



STANDARD-SETTING PROJECT

# Plastics Risks and Opportunities in the Chemicals Industry

## **RECOMMENDED CHANGES TO THE SASB CHEMICALS INDUSTRY STANDARD**

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Prepared by the Sustainability Accounting Standards Board®

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RECOMMENDED CHANGES

## Overview

Following the planned consolidation of the Value Reporting Foundation into the [International Financial Reporting Standards \(IFRS\) Foundation](#) on June 30, 2022, stewardship of the SASB Standards will pass from the SASB Standards Board to the [International Sustainability Standards Board \(ISSB\)](#). These recommended changes represent changes to the Standard that the SASB Standards Board would have pursued through the publication of an exposure draft, including an invitation to comment, if there were sufficient time to advance the project through the next phases of its due process as outlined in the SASB [Rules of Procedure](#).

The SASB Standards Board has published these recommended changes for consideration by the ISSB and for market participants interested in the continued improvements to the SASB Standards. Any future updates to the SASB Standards will be subjected to ISSB due process prior to being finalized.

Key changes recommended by the Board include:

- The addition of the disclosure topic Management of Single-use Plastics and five new associated metrics to capture risks and opportunities with single-use plastics for the Chemicals Industry Standard.

The background of the page features a light gray, semi-transparent graphic. At the top right, there is a stylized sun with rays. Below the sun, on the left side, is a bar chart with several vertical bars of varying heights. The overall aesthetic is clean and professional, using a monochromatic color scheme of grays and whites.

## **Basis for Conclusions on Recommended Changes to the Chemicals Standard**

## Introduction

- 1 The basis for conclusions accompanies, but is not part of, the “Recommended Changes to the Chemicals Standard” (recommended changes) as part of the Plastics Risks and Opportunities in the Pulp & Paper<sup>1</sup> and Chemicals industries standard-setting project (Plastics Standard-Setting Project). The basis for conclusions summarizes the considerations and rationale of the SASB Standards Board (the Board) in developing the recommended changes. Individual Board members gave greater weight to some factors than to others.
- 2 The basis for conclusions is organized as follows:
  - a) Summary of recommended changes
  - b) Why was the project added to the standard-setting agenda?
  - c) How were the recommended changes developed?
  - d) What is the basis for the Board’s recommended changes to the Standard?
  - e) What is the basis for the Board’s recommended new disclosure topic?
  - f) What is the basis for the Board’s recommended new metrics?

## Summary of recommended changes

- 3 The Board recommends adding a new disclosure topic, Management of Single-use Plastics, and five corresponding metrics to the Chemicals Standard to reflect risks and opportunities associated with the management of single-use plastics across the product lifecycle.
- 4 The Board recommends the following new metrics for the Management of Single-use Plastics disclosure topic:
  - a) Revenue from products sold for use in the manufacture of single-use plastics
  - b) Revenue associated with products that intend to reduce the environmental impacts associated with single-use plastics throughout the product lifecycle
  - c) (1) Research and development expenditures and (2) capital expenditures associated with business activities that intend to reduce environmental impacts associated with single-use plastics throughout the product lifecycle
  - d) Percentage of total raw materials processed for use in the manufacture of inputs for single-use plastics products, by (1) virgin fossil fuel (hydrocarbon) content, (2) recycled content, and (3) renewable materials
  - e) Discussion of actual and potential environmental and social impacts from business activities intended to reduce the environmental impact of single-use plastics occurring

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<sup>1</sup> The Board originally pursued this project with both the Chemicals and Pulp & Paper Standards in scope, given that some paper companies have shifted production toward paper-based packaging and developed new products such as recyclable paper cups and wood-based chemicals. After receiving feedback during consultations that it might be preferable to consider combining the Containers & Packaging and Pulp & Paper Standards, the Board decided to move forward with the Chemicals Standard and to take the Pulp & Paper Standard out of project scope in the July 2021 Board meeting.

at each key phase of the product lifecycle: production, transportation, use-phase, and end-of-life

- 5 The sections below discuss the Board’s deliberations to arrive at the recommended changes. The recommended changes to the Standard are provided for reference on pp. 21–30.

## Why was the project added to the standard-setting agenda?

- 6 Companies in the Chemicals industry produce polymers and resins, mainly derived from fossil fuels, which are key inputs to the production of single-use plastics. Single-use plastics have received increasing scrutiny from regulators, consumers, and companies in recent years because of the environmental externalities primarily associated with production and disposal. Single-use plastics, as seen through their fairly low recovery rates,<sup>2</sup> are challenging to recycle. Furthermore, China, historically a major buyer of recovered plastic, revised its purity standards for imported recycling in 2018, which effectively banned the import of global waste.<sup>3</sup> Plastics collections have since backed up in many countries, with recycling frequently discarded in landfills and oceans, where it has garnered particular attention, fanned by viral images of marine animals that have inadvertently consumed plastics.
- 7 These recent developments have led to mounting global regulatory activity associated with single-use plastics, including product bans, restrictions on exports of recovered materials, requirements for incorporating alternative raw materials, and, in some jurisdictions, discussion of possible taxes and fees. The *Wall Street Journal* has tracked more than 200 plastic-focused regulatory initiatives in the United States in 2019 alone.<sup>4</sup> There have been regulatory movements across the world for banning single-use plastics including the EU and countries such as, Canada, Japan, China, and India. Additionally, in March 2022, 175 countries endorsed a UN Environment Assembly Resolution, “End Plastic Pollution: Towards an Internationally Legally Binding Instrument,” to curb plastic pollution. While most regulatory activity has been focused on product restrictions or bans and raw material requirements, it is possible that governments at all levels and jurisdictions could assess taxes, fees, and fines, either directly on producers or indirectly on their customers.
- 8 In addition to increasing regulatory scrutiny, society has also reacted strongly to the externalities associated with single-use plastics, causing many large consumer packaged goods (CPG) companies to commit to migrating toward 100 percent reusable, recyclable, and or compostable packaging. For example, more than 500 entities, including many of the world’s

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<sup>2</sup> “OECD Urges Government to Encourage Better Recycling of Plastics,” Waste360, May 25, 2018, <https://www.waste360.com/plastics/oecd-urges-government-encourage-better-recycling-plastics>.

<sup>3</sup> Kenneth Rapoza, “China Doesn’t Want the World’s Trash Anymore. Including ‘Recyclable’ Goods,” *Forbes*, November 29, 2020, <https://www.forbes.com/sites/kenrapoza/2020/11/29/china-doesnt-want-the-worlds-trash-anymore-including-recyclable-goods/?sh=163c191a7290>.

<sup>4</sup> Jennifer Calfas, “Plastic Bans: What You Need to Know,” June 22, 2019, *Wall Street Journal*, <https://www.wsj.com/articles/plastic-bans-what-you-need-to-know-11561195802>.

largest CPG companies representing more than 20 percent of all plastics packaging, have pledged to tackle plastic pollution and pursue circular business strategies.<sup>5</sup> Combined, these factors have the potential to drastically alter the demand profile for plastic packaging and other single-use plastics. Such changes will require new, innovative products and technologies to address the challenge.

