process wastewater, which may be contaminated with metals, suspended solids, extreme pH levels, and hazardous substances. Reducing water use and contamination through recycling and other water management strategies can lead to operational efficiency and lower operating costs, and can minimize the impacts of regulations, water supply shortages, and community-related disruptions of operations.

Accounting Metrics

RT0101-07. (1) Total water withdrawn, percentage in regions with High or Extremely High Baseline Water Stress and (2) percentage recycled water usage

.34 The registrant shall disclose the amount of water (in thousands of cubic meters) that was withdrawn from fresh water sources for use in operations.

- Fresh water may be defined according to the local statutes and regulations where the registrant operates. Where there is no regulatory definition, fresh water shall be considered to be water that has a solids (TDS) concentration of less than 1000 mg/l per the Water Quality Association [definition](#).
- Water obtained from a water utility can be assumed to meet the definition of fresh water.

.35 Using the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly available online [here](#)), the registrant shall analyze all of its operations for water risks and identify activities that are in a location with High (40–80%) or Extremely High (>80%) Baseline Water Stress. Water withdrawn in locations with High or Extremely High Baseline Water Stress shall be indicated as a percentage of the total water withdrawn.

.36 The registrant shall disclose the percentage of its total water usage that was met from recycled water usage during the fiscal year, where:

- Total water usage includes all fresh water withdrawals, non-fresh water withdrawals, and all usage of recycled water (which, if reused multiple times, shall be counted as usage each time it is reused).
- Recycled water usage includes any volume of water that is recycled and reused, and water reused multiple times shall be counted as recycled each time it is recycled and reused.
- Recycled water includes water that is reused in closed-loop and open-loop systems.
- Recycled water includes grey water, water treated prior to reuse, and water not treated prior to reuse.
- The percentage shall be calculated as the total recycled water usage divided by total water usage.

RT0101-08. Number of incidents of non-compliance with water-quality permits, standards, and regulations

- .37 The registrant shall disclose the total number of instances of non-compliance, including violations of a technology-based standard and exceedances of a quality-based standard.
- .38 The scope of disclosure includes incidents governed by federal, state, and local statutory permits and regulations including, but not limited to, the discharge of a hazardous substance, violation of pretreatment requirements, or total maximum daily load (TMDL) exceedances.
- .39 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .40 Violations, regardless of their measurement methodology or frequency, shall be disclosed. These include:
- For continuous discharges, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly average, and monthly averages.
 - For non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge, and mass or concentrations of specified pollutants.

Notes

[Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals](#)

Hazardous Waste Management

Description

Chemical companies face regulatory and operational challenges in managing their process waste, as many of these substances can be hazardous to human health and the environment. Chemical manufacturing generates wastes that are subject to regulations within the U.S. and internationally, such as the Resource Conservation and Recovery Act (RCRA), which regulates the generation, transport, treatment, storage, and disposal of hazardous and solid waste. Hazardous wastes generated by chemical plants include heavy metals, spent acids, caustics, solid catalysts, and wastewater treatment sludge. Proper processing and disposal of hazardous waste materials are essential to limiting risk of remediation liabilities, fines, and litigation. In addition, companies that are able to limit the waste of input materials and recycle the waste generated may achieve significant cost savings and improve profitability.

Accounting Metrics

RT0101-09. Amount of hazardous waste, percentage recycled

.41 The amount of hazardous waste shall be calculated in metric tons, where:

- Hazardous waste shall include both hazardous secondary materials, defined according to 40 CFR 260.10, and materials that meet the definition of hazardous waste under Subtitle C of the U.S. Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act (RCRA), according to 40 CFR 261.3.
- Hazardous wastes include those that display the following characteristics: ignitability, corrosivity, reactivity, or toxicity.