- 9 In December 2019, the Board added the [Plastics Research Project](#) to its research agenda to assess investor interest in risks and opportunities associated with plastics use in the Chemicals and Paper & Pulp industries. During the research project phase, from January to May 2020, staff spoke with 19 financial analysts and portfolio managers, two companies, and four subject matter experts to collect evidence of investor interest in this topic and set project direction for the Chemicals and Paper & Pulp Standards. Participants were based in three continents, and financial market participants represented both the buy-side and sell-side and included sector specialists as well as environmental, social, and governance (ESG) specialists. Consultative input suggested consistent acknowledgement and rising attention focused on plastics and the link between business performance and management of the issue. Many of the investors consulted were actively engaging on the issue with industry management, and some noted dissatisfaction with the quality of information currently available and a desire for consistent and reliable reporting related to this issue.
- 10 In June 2020, the Board voted to initiate a standard-setting project with the objective of evaluating the addition of a disclosure topic and supporting metrics to reflect an issuer's ability to manage risks and identify opportunities associated with the changing landscape around single-use plastics. The Board's decision was based on the evidence gathered by staff during research and consultations for the Plastics Research Project, which consisted of evidence of investor interest and evidence of financial impact for companies in the Chemicals industry.

## How were the recommended changes developed?

- 11 As a general practice, the Board and technical staff actively monitor topics identified in each industry standard by assessing corporate disclosures and the effectiveness of the relevant standards at capturing performance on the issue in a decision-useful manner. Technical staff also monitor market and industry developments and solicit input from market participants and subject matter experts on the need for standard setting.
- 12 Since this project was added to the agenda in 2019, the technical staff has conducted research and engaged in consultations with companies, investors, trade associations, investor-oriented nongovernmental organizations (NGOs), and other subject matter experts, including members of the SASB Standards Advisory Group, to support development of the recommended changes.

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<sup>5</sup> "The Global Commitment 2021 Progress Report," Ellen MacArthur Foundation, <https://ellenmacarthurfoundation.org/global-commitment/overview>.

Through the course of the research project and standard-setting project, technical staff had in-depth discussions with 48 stakeholders (19 investors, 15 companies, six representatives of investor-oriented initiatives on single-use plastics, four trade associations, and four subject matter experts). Stakeholder consultations centered on questions posed in a project [briefing document](#).

- 13 The research and consultation conducted by the technical staff led to a series of deliberations (discussed below) by the Board on key issues, considerations, and challenges related to the development of the recommended changes.
- 14 Additional information related to the [standard-setting process](#) that the Board follows to maintain and update the SASB Standards can be found on the SASB Standards website, in the *Rules of Procedure*, and/or in the [Conceptual Framework](#). Additional project-specific information can be found on the [Plastics Risks and Opportunities in the Pulp & Paper and Chemicals Industries](#) on the SASB Standards website.

## What is the basis for the Board’s recommended changes to the Standard?

- 15 In developing these recommended changes to the Standard, the Board considered two key types of evidence. As described in greater detail below, these inputs are (1) the evidence that management of single-use plastics is a financially impactful issue in the Chemicals industry and (2) the evidence of investor interest in management of single-use plastics in Chemicals industry.

### Evidence of financial impact

- 16 The management of single-use plastics risks and opportunities has significant financial implications for companies in the Chemicals industry. These include revenue risks and opportunities associated with shifting demand in the market toward alternative products such as recyclable and renewable materials, increased investments in research and development (R&D) and capital expenditures for developing alternative products, and possible taxes, fees, and/or compliance costs associated with changing regulations.

### Revenue risks and opportunities

- 17 The shifting regulatory and demand landscapes for traditional plastic resins, polymers, and alternatives are increasingly likely to present revenue risks and opportunities for companies in the Chemicals industry. Polymers and resins, the key inputs to single-use plastics, represent a significant end market for certain chemicals companies. For example, one study found that 20 companies, most of which are from the Chemicals industry, generated more than half the global single-use plastics waste.<sup>6</sup> Similarly, research suggests that petrochemical products like polymers and resins make up roughly 50 percent of sales in the basic chemicals market in the

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<sup>6</sup> “Plastic Waste Makers Index: Executive Summary,” Minderoo Foundation, 2019, updated November 22, 2021, <https://www.minderoo.org/plastic-waste-makers-index/findings/executive-summary/>.



United States,<sup>7</sup> and plastics equate to 17 percent of sales in the EU.<sup>8</sup> Consultative input from investors further emphasized that if companies are slow to respond to a shifting regulatory and demand environment, they risk negative impacts to revenue. In addition, research produced by Google, AFARA, and IHS Markit showcases the looming potential for demand reduction for single-use plastics inputs, suggesting “one-third of the volume to reduce plastic’s circularity gap,” equating to about 1.5 billion metric tons, would come “from demand reductions through inventory management, consumer education/incentives, and a tax on plastic production which displace plastics rather than replace plastics.”<sup>9</sup> As governments and customers increasingly pursue circularity and establish plastic waste reduction targets, chemicals companies that fail to adjust their product offerings are likely to face reduced revenues and market share. Conversely, companies that proactively respond to this trend by developing new products are more likely to maintain and grow revenue, market share, and price premiums. For example, according to a 2020 Morgan Stanley report, recycled polyethylene terephthalate (PET) has higher margins and a 20 percent pricing premium over virgin PET.<sup>10</sup> In addition, Eastman Chemical Company is working on innovative chemical recycling technology, carbon renewal technology (CRT), whose revenue it expects to be in the range of \$200 to \$300 million in the next several years.<sup>11</sup>

## R&D and capital expenditures

- 18 Evidence collected during the Plastics Research Project indicates that chemicals companies are increasingly making business decisions intended to address emerging dynamics surrounding the management of single-use plastics, including investments in new recycling technologies and the development of new raw materials. For instance, some companies that do not produce virgin-fossil-based plastic resins are active in developing new products, raw materials, and processes intended to address changing market needs to manage the environmental impacts of single-use plastics.
- 19 To varying degrees, major chemicals companies such as BASF, Dow, and LyondellBasell Industries have discussed increasing the use of renewable feedstocks, among other initiatives. BASF reported 5 percent of raw materials from renewable resources in 2017, LyondellBasell introduced a bio-based polyphenylene ether (PPE) and a low-density polyethylene (LDPE) product (Circulen) in 2019, and Dow delivered renewable LDPE to specific customers. Furthermore, companies currently disclosing their management of single-use plastics issues are making efforts to incorporate recycling and renewables into their businesses. For example,

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<sup>7</sup> “Chemical Sector Profile,” CISA Cyber and Infrastructure, US Department of Homeland Security, May 2019, p.4, [https://www.cisa.gov/sites/default/files/publications/Chemical-Sector-Profile\\_Final%20508.pdf](https://www.cisa.gov/sites/default/files/publications/Chemical-Sector-Profile_Final%20508.pdf).

<sup>8</sup> “2022 Facts and Figures of the European Chemical Industry,” CEFIC, 2022, <https://cefic.org/a-pillar-of-the-european-economy/facts-and-figures-of-the-european-chemical-industry/profile/>.

<sup>9</sup> Mike Werner, Adi Narayanan, Olivier Rabenschlag, et al., *Closing the Plastics Circularity Gap: Executive Summary*, Google, July 2021, p. 12, <https://www.gstatic.com/gumdrop/sustainability/google-closing-circularity-gap.pdf>.