.42 The percentage recycled shall be calculated as the weight (in metric tons) of hazardous waste material that was reused or reclaimed, plus the weight recycled or remanufactured (through treatment or processing) by the registrant, plus the amount sent externally for further recycling, divided by the total weight of hazardous waste material, where:

- A hazardous waste is recycled if it is used, reused, or reclaimed.
- Reclaimed materials are defined as those processed to recover or regenerate a usable product, in accordance with [RCRA hazardous waste regulation](#). Common hazardous waste reclamation activities involve recovery of spent solvents (e.g., recovery of acetone) or metals (e.g., recovery of lead).
- Reused materials are defined as those recovered products or components of products that are used for the same purpose for which they were conceived.
- Recycled and remanufactured materials are defined as waste materials that have been reprocessed or treated by means of production or manufacturing processes and made into a final product or a component for incorporation into a product.
- Materials sent for further recycling include those materials that are transferred to a third party for the express purpose of reuse, recycling, or refurbishment.

- The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value than primary recycled materials).
- Portions of products and materials that are disposed of in landfills are not considered recycled; only the portions of products that are directly incorporated into new products, co-products, or by-products shall be included in the percentage recycled.
- Materials incinerated, including for energy recovery, are not considered reused, recycled, or reclaimed. Energy recovery is defined as the use of combustible waste as a means to generate energy through direct incineration, with or without other waste, but with recovery of the heat.

Additional References

For guidance on the “legitimate recycling” of hazardous waste, see 40 CFR 260.43.

Safety & Environmental Stewardship of Chemicals & Genetically Modified Organisms

Description

Chemical manufacturers face increasing challenges stemming from potential environmental and social externalities attributed to chemicals or genetically modified organisms, including adverse human health impacts and biodiversity loss. As a result, the industry is experiencing shifting customer sentiment and increasing regulatory scrutiny of products believed to be hazardous. As scientific understanding of the long-term effects of many chemical substances and genetically modified organisms (GMOs) improves, it is likely that regulations governing product stewardship will become more stringent. The industry therefore stands to benefit by developing innovative approaches to reduce the negative environmental and health impacts of existing products. Product attributes including reduced human toxicity, minimized impacts on the environment, and sustainable end-of-life disposal will likely be key to satisfying customer and regulatory requirements. The development of products with such characteristics could contribute to shareholder value through improved competitive positioning, greater market share, reduced regulatory risks, and higher brand value.

Accounting Metrics

RT0101-10. Percentage of products that contain Registration, Evaluation, Authorisation and Restriction of Chemical (REACH) substances of very high concern (SVHC)

.43 The registrant shall disclose the percentage of its products, by revenue, that contain Registration, Evaluation, Authorisation and Restriction of Chemical (REACH) substances of very high concern (SVHC), where:

- The REACH SVHC list is published in accordance with Article 59(10) of the REACH Regulation, and is found [here](#).
- The percentage is calculated as the revenue from products that contain substances included on the list of REACH SVHC divided by total revenue from all products.

.44 The scope of this disclosure shall include all products and materials, regardless of whether such materials are subject to regulation under REACH.

RT0101-11. Percentage of products that contain Class I World Health Organization (WHO) Acute Toxicity Hazard Categories pesticides

.45 The registrant shall disclose the percentage of its products, by revenue, that contain Class I World Health Organization (WHO) Acute Toxicity Hazard Categories pesticides, where:

- The WHO Acute Toxicity Hazard Categories list is published in alignment with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
- The scope of this disclosure includes products that contain pesticides classified in the WHO categories of I(a) extremely hazardous or I(b) highly hazardous, which are aligned with Category 1 and Category 2 chemicals, respectively, in the GHS classification.

- The percentage is calculated as the revenue from products that contain pesticides included on the list of Class I WHO Acute Toxicity Hazard Categories divided by revenue from all products.
- The term “pesticide” is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant, in accordance with 40 CFR 152.3.

RT0101-12. Discussion of strategy to (a) manage chemicals of concern and (b) develop alternatives with reduced human and/or environmental impact

.46 The registrant shall (a) discuss its strategy and approach to managing the production of materials, chemicals, and substances that may be of human health and/or environmental concern to consumers, customers (e.g., retailers and commercial buyers), regulators, and/or others (e.g., non-governmental organizations, scientific researchers, etc.).

- “Materials, chemicals, and substances” includes individual compounds, classes of chemicals, and categories of chemicals.

.47 At a minimum, the registrant shall discuss how it assesses materials and chemicals for hazard characteristics and risk traits, including the operational processes it employs for these assessments and other actions it takes to manage hazards and risks.

.48 Relevant operational processes may include, but are not limited to, product formulation and design, product safety testing, risk characterization, prioritization of product risks, product labeling, product declarations (e.g., material safety data sheets), sharing of information on product risks, and management of new information on product risks.

.49 Relevant actions to discuss may include the exclusion of substances (e.g., 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.

- Actions to discuss may include, but are not limited to, efforts to implement the [EPA: TSCA Work Plan](#), the [American Chemistry Council: Responsible Care® Product Safety Code](#), and the [United Nations Environment Programme: Strategic Approach to International Chemicals Management](#)

.50 The registrant shall discuss its production and use of chemicals listed under REACH SVHC, EPA Toxic Substances Control Act Section (TSCA) 5(B)(4), WHO categories of I(a) extremely hazardous or I(b) highly hazardous, the United Nations’ (UN) List of Chemicals of International Concern, and Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and Category 2.

.51 The registrant shall discuss its production and use of chemicals that appear on California’s Proposition 65 list of carcinogens and reproductive toxicants, Washington State’s List of Chemicals of High Concern to Children, and/or other equivalent state and country regulations on chemicals of concern.

.52 The registrant shall discuss the production and use of chemicals of consumer concern including those listed in the “Safer Consumer Products DRAFT Priority Product Work Plan, Three Year Work Plan, September 2014” and other chemicals, for which the registrant has received pressure from consumers or advocacy groups.

- .53 The registrant shall (b) discuss its strategy and approach to developing alternative processes and chemicals that reduce or avoid substances that may be of human health and/or environmental concern to consumers, customers (e.g., retailers and commercial buyers), regulators, and/or others (e.g., non-governmental organizations, scientific researchers, etc.).
- .54 At a minimum, the registrant shall discuss how it addresses relevant aspects of the [12 Principles of Green Chemistry](#), including how it 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).
- Where relevant, the registrant shall discuss specific production processes and products that have incorporated these principles.
- .55 Relevant actions to discuss may include the use of chemicals listed as safer alternatives (e.g., EPA Safer Chemical Ingredients List), use of alternative assessments (e.g., GreenScreen® For Safer Chemicals), and other tools or methods that inform the registrant’s development of alternative processes and chemical

RT0101-13. Percentage of products by revenue that contain genetically modified organisms (GMOs)

- .56 The registrant shall disclose the percentage of its products by revenue that contain genetically modified organisms (GMOs), where:
- GMOs are defined as organisms, with the exception of human beings, in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination, consistent with E.U. Directive 2001/18/EC.
- .57 The scope of disclosure includes GMOs that are defined by, or subject to, the following:
- E.U. Directive 2001/18/EC;
 - Regulation EC 1829/2003;
 - Maine HP 0490 LD 718;
 - Vermont H. 112 Act 0120;
 - Connecticut House Bill 6527; or
 - Other U.S. state or federal regulation, as enacted.
- .58 The percentage is calculated as the revenue from products that contain GMOs divided by total revenue from all products.

Additional References

[Guidance on Information Requirements and Chemical Safety Assessment Chapter R.11: PBT/vPvB assessment](#)

[CMR Substances: A first screening – Report 2012](#)

[International Code of Conduct on the Distribution and Use of Pesticides](#)

Product Design for Use-phase Efficiency

Description

As increasing resource scarcity, climate change, and more stringent regulations drive the need for greater resource efficiency and reduced GHG emissions throughout society, the Chemicals industry stands to benefit from developing products that reduce environmental impacts in the use phase across a multitude of applications. From improving automobile fuel efficiency and reducing emissions through material lightweighting to improving the performance of building insulation, chemical processes can facilitate the development of a more efficient, environmentally conscious society. Regulatory requirements of the industry's customers are likely to increase the demand for such products in the medium to long term. Companies that develop cost-effective solutions to address customers' needs for improved efficiency can thus benefit from increased revenues and market share, stronger competitive positioning, and enhanced brand value.