<sup>10</sup> Morgan Stanley, *Peak Plastic? We’re Not There Yet*, January 22, 2020, p.3, <https://advisor.morganstanley.com/mcqueary-schumm-group/documents/field/m/mc/mcqueary-schumm-group/Peak%20Plastic.pdf>.

<sup>11</sup> Eastman Chemical Company, Form 8-K, October 24, 2019, <https://eastman.gcs-web.com/static-files/2e0eb57a-8629-49f4-a05e-b460d68f7da8>.

Nutrien stated that it is investing in recycling programs. Additionally, Royal DSM stated that it is creating a portfolio of alternatives with 25 percent recycled or bio-based content by 2030. Such programs will allow these companies to procure recycled content for new product development and to create circular economy business. These examples of new products based on renewable or recycled raw materials and recycling technologies demonstrate the potential for increased R&D spending and capital expenditures.

## Regulatory risks

20 Regulations regarding single-use plastics are rapidly emerging worldwide, including bans, restrictions on exports of recovered materials, requirements for incorporating alternate raw materials, and possible taxes and fees. According to UN Environment Programme’s 2018 report *Legal Limits on Single-Use Plastics and Microplastics*,<sup>12</sup> 27 countries have already enacted national bans and restrictions on single-use plastics. These regulatory activities affect all plastics value-chain players, including chemicals companies, and include bans on manufacturing, distributing, and/or importing single-use plastics. In addition, the report found that “one hundred and twenty-seven (127) out of 192 countries reviewed (about 66%) have adopted some form of legislation to regulate plastic bags.” For example, the EU,<sup>13</sup> Canada,<sup>14</sup> Japan,<sup>15</sup> China,<sup>16</sup> and India<sup>17</sup> have all banned or are working toward banning single-use plastics. In the United States, the state of Maine recently approved extended producer responsibility (EPR) legislation; many other states such as California, Hawaii, Maryland, Massachusetts, and New York are considering similar actions.<sup>18</sup> Such regulations may result in added financial pressure for chemicals companies and may lead to fees, fines, legal expenses, and a smaller addressable market.

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<sup>12</sup> UN Environment Programme, *Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations*, December 5, 2018, p. 3, <https://www.unep.org/resources/report/legal-limits-single-use-plastics-and-microplastics>.

<sup>13</sup> “Directive on Single-Use Plastics,” European Commission, July 2, 2019, [https://ec.europa.eu/environment/topics/plastics/single-use-plastics\\_en](https://ec.europa.eu/environment/topics/plastics/single-use-plastics_en).

<sup>14</sup> “Government of Canada Moving Forward with Banning Harmful Single-Use Plastics,” press release, Government of Canada, modified December 30, 2021, <https://www.canada.ca/en/environment-climate-change/news/2021/12/government-of-canada-moving-forward-with-banning-harmful-single-use-plastics0.html>.

<sup>15</sup> “Japan to Cut Plastic Waste from April via New Cabinet Ordinance,” *Kyodo News*, January 14, 2022, <https://english.kyodonews.net/news/2022/01/4437a306ac37-japan-to-cut-plastic-waste-from-april-via-new-cabinet-ordinance.html#:~:text=Japan's%20Cabinet%20approved%20Friday%20an,growing%20concern%20over%20marine%20pollution>.

<sup>16</sup> “China: Single-Use Plastic Straw and Bag Ban Takes Effect,” Library of Congress, March 23, 2021, <https://www.loc.gov/item/global-legal-monitor/2021-03-23/china-single-use-plastic-straw-and-bag-ban-takes-effect/#:~:text=Article%20China%3A%20Single%20Use%20Plastic,from%20providing%20plastic%20shopping%20bags>.

<sup>17</sup> Shubhangi Goel, “India Will Ban Single-Use Plastics Next Year to Cut Pollution—Experts Say That’s Not Enough,” CNBC, October 10, 2021, <https://www.cnbc.com/2021/10/11/india-to-ban-single-use-plastics-but-experts-say-more-must-be-done-to.html#:~:text=India's%20central%20government%20announced%20the,effective%2C%20environmental%20activists%20told%20CNBC>.

<sup>18</sup> Allyn Stern, Leigh Barton, Nikki Waxman, and Clirae Bourke, “Maine Becomes First State to Sign Extended Producer Responsibility Law for Packaging, Other States with Plastics and Packaging Bills May Follow Shortly,” *Beveridge & Diamond*, August 11, 2021, <https://www.bdlaw.com/publications/maine-becomes-first-state-to-sign-extended-producer-responsibility-law-for-packaging-other-states-with-plastics-and-packaging-bills-may-follow-shortly/#:~:text=On%20July%202013%2C%202021%2C%20the,they%20put%20into%20the%20market>.

## Evidence of investor interest

- 21 In weighing whether a new disclosure topic and associated metrics should be added to the Chemicals Standard, the Board identified significant evidence of investor interest regarding single-use plastics management by chemicals companies as demonstrated through (1) growing interest and scrutiny among capital market participants and (2) investor feedback provided to the technical staff during consultations.
- 22 A growing body of investment research and products related specifically to the issue of plastics and plastic waste demonstrate the increasing interest of capital market participants on this issue. Sell-side research departments of multiple global investment banks have published significant research related to plastics in recent years, further demonstrating market interest. Bank of America,<sup>19</sup> Morgan Stanley,<sup>20</sup> and Citi<sup>21</sup> have published reports on circularity, increased demand for plastic alternatives, and challenges to plastics recycling and solutions, respectively. Bank of America's Global Research investor poll for 2019 found that 41 percent of respondents believed sustainability/climate change was the most important investment theme for the 2020s, replacing big data/technology. In addition, 44 percent of respondents thought that the plastics and packaging industry had the most potential to shift to a circular-economy approach. Furthermore, plastics-focused investment products such as the Solactive ISS ESG Future Plastic Index have been introduced in recent years; the index aims to meet investor interest in innovative plastic waste solutions and efficient material use. Such products imply that companies contributing to plastics solutions may gain more favorable access to capital.
- 23 Beyond investment research and products, asset management stewardship teams have also increased their focus on the issue of plastics waste. The Plastic Investor Working Group, which consists of 29 global investors representing \$5.9 trillion in AUM and is convened by UN Principles for Responsible Investment (PRI), aims to enhance investors' understanding of how to address plastic waste and pollution and support a circular economy for plastics by deepening insights within the investor-focused engagement guides. Similarly, As You Sow, a nonprofit foundation "promoting environmental and social corporate responsibility through shareholder advocacy, coalition building, and legal strategies," established the Plastic Solutions Investor Alliance with 40 investors, including Aviva, Axa, Candriam, Hermès, the Local Authority Pension Fund Forum, and Robeco, representing more than \$1 trillion of AUM. This group concentrates on engagement with consumer goods companies like Nestlé, PepsiCo, Procter & Gamble, and Unilever to set plastic-use reduction goals, promote disclosure of plastic packaging use, and support research for and the transition to reducing conventional plastic packaging with innovative solutions. In recent years, large consumer brands and retailers such as the

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<sup>19</sup> Michael Feniger et al., *Plastics Sustainability Primer: A Century of Plastics Now Leading to Circularity*, Bank of America, February 21, 2020.