Accounting Metrics

RT0101-14 Revenue from products designed for use-phase resource efficiency

.59 The registrant shall disclose its total revenue from products that are designed to increase resource efficiency during their use phase, where:

- Products designed to increase resource efficiency are defined as those that – through their use – can be shown to improve energy efficiency, eliminate or lower greenhouse gas (GHG) emissions, reduce raw materials consumption, increase product longevity, and/or reduce water consumption.
- The use phase is defined as the course over which the registrant's product is used by a customer or consumer as a final product and/or the course over which the registrant's product is used by a customer or consumer to generate a final product (e.g., in a manufacturing or production process).

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

- 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.
- The scope of disclosure includes products that impart an incremental improvement to resource efficiency, insofar as the registrant can demonstrate that the improvement is meaningful, such as through alignment with the milestones set forth in Section 5, "Key Sectors" of the European Commission's [Road Map to a Resource Efficient Europe](#) and/or with EU Directive 2012/27/EU.
- The scope of disclosure excludes products that impart improved resource efficiency in an ancillary, indirect, or minimal way (e.g., a conventional product that is slightly lighter than the previous generation of the product).

.61 Examples of products that increase resource efficiency include, but are not limited to, 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 (e.g., polymers to replace metals), biofuels, solar films, solar shingles, and other renewable energy materials.

Political Spending

Description

Corporate lobbying by chemicals companies can influence environmental or human health laws and regulations that pertain to the manufacture, use, and disposal of chemical substances. The interaction of chemical companies with the legal and regulatory environment can have material impacts on shareholder value, because companies spend significant amounts on lobbying and political contributions, and changes in laws or policies can impact companies' business. Given the increasing consumer interest in product transparency and health concerns related to chemical toxicity and GMOs, efforts to delay associated policy or legislative changes may prove counterproductive to the industry in the long term by creating regulatory uncertainty, and therefore investment uncertainty, or by resulting in higher costs in the future if legislation is reversed. Efforts to influence environmental laws and regulations may also affect companies' reputations and social license to operate. Companies with a well-articulated strategy for engaging with policymakers and regulators—one that is aligned with their goals and activities for long-term sustainable outcomes and accounts for societal externalities—can benefit from a stronger long-term license to operate. Such companies will likely be better prepared for medium- to long-term regulatory adjustments that deal with high-impact global issues.

Accounting Metrics

RT0101-15. Amount of political campaign spending, lobbying expenditures, and contributions to tax-exempt groups, including trade associations

.62 The registrant shall disclose its total monetary contributions (in U.S. dollars) to political campaigns, lobbyists or lobbying organizations, and tax-exempt groups, including trade associations, that aim to influence political campaigns or participate in political lobbying.

.63 The scope of disclosure includes the following:

- Political spending, which includes any direct or indirect contributions or expenditures in support of, or opposition to, a candidate for public office or a ballot measure.
- Any payments made to trade associations or tax-exempt entities that are used to influence a political campaign (including advocacy organizations, commonly classified as social welfare organizations under Section 501(c)(4) of the Internal Revenue Code, or business leagues, chambers of commerce, boards of trade, and similar organizations classified under Section 501(c)(6) of the Internal Revenue Code).
- Any direct or indirect political expenditure (one-time or recurring) that must be reported to the Federal Election Commission, the Internal Revenue Service, or a state disclosure agency.
- Any direct or indirect contributions to registered lobbyists or lobbying organizations, including contributions made to trade organizations that contribute to political lobbying efforts.

RT0101-16. Five largest political, lobbying, or tax-exempt group expenditures

- .64 The registrant shall disclose the recipients of its five largest contributions disclosed in RT0101-15, defined as the five largest amounts in aggregate during the fiscal year that were contributed to an individual candidate, organization, ballot measure, or lobbying issue topic.
- .65 The registrant shall disclose the amount (in U.S. dollars) contributed to each individual, organization, ballot measure, or lobbying issue topic.
- .66 The registrant shall consider lobbying issue topics, at a minimum, to be general lobbying issue codes defined by The Lobbying Disclosure Act of 1995, but should include specific lobbying issues where available.

Health, Safety, and Emergency Management

Description

Technical failure, human error, or external factors such as weather can lead to accidental releases of chemical substances into the environment at processing facilities or during storage and transportation. Furthermore, the combustible nature of chemical substances, combined with high operating temperatures and pressures at chemical facilities, elevates the risk of explosions, spills, or other emergency situations. These events can harm employees in chemical facilities or people in nearby communities through the release of harmful air emissions or chemical substances, and can cause wide-ranging environmental consequences. Furthermore, the long-term exposure of employees to hazardous chemical substances in the workplace can result in chronic health conditions, including cancer. Companies with poor accident and safety management performance may face operational disruptions, damage to facilities, and increased compliance and remediation costs in the event of a process incident. Chronic health conditions can result in increased healthcare costs, litigation, and significant monetary settlements. A company culture that encourages accident prevention and proper accident response is likely to help companies reduce operational downtime, mitigate costs, ensure workforce productivity, and maintain their license to operate.

Accounting Metrics

RT0101-17. Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)

.67 The registrant shall disclose its process safety performance using the following indicators, consistent with the process safety reporting element of the American Chemistry Council's (ACC) Responsible Care program, further defined in the Center for Chemical Process Safety's "[Process Safety Leading and Lagging Metrics](#)":

- Process Safety Incidents Count (PSIC), which is defined as the total (annual) count of all incidents that meet the definition of a Tier 1 PSI per ANSI/API RP 754.
- Process Safety Total Incident Rate (PSTIR), which is defined as the cumulative (annual) count of incidents normalized by man hours and is calculated as the PSIC multiplied by 200,000 and divided by the total annual hours worked by employees, contractors, and subcontractors.
- Process Safety Incident Severity Rate (PSISR), which is defined as the cumulative (annual) severity-weighted rate of process safety incidents and is calculated as the Total Severity Score for all Process Safety Incidents multiplied by 200,000 and divided by the total annual hours worked by employees, contractors, and subcontractors.

.68 The scope of disclosure includes Process Safety Incidents occurring at company-owned or -operated facilities.

.69 The registrant may choose to separately disclose the same incident rates for Tier 2 Process Safety Events, as defined by ANSI/API RP 754 and Center for Chemical Process Safety's "[Process Safety Leading and Lagging Metrics](#)."

Note to **RT0101-17**

.70 The registrant shall describe incidents with a severity rating of 1 or 2, including their root cause, outcomes, and corrective actions implemented in response (e.g., technology improvements, operator training, etc.).

RT0101-18. Number of transport incidents

.71 The registrant shall disclose the total number of transport incidents, where transport incidents are defined consistent with national regulations:

- For operations in the U.S., transport incidents are those that require a [U.S. Department of Transportation 5800 report](#);
- For operations in the E.U., transport incidents are those that require a report based on the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) criteria; or
- For operations in other jurisdictions, transport incidents are defined in accordance with the nationally recognized definition, consistent with the International Council of Chemical Association's (ICCA) Guidance for Reporting Performance.

.72 Where a national definition does not exist, a reportable transport incident is defined, irrespective of the chemical products contribution, as an incident when one of the following has occurred, consistent with the ICCA Guidance for Reporting Performance:

- 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.
- Any release of more than 50 kg/L of dangerous goods or more than 1,000 kg/L of non-dangerous goods.
- Any damage of more than 50,000 Euro (including environmental cleanup) resulting from a transport incident.
- An incident leading to direct involvement of authorities and/or emergency services, evacuation of people, or closure of public traffic routes for at least three hours.

.73 The registrant shall report distribution incidents for all modes of product transport (e.g., road, rail, ship, etc.).

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

Note to **RT0101-18**

.75 The registrant shall describe significant transport incidents, including their root cause, outcomes, and corrective actions implemented in response (e.g., technology improvements, driver training, etc.), where:

- Significant transport incidents are considered those that require immediate notice of a hazardous materials incident to a governmental authority, consistent with 49 CFR 171.15.