<sup>20</sup> Morgan Stanley, *Peak Plastic? We're Not There Yet*.

<sup>21</sup> Anthony Pettinari, Bryan Burgmeier, Randy Toth, et al., *Closing the Loop on Global Recycling: Finding a Global Solution to the Patchwork of Recycling*, Citi, February 2020, <https://www.citivelocity.com/citigps/closing-the-loop-on-global-recycling/>.

McDonald's Corporation, Kraft Heinz Company, and Kroger Company have been the targets of stewardship campaigns and shareholder resolutions regarding plastic pollution and packaging.<sup>22</sup>

24 Reporting suggests that in recent years private equity investment in the plastic packaging sector has been slowing and that new investments in such companies could struggle to pass ESG screens. This may indicate future implications regarding the cost of capital for producers of plastic packaging. One fund representative observed, "Companies that score points with material efficiency, closed material cycles and the most positive ecological footprint possible will win. . . . Companies that fail this challenge will drastically lose their value."<sup>23</sup> Moreover, Federated Hermes published *Investor Expectations for Global Plastics Challenges*, which provides an engagement guide on key risks (including environmental and climate, health and safety, and regulatory and social license to operate) and opportunities focusing on chemicals, consumer goods, and retail sectors to help investors engage with companies.<sup>24</sup>

25 The Board also considered feedback provided by investors during consultations held in 2019–2020 for the Plastics Research Project, as well as during consultations held in 2020 for the Plastics Standard-Setting Project. Throughout dozens of consultations, investors consistently acknowledged plastics as an important topic that represents financially material risks and opportunities for companies within the Chemicals industry. In addition, several investors shared that they (or their firms) are actively engaging on this topic with the industry, and some noted that the current amount and quality of corresponding disclosure does not serve their needs and emphasized the need for more complete, consistent, and reliable reporting related to this issue.

## What is the basis for the Board's recommended new disclosure topic?

26 Based on the evidence gathered above during research and standard-setting project, the Board believes that the proposed new disclosure topic, Management of Single-use Plastics, meets the criteria for topic selection in the SASB *Conceptual Framework*: it is financially impactful, of interest to users of corporate disclosures for financial decision-making purposes, and actionable by companies within the industry.

### Rationale for recommended topic scope

27 At its July 2021 meeting, the Board deliberated the prospect of incorporating the management of single-use plastics into the current Product Design for Use-phase Efficiency disclosure topic.<sup>25</sup>

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<sup>22</sup> Allison Nicole Smith, "Shareholders Raise Pressure on Big Brands over Plastic Pollution," *Detroit Business*, July 29, 2021, <https://www.crainsdetroit.com/crains-forum/shareholders-raise-pressure-big-brands-over-plastic-pollution>.

<sup>23</sup> Arno Schuetze, "Private Equity's Falling Out of Love with Plastic Packaging," Reuters, May 20, 2021, <https://www.reuters.com/business/sustainable-business/private-equitys-falling-out-love-with-plastic-packaging-2021-05-20/>.

<sup>24</sup> "Investor Expectations for Global Plastics Challenges," Federated Hermes, April 22, 2020, <https://www.hermes-investment.com/us/eos-insight/eos/investor-expectations-for-global-plastics-challenges/>.

<sup>25</sup> Version 2018-10 of the Chemicals Standard contains the disclosure topic Product Design for Use-phase Efficiency under the Product Design & Lifecycle Management general issue category. This disclosure topic focuses on Chemicals industry products that enhance customer efficiency,

This topic focuses on energy consumption and emissions during the use-phase, not covering the broader set of impacts across the product lifecycle. Ultimately, the Board concluded that understanding a company's exposure to risks and opportunities associated with single-use plastic requires assessing impacts across multiple lifecycle phases, not just use-phase. The range of impacts from associated business activities extend beyond resource efficiency, and in some cases, new activities and products could be less efficient but generate lower end-of-life waste. As a result, the Board recommends adding a new stand-alone disclosure topic for the Management of Single-use Plastics, also under the Product Design & Lifecycle Management general issue category.

- 28 The recommended Management of Single-use Plastics disclosure topic aims to capture information on a company's ability to address the increasing focus on the environmental impacts associated with single-use plastics and subsequent changes in consumer attitudes and regulatory pressure on single-use plastics. Furthermore, while media and NGOs often focus on the impacts single-use plastics have on oceans and marine life, the proposed disclosure topic is intended to cover a broader set of impacts across the product lifecycle to align with interests from investors. The Board considered the following factors to make this determination:
1. Many investors indicated they had adopted a broader approach in terms of possible environmental impacts, beyond marine waste. They also expressed interest in waste and disposal management as well as the relative tradeoffs and potential impacts across other lifecycle phases and/or the overall environmental footprint.
  2. Regulatory and corporate actions may address plastic waste entering oceans and waterways, but they could also have broader implications on impacts and activities beyond marine waste (e.g., a transition from fossil-fuel raw materials to renewable raw materials can reduce environmental impacts upstream in the value chain).

## What is the basis for the Board's recommended new metrics?

- 29 The Board considered a set of five metrics for the Management of Single-use Plastics disclosure topic to help users understand and interpret performance on a company's exposure to risk and opportunities associated with single-use plastics. Consistent with investor input, the metrics intend to capture a more comprehensive lifecycle view. The recommended metrics are listed below, followed by the Board's rationale for each metric:
- a) Revenue from products sold for use in the manufacture of single-use plastics
  - b) Revenue associated with products that intend to reduce the environmental impacts associated with single-use plastics throughout the product lifecycle
  - c) (1) Research and development expenditures and (2) capital expenditures associated with business activities that intend to reduce environmental impacts associated with single-use plastics throughout the product lifecycle

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primarily covering the use-phase of the product lifecycle. The existing standard does not address company management of single use-plastics and does not include impacts associated with waste and end-of-life management.

- d) Percentage of total raw materials processed for use in the manufacture of inputs for single-use plastics products, by (1) virgin fossil fuel (hydrocarbon) content, (2) recycled content, and (3) renewable materials
- e) Discussion of actual and potential environmental and social impacts from business activities intended to reduce the environmental impact of single-use plastics occurring at each key phase of the product lifecycle: production, transportation, use-phase, and end-of-life

30 In developing these recommended changes, the Board deliberated on an appropriate definition of “single-use plastics.” While the United Nations is in discussions on a global plastic pact,<sup>26</sup> there is not yet a globally established set of definitions to guide the actions associated with the management of single-use plastics. Technical staff reviewed definitions from the EU Directive,<sup>27</sup> the UN Environment Programme,<sup>28</sup> and the Natural Resources Defense Council<sup>29</sup> to help define single-use plastics in alignment with existing guidelines. After review, the Board recommends the following definition for single-use plastics:

*Single-use plastics are defined as products that are made wholly or partly from plastics and are typically intended to be used just once, for a short period of time, before being disposed of.*

*Examples of single-use plastics include grocery bags, food packaging, beverage bottles, straws, containers, cups, cutlery, and medical devices such as plastic gloves, syringes, tubes, drip chambers, thermoformed trays, face masks, bags for IV, and tubing for infusion and injection.*

*The scope of disclosure excludes paints, inks, and adhesives, as well as plastics used to produce durable goods with a useful life of more than a year, such as appliances and transportation vehicles.*

31 The Board believes this more targeted scope better aligns with the focus of regulatory activity and general market adjustments related to managing the environmental impact of plastics.