RT0101-19. Challenges to the Safety Systems indicator rate (Tier 3)

- .76 The registrant shall disclose its rate of Tier 3 “challenges to safety systems” using terms, definitions, and guidance from the ANSI/API RP-754 (Section 7.2).
- .77 Tier 3 indicators may alternatively be referred to as “near miss” events or “high learning value” events.
- .78 A Tier 3 operational situation is defined as a flaw or weakness within internal technical safety systems that led to consequences that fall below the Tier 1 and Tier 2 LOPC impact threshold, such as:
- Demands on safety systems, which are activations (non-manual) of safety systems designed to prevent or mitigate impacts from losses of primary containment, such as mechanical shutdown equipment or pressure relief devices.
 - Safe-operating-limit excursions, which are breaches of safe operating limits for processes beyond which manual or automatic systems return the process to a predetermined safe state.
 - Primary containment inspections or testing results outside acceptable limits, which occur when inspection or testing shows that safe primary containment operating limits have been exceeded and require repairs, replacement, or further testing of equipment.
 - Near miss incidents, which are incidents that had the potential to result in an LOPC, but that were avoided by circumstance.
- .79 The scope of disclosure includes situations with no actual consequences but recognition that, in other circumstances, further barriers could have been breached and resulted in a Tier 1 or Tier 2 PSE.
- .80 The Tier 3 indicator rate shall be calculated as: $(\text{Total Tier 3 Indicator Count} / \text{Total Hours Worked}) * 200,000$.
- .81 Total hours worked includes employees and contractors.

RT0101-20. (1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees

- .82 For registrants whose workforce is entirely U.S.-based, the registrant shall disclose its total recordable injury rate (TRIR) and fatality rate, as calculated and reported in Occupational Safety and Health Administration (OSHA) Form 300.
- OSHA guidelines provide details for the determination of whether an event is a recordable occupational incident as well as definitions for exemptions for incidents that occur in the work environment, but are not occupational.
- .83 For registrants whose workforce includes non-U.S.-based employees, the registrant shall calculate its TRIR according to the U.S. Bureau of Labor Statistics guidance and/or using the U.S. Bureau of Labor Statistics calculator.

.84 The registrant shall disclose its TRIR separately for its direct employees and for contract employees, where:

- Direct employees are all those employees on the registrant's payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers.
- Contract employees are those who are not on the registrant's payroll, but who are supervised by the registrant on a day-to-day basis, including independent contractors and those employed by third parties (e.g., temp agencies, labor brokers, etc.).

.85 The scope includes all employees, domestic and foreign.

.86 Rates shall be calculated as: (statistic count / total hours worked) * 200,000.

RT0101-21. Discussion of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks

.87 The registrant shall discuss its approach to assess, monitor, and reduce exposure of its workforce to long-term (i.e., chronic) human health hazards including, but not limited to, corrosives, sensitizers, hepatoxins, nephrotoxins, and neurotoxins, as well as known or suspected carcinogens, teratogens, mutagens, and reprotoxins, consistent with the definition of health hazards described by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

- The workforce includes any personnel conducting company business on behalf of the registrant, including all direct employees and contractors.
- The scope of disclosure shall focus on employees working in production facilities, but should include all employees and contractors, as relevant.

.88 Relevant efforts to discuss include, but are not limited to, risk assessments, participation in long-term health studies, completion of occupational exposure limit reviews, implementation of technology to control worker exposure, worker use of personal protective equipment, automation of processes, and phasing out, substituting, or using alternative materials.

.89 The registrant may choose to discuss its implementation of relevant safety management systems, including, but not limited to, the measurement of safety and health performance through metrics and obtaining third-party verification of compliance with relevant safety standards (e.g., ANSI Z400.1/Z129.1-2010 - Hazardous Workplace Chemicals - Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation and Responsible Care 14001 Responsible Care Management System).

Additional References

OSHA Hazard Communication Standard (29 CFR 1910.1200): <https://www.osha.gov/dsg/hazcom/ghd053107.html>

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