32 In addition, the product lineup of chemicals companies is primarily driven by their customers (i.e., packaging companies). However, some customers may be slow to move toward alternative plastics solutions, which can hinder the chemicals companies’ ability to capitalize on the new business opportunities. The Board considered including disclosure guidance on entities’ selling

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<sup>26</sup> Valerie Volcovici, “As Plastic Piles Up, U.S. Joins Effort to Reach New Global Treaty,” Reuters, November 18, 2021, <https://www.reuters.com/markets/commodities/plastic-piles-up-us-joins-effort-reach-new-global-treaty-2021-11-18/>.

<sup>27</sup> European Parliament, “Directives,” *Official Journal of the European Union*, December 6, 2019, <https://perma.cc/S3WH-9SDY>.

<sup>28</sup> UN Environment Programme, *Legal Limits on Single-Use Plastics and Microplastics*.

<sup>29</sup> Courtney Lindwall, “Single-Use Plastics 101,” National Resource Defense Council, April 20, 2021, <https://www.nrdc.org/stories/single-use-plastics-101#:~:text=Put%20simply%2C%20single%2Duse%20plastics,%E2%80%94often%2C%20in%20mere%20minutes.&text=Since%20the%201950s%2C%208.3%20billion,the%20past%2015%20years%20alone>.

practices or educational training for their containers and packaging customers to more proactively manage, and perhaps increase, the demand for alternative solutions such as biodegradable polymers. There was no specific feedback from the market on this perspective, and thus the Board is interested in gaining additional market perspectives on this.

### Rationale for metric #1: *Revenue from products sold for use in the manufacture of single-use plastics*

- 33 This metric is intended to provide users with quantitative data to assess corporate exposure to changes in demand for single-use plastics products. During consultations, investors consistently indicated that revenue information linked to single-use plastics products sold would provide insight on the extent to which a company's revenue may be at risk should changes in regulations on single-use plastics and shifting demand evolve.
- 34 The Board deliberated between requesting disclosure as a single data point of revenue versus a range (e.g., 1 to 5 million USD of revenue comes from the sale of products used to produce single-use plastics). Consultative input suggested that some companies may struggle to isolate a single data point. Chemicals companies are not the direct manufacturer of single-use plastics or end products, and the polymers they produce can be used for various plastic products. Some companies also stated that compiling a single data point (versus a range) may not be cost-effective and may result in public disclosure of proprietary information. Nonetheless, the Board determined that the disclosure of a range may diminish the usefulness of the information for users; this perspective was consistent with investor input on the matter. In addition, regulations, consumer demand, and business developments on single-use plastics are likely to continue to evolve and change; therefore, offering too wide a reporting range might obscure the level of business activity. Ultimately, the Board determined that a single data point would be more decision-useful for users of the information.
- 35 The Board also considered the volume of materials sold for production of single-use plastics as an alternative option to revenue. A volume-based approach would be more aligned with the investor guide produced by the PRI and the Ellen MacArthur Foundation, which aims to support investor engagement with companies on the issue of plastic packaging waste and pollution. Specifically, the guide suggests investors consider engaging with companies on topics such as "plastics production (total weight, including by plastic type)."<sup>30</sup> In addition, policy tools, such as taxes on plastics, are almost always based on volume. While this alternative approach would have also offered perspective on a reporting entity's exposure to plastics, investors suggested that metrics linked to revenue rather than volume would offer representationally faithful information of financial exposure and be more decision-useful for the capital markets. In addition, some companies noted during consultations that while it might be difficult to isolate

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<sup>30</sup> Principles for Responsible Investment and Ellen MacArthur Foundation, *A Guide to Investor Engagement on Plastic Packaging: PetroChemicals*, 2021, p. 12, <https://www.unpri.org/plastics/engaging-on-plastic-packaging-petrochemicals/7953.article>

the relevant revenue, this information can give a fair representation of their current situation. Therefore, the Board recommends using a revenue-based approach.

**Rationale for metric #2: *Revenue associated with products that intend to reduce the environmental impacts associated with single-use plastics throughout the product lifecycle***

36 This metric is intended to provide investors with information on a company's ability to capitalize on potential opportunities related to (1) developing solutions to societal concerns associated with single-use plastics and (2) addressing the environmental impacts of single-use plastics. As discussed above, there is significant evidence that chemicals companies that develop products informed by the shifts in the regulatory and demand environments have the potential to increase revenue, market share, and command a price premium. Demonstrating the potential revenue impact, McKinsey noted, "Reusing plastics waste could become an important driver of profitability for chemical companies," and projected that such activities could increase industry profits by \$60 billion in the coming years.<sup>31</sup>

**Rationale for metric #3: *(1) Research and development expenditures and (2) capital expenditures associated with business activities that intend to reduce environmental impacts associated with single-use plastics throughout the product lifecycle***

37 This metric is intended to provide information on the company's financial commitment and corporate strategy to mitigate environmental impacts from single-use plastics. Disclosures related to both R&D and capital expenditures (CapEx) directed toward developing new products, services, and business activities would help investors further understand and assess corporate financial strategy in and commitment to these new business areas that address environmental impacts of single-use plastics. Additionally, companies suggested that they already receive specific investor inquiries for information on R&D and CapEx associated with single-use plastics. R&D and CapEx are considered key channels of financial impact by investors and are aligned with the aforementioned PRI and Ellen MacArthur Foundation engagement guide, which suggests that investors consider whether "the company reports on the proportion of R&D and CapEx budgets that are allocated to the delivery of its plastics-related targets."<sup>32</sup>

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<sup>31</sup> Thomas Hundertmark, Mirjam Mayer, Chris McNally, et al., "How Plastics Waste Recycling Could Transform the Chemical Industry," McKinsey, December 12, 2018, <https://www.mckinsey.com/industries/Chemicals/our-insights/how-plastics-waste-recycling-could-transform-the-chemical-industry>.

<sup>32</sup> Principles for Responsible Investment and Ellen MacArthur Foundation, *A Guide to Investor Engagement on Plastic Packaging: PetroChemicals*, p. 12.



Rationale for unit of measurement (absolute amount versus percentage) for metrics #1, #2, and #3

38 The Board deliberated between structuring the metrics as an absolute amount of revenue (in reporting currency) or as a percentage. Some companies suggested that it is more cost-effective to disclose a percentage. However, in general, investors consistently provide input that absolute values are more decision useful than percentages, as a percentage may provide more opportunity for inconsistent compilation of the associated numerator and denominator, which results in less-comparable disclosures. The Board considered two possible options when finalizing the metrics:

<p><b>Option 1:</b> Percentage for metrics #1, #2, and #3</p>	<ul style="list-style-type: none"> <li>● Metric #1 would require a percentage wherein the numerator is revenue from inputs for single-use plastics and the denominator is total revenue from chemicals products.</li> <li>● Metric #2 would require a percentage where the numerator is revenue from inputs for single-use plastics and the denominator is company’s total revenue.</li> <li>● Metric #3 would require two percentages:             <ol style="list-style-type: none"> <li>1. The numerator is research and development expenditure dedicated to developing products and business activities that are intended to reduce the environmental impacts associated with single-use plastics and the denominator is total research and development expenditure on all business activities.</li> <li>2. The numerator is capital expenditures dedicated to developing products and business activities that are intended to reduce the environmental impacts associated with single-use plastics and the denominator is total capital expenditures on all business activities.</li> </ol> </li> <li>● The calculations above would be accompanied by an additional qualitative explanation of the calculation</li> </ul>
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	method (i.e., the scope for the numerator and denominator).
<b>Option 2:</b> Absolute amount for metrics #1, #2, and #3	<ul style="list-style-type: none"> <li>● Metric #1 would require total revenue (in reporting currency) from inputs sold for use in the manufacture of single-use plastic products.</li> <li>● Metric #2 would require total revenue (in reporting currency) from products associated with mitigating environmental impacts from single-use plastics.</li> <li>● Metric #3 would require 1) research and development expenditure and 2) capital expenditure (in reporting currency) associated with business activities that are intended to reduce the environmental impacts associated with single-use plastics throughout the product lifecycle.</li> </ul>

39 The Board identified the advantages and disadvantages for each option. For example, Option 1 may aid in cost effectiveness for the preparers, as they can disclose (potentially) competitive information in percentage form. Some companies expressed a preference for Option 1 during consultations. However, percentage calculation may allow more room for interpretation in terms of compiling the numerator and denominator for each calculation, which can decrease the comparability of the resulting disclosures, ultimately diminishing usefulness for investors. In addition, critical information—for example, a large acquisition—could drastically change the numerator and/or denominator but may not be evident through disclosure of a percentage. Furthermore, given the diversity of business models in this industry and how they define business segments, a percentage may misrepresent companies’ exposure and positions on single-use plastics (e.g., a large-cap multi-industry conglomerate versus a small-cap business focused on one industry).

40 Option 2 would likely provide more decision useful information for investors, as information would be presented as an absolute amount (in reporting currency), therefore providing more direct information that facilitates further flexibility to perform additional analyses. In addition, the absolute amount provides users with neutral and representationally faithful data for evaluating company performance and comparing performance across companies. However, a limited number of preparers expressed concerns over the cost-effectiveness of disclosing such absolute amounts, suggesting that such information is proprietary and that disclosure may result in disadvantages for the entity.

41 To compile disclosures for either Option 1 or Option 2, companies must identify the absolute amount associated with single-use plastics products, demonstrating that either approach presents a similar cost burden to prepare the data. While it may be sensitive to disclose an absolute amount, investors broadly expressed a preference for absolute numbers, underscoring

their decision usefulness. Considering both cost effectiveness and decision usefulness, the Board recommends the metrics use an absolute amount (Option 2) but would recommend gaining additional market input on this conclusion.

**Rationale for metric #4: *Percentage of total raw materials processed for use in the manufacture of inputs for single-use plastics products, by (1) virgin fossil fuel (hydrocarbon) content, (2) recycled content, and (3) renewable materials***

- 42 This metric is intended to capture a company’s ability to meet regulatory demands and address the shifting demand landscape for packaging products with fewer environmental impacts. Multiple jurisdictions, including the EU<sup>33</sup> and the US state of California,<sup>34</sup> have proposed mandates for the incorporation of certain levels of recycled plastic raw materials into plastic production. Therefore, companies that operate in these jurisdictions may incur additional costs to comply with such regulations. Similarly, many consumer companies, such as Coca-Cola and PepsiCo, have committed to targets and thresholds for recycled content in their plastic packaging.<sup>35</sup> Such commitments will in turn affect the demand for single-use plastics products and pose new challenges for chemicals companies aiming to maintain and grow market share. To meet these commitments, many chemicals companies are already investing in developing new, alternative raw materials. Companies such as Indorama Ventures PCL, LyondellBasell, Braskem, and Mitsubishi Chemical Holdings have been working to incorporate alternative raw materials in their production. In 2018 Indorama Ventures formed a joint venture with Loop Industries to develop and produce 100 percent sustainably produced PET resin and polyester fiber; in 2019 LyondellBasell launched the bio-based Circulen product line; since 2010 Braskem has focused on renewable resins, as it expects growth in the renewable polyethylene market; and Mitsubishi Chemical Holdings developed a plant-based polymer (DURABIO) in 2020 and a biodegradable polymer (BioPBS) in 2017.<sup>36</sup> In addition, during consultations, some companies suggested that they have already set goals and targets on the incorporation of renewable raw materials, such as wood, and discussed such goals and their raw material portfolio with investors. Therefore, disclosure on the breakdown of raw materials by virgin fossil fuels, recycled content, and renewable materials offers investors useful information on a company’s positioning to address changing regulations and changing customer demand.
- 43 Additionally, reiterating investor interest in these data points, the PRI and Ellen MacArthur Foundation’s investor guide suggests that users engage with companies on the “total weight of

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<sup>33</sup> Rachel Arthur, “EU Sets Out 30% Recycled Content Target for Plastic,” BeverageDaily.com, updated May 21, 2019, <https://www.beveragedaily.com/Article/2019/05/21/European-Council-sets-out-30-recycled-content-target-for-plastic-bottles>.

<sup>34</sup> Keller and Heckman LLC, “CA to Require Minimum Recycled Content in Plastic Bottles,” *National Law Review* 10, no. 289 (October 15, 2020), <https://www.natlawreview.com/article/ca-to-require-minimum-recycled-content-plastic-bottles>

<sup>35</sup> Jared Paben, “Global Brand Owner Releases RPET Targets,” *Plastics Recycling Update*, updated September 22, 2021, <https://resource-recycling.com/plastics/2021/09/22/global-brand-owner-releases-rpet-targets/>.

<sup>36</sup> Bank of America, *Plastics Sustainability Primer: A Century of Plastics Now Leading to Circularity*.

recycled plastics produced” and “non-fossil fuel and recycled feedstock expenditures compared to its oil and gas feedstock.” By aligning with this existing guideline, the Board intends to enhance the cost-effectiveness of the Standard.

*Rationale for metric #5: Discussion of actual and potential environmental and social impacts from business activities intended to reduce the environmental impact of single-use plastics occurring at each key phase of the product lifecycle: production, transportation, use-phase, and end-of-life*

- 44 This metric is intended to provide investors with information regarding companies’ environmental impact mitigation activities associated with single-use plastics and the unintended environmental and social impacts from those activities.
- 45 During consultations, investors expressed a strong interest in clear, unbiased information to help them assess various alternatives to single-use plastics products based on a concern that there could be unintended consequences, such as environmental and social impact trade-offs from some alternative solutions. For example, some investors raised concerns of potential unintended consequences from shifting away from single-use plastic products (e.g., changes in packaging can lead to higher emissions in transportation or increased food waste). The proposed qualitative metric encompasses a discussion of primary business activities intended to address the environmental impact of single-use plastics, as well as the actual and potential environmental and/or social impacts for each phase of the product lifecycle. For example, disclosure aligned with this metric might include discussion on how increasing the use of renewable raw materials in the production of polymers and resins may lead to food scarcity issues, increased use of natural resources (e.g., water), toxic chemicals, and fuels to produce renewable products. In addition, the proposed metric aligns with the EU Taxonomy regulation, which provides a classification system to determine what economic activities are sustainable and requires entities to consider the trade-offs from sustainable activities.<sup>37</sup>
- 46 While investors consistently indicated a preference for quantitative data throughout the consultation, several investors noted that developments associated with plastics are evolving rapidly and therefore emphasized the decision usefulness corresponding to qualitative disclosure.
- 47 In addition, the technical protocol for this proposed metric includes guidance on the use of lifecycle assessment (LCA) tools used to identify lifecycle impacts associated with products. As documented by numerous sources, the Board acknowledges that LCAs rely on methodologies

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<sup>37</sup> The EU Taxonomy defines economic activities that are environmentally sustainable as those that 1) contribute to six environmental objectives (climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems), and 2) “do no significant harm” to other objectives while respecting human rights and labor standards. See the European Commission’s “EU Taxonomy for Sustainable Activities” for more information: [https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en).

and estimations that can impact the consistency, accuracy, and, ultimately, the usefulness of resulting information. For example, many existing LCAs for plastics do not incorporate marine litter and in general can outweigh certain attributes (lightweight, low carbon) over disposal. Given that, the Board also recognizes that this area of lifecycle assessment is still evolving and improving with time. Therefore, the recommended changes to the Standard include discussion on the methodologies, major assumptions, and estimates that the entities relies on to compile their related disclosure.

RECOMMENDED CHANGES

# Recommended Changes to the Chemicals Standard

## About the Recommended Changes

These recommended changes are presented for consideration by the International Sustainability Standards Board (ISSB) and other market participants interested in the continued development of the SASB Standards. **This version is not intended for implementation.**

The below does not include the entirety of the Standard. The following Summary of Recommended Changes to the Chemicals Standard reflects the complete set of disclosure topics and associated metrics for this industry after incorporating the recommended changes. The table is followed by the recommended new Management of Single-use Plastics disclosure topic and corresponding metrics.

Prepared by the Sustainability Accounting Standards Board

May 2022

# Summary of Recommended Changes to the Chemicals Standard

## Recommended Changes to Sustainability Disclosure Topic & 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 <sub>2</sub> -e, Percentage	RT-CH-110a.1
	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	RT-CH-110a.2
Air Quality	Air emissions of the following pollutants: (1) NOX (excluding N <sub>2</sub> O), (2) SOX, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)	Quantitative	Metric tons (t)	RT-CH-120a.1
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy	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	Cubic Meters (m <sup>3</sup> ), Percentage (%)	RT-CH-140a.1
	Number of incidents of non-compliance 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 Materials Management	Amount of hazardous waste, percentage recycled	Quantitative	Metric tons (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
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
	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	RT-CH-320a.2
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	Reporting currency	RT-CH-410a.1

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	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 and/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
<u>Management of Single-use Plastics</u>	<u>Revenue from products sold for use in the manufacture of single-use plastics</u>	<u>Quantitative</u>	<u>Reporting currency</u>	<u>RT-CH-410d.1</u>
	<u>Revenue associated with products that intend to reduce the environmental impacts associated with single-use plastics throughout the product lifecycle</u>	<u>Quantitative</u>	<u>Reporting currency</u>	<u>RT-CH-410d.2</u>
	<u>(1) Research and development expenditures and (2) capital expenditures associated with business activities that intend to reduce environmental impacts associated with single-use plastics throughout the product lifecycle</u>	<u>Quantitative</u>	<u>Reporting currency</u>	<u>RT-CH-410d.3</u>
	<u>Percentage of total raw materials processed for use in the manufacture of inputs for single-use plastics products, by (1) virgin fossil fuel (hydrocarbon) content, (2) recycled content, and (3) renewable materials</u>	<u>Quantitative</u>	<u>Percentage</u>	<u>RT-CH-410d.4</u>
	<u>Discussion of actual and potential environmental and social impacts from business activities intended to reduce the environmental impact of single-use plastics occurring at each key phase of the product lifecycle: production, transportation, use-phase, and end-of-life</u>	<u>Discussion and Analysis</u>	<u>n/a</u>	<u>RT-CH-410d.5</u>
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	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)	Quantitative	Number, Rate	RT-CH-540a.1
	Number of transport incidents	Quantitative	Number	RT-CH-540a.2



# Management of Single-use Plastics

## Topic Summary

Many companies in this industry produce materials used in the manufacture of plastics. Some plastic products have long, useful lives and can contribute to resource efficiency by replacing heavier or less-efficient materials and extending the useful lives of packaged goods. Equally, there are concerns related to the environmental impacts of plastics throughout their lifecycle, including end-of-life disposal and resource consumption. There is increasing regulatory activity around the world related to reducing usage of certain single-use plastic products. Large buyers of plastic packaging materials are increasingly interested in limiting the lifecycle impacts of their product packaging. Chemicals companies producing polymers and resins used to manufacture certain nondurable single-use plastic products face the risk of declining demand, potential fees and/or taxes, outright product bans, and requirements to incorporate alternate raw materials. Conversely, companies that design solutions that address these shifting regulatory and demand developments can generate new opportunities and avoid risks of product obsolescence or regulatory actions.

## Accounting Metrics

### RT-CH-410d.1 Revenue from products sold for use in the manufacture of single-use plastics

- 1 The entity shall disclose the revenue from products sold for use in the manufacture of single-use plastics.
  - 1.1 Single-use plastics are defined as products that are made wholly or partly from plastics and are typically intended to be used just once, for a short period of time, before being disposed of.
    - 1.1.1 Examples of single-use plastics include grocery bags, food packaging, beverage bottles, straws, containers, cups, cutlery, and medical devices such as plastic gloves, syringes, tubes, drip chambers, thermoformed trays, face masks, bags for IV, and tubing for infusion and injection.
    - 1.1.2 The scope of disclosure excludes paints, inks, and adhesives, as well as plastics used to produce durable goods with a useful life of more than a year, such as appliances and transportation vehicles.
  - 1.2 Examples of products that can be used for single-use plastics include but are not limited to high-density polyethylene (HDPE), low-density polyethylene (LDPE), polyethylene terephthalate (PET), polypropylene (PP), and polyvinyl chloride (PVC).
  - 1.3 The entity shall disclose how shifting commodity pricing (e.g., resin pricing) impacted the revenue associated with products used in the manufacture of single-use plastics.

### RT-CH-410d.2 Revenue associated with products that intend to reduce the environmental impacts associated with single-use plastics throughout the product lifecycle

- 1 The entity shall disclose the revenue derived from the sale of products that are intended to reduce environmental impacts associated with single-use plastics throughout its lifecycle.

- 1.1 Single-use plastics are defined as products that are made wholly or partly from plastics and are typically intended to be used just once, for a short period of time, before being disposed of.
  - 1.1.1 Examples of single-use plastics include grocery bags, food packaging, beverage bottles, straws, containers, cups, cutlery, and medical devices such as plastic gloves, syringes, tubes, drip chambers, thermoformed trays, face masks, bags for IV, and tubing for infusion and injection.
  - 1.1.2 The scope of disclosure excludes paints, inks, and adhesives, as well as plastics used to produce durable goods with a useful life of more than a year, such as appliances and transportation vehicles.
- 1.2 Examples of products intended to reduce the environmental impacts of single-use plastics include but are not limited to biopolymers, biodegradable, and recyclable inputs for plastic products.
- 1.3 Examples of environmental impacts include but are not limited to plastic debris resulting in land, water, and soil pollution.
- 1.4 The entity shall disclose how shifting commodity pricing impacted the revenue associated with products used in the manufacture of single-use plastics.

**RT-CH-410d.3 (1) Research and development expenditures and (2) capital expenditures associated with business activities that intend to reduce environmental impacts associated with single-use plastics throughout the product lifecycle**

- 1 The entity shall disclose the total amount of research and development expenditures directed toward business activities intended to reduce environmental impacts associated with single-use plastics throughout the product lifecycle.
  - 1.1 Single-use plastics are defined as products that are made wholly or partly from plastics and are typically intended to be used just once, for a short period of time, before being disposed of.
    - 1.1.1 Examples of single-use plastics include grocery bags, food packaging, beverage bottles, straws, containers, cups, cutlery, and medical devices such as plastic gloves, syringes, tubes, drip chambers, thermoformed trays, face masks, bags for IV, and tubing for infusion and injection.
    - 1.1.2 The scope of disclosure excludes paints, inks, and adhesives, as well as plastics used to produce durable goods with a useful life of more than a year, such as appliances and transportation vehicles.
- 2 The entity shall disclose the total amount of capital expenditures directed toward business activities intended to reduce environmental impacts associated with single-use plastics throughout the product lifecycle.
- 3 The scope of business activities intended to reduce the environmental impact(s) of single-use plastics throughout the product lifecycle include but are not limited to:

- 3.1 Designing manufacturing processes for “reduced energy consumption,” “reduced resource use,” “reduced water use,” “waste reduction,” and “reduced greenhouse gas emissions,” in accordance with the *ISO 14021:2016 - Environmental labels and declarations*.
- 3.2 Developing products to be “compostable,” “degradable,” “recyclable,” “reusable,” “disassembled,” manufactured with “recycled content,” and “refillable,” as well as strategies to extend product life, as defined by *ISO 14021:2016 - Environmental labels and declarations*.
- 3.3 Incorporating alternative, non-virgin fossil fuel (hydrocarbon), and raw materials in the production of the resins and polymers used to produce single-use plastic products, such as recycled content and renewable materials.
  - 3.3.1 Recycled content is defined consistent with definitions from *ISO 14021:2016 - Environmental labels and declarations*.
  - 3.3.2 Renewable materials are defined, consistent with the *Global Protocol on Packaging Sustainability 2.0*, as those that are composed of biomass from a living source and are replenished at a rate equal to or greater than the rate of depletion, where renewable materials include materials from virgin and recycled sources.
  - 3.3.3 Biomass is defined as a material of biological origin, excluding materials embedded in geological formations or transformed to fossilized material (excluding peat), and includes organic material from above- and belowground, such as trees, crops, grasses, tree litter, algae, animals, and waste of biological origin (e.g., manure), consistent with the *Global Protocol on Packaging Sustainability 2.0*.
- 3.4 Investing in logistics, technologies, development and/or infrastructure to increase plastics recycling such as facilitating and/or increasing collection and sorting of plastic materials for reuse or recycling, mechanical recycling, chemical recycling, chemical additives to products/process to improve quality of materials derived from processing of plastic waste.
  - 3.4.1 Mechanical recycling is defined consistent with the *Sustainable Packaging Coalition*, as operations that aim to recover plastics waste via mechanical processes (e.g., grinding, washing, separating, drying, re-granulating, and compounding) where polymers stay intact, which permits for multiple reuse of polymers in the same or similar product.
  - 3.4.2 Chemical recycling is defined as a process that breaks down the polymers into their chemical constituents and converts them into useful products such as basic chemicals and/or polymers for new plastics, not for generating energy or fuel.

**RT-CH-410d.4 Percentage of total raw materials processed for use in the manufacture of inputs for single-use plastics products, by (1) virgin fossil fuel (hydrocarbon) content, (2) recycled content, and (3) renewable materials**

- 1 The entity shall disclose the percentage of raw materials used in the manufacture of inputs for single-use plastics that were derived from virgin fossil fuel (hydrocarbon) content.
  - 1.1 Single-use plastics are defined as products that are made wholly or partly from plastics and are typically intended to be used just once, for a short period of time, before being disposed of.

- 1.1.1 Examples of single-use plastics include grocery bags, food packaging, beverage bottles, straws, containers, cups, cutlery, and medical devices such as plastic gloves, syringes, tubes, drip chambers, thermoformed trays, face masks, bags for IV, and tubing for infusion and injection.
- 1.1.2 The scope excludes paints, inks, and adhesives, as well as plastics used to produce durable goods with a useful life of more than a year, such as appliances and transportation vehicles.
- 1.2 Fossil fuels are defined as coal, natural gas, and petroleum products (e.g., oil).
- 1.3 The percentage shall be calculated as the total weight in metric tons of purchased raw materials that are derived from virgin fossil fuel (hydrocarbon) content used in the manufacture of inputs for single-use plastics, divided by the total weight of all purchased raw materials used in the manufacture of inputs for single-use plastics.
- 1.3.1 The scope of raw materials in the numerator includes those that are derived from fossil fuels and are used by the entity to produce inputs sold and/or used in the manufacture of single-use plastics products.
- 1.3.2 The scope of raw materials in the denominator includes all raw materials used by the entity to produce inputs sold and/or used in the manufacture of single-use plastics products, including renewable, recycled raw materials, and virgin raw materials.
- 1.3.3 The total weight of raw materials shall be calculated as the total amount of raw materials in inventory at the beginning of the reporting period, plus any purchase of raw materials made during the reporting period, less any raw materials in inventory on hand at the end of the reporting period.
- 1.3.4 For raw materials that are measured in units of measurement aside from metric tons, such as cubic feet or gallons, the entity shall reference the *United Nations Energy Statistics: Definitions, Units of Measure and Conversion Factors* (table 6, 8, 9) to convert the unit of measurements for all types of fossil fuels to metric tons.
- 2 The entity shall disclose the percentage of raw materials used in the manufacture of inputs for single-use plastics that were derived from recycled content.
- 2.1 Consistent with *ISO 14021:2016 - Environmental labels and declarations*, “recycled content” refers to pre-consumer and post-consumer materials in a product or packaging and is consistent with the usage of “recycled materials,” “recovered materials,” “pre-consumer materials,” and “post-consumer materials.”
- 2.2 The percentage shall be calculated as the total weight in metric tons of purchased raw materials that are derived from recycled content and used in the manufacture of inputs for single-use plastics products, divided by the total weight of all purchased raw materials used in the manufacture of inputs for single-use plastics.

- 2.2.1 The scope of raw materials in the numerator includes those that are derived from recycled content and are used by the entity to produce inputs sold and/or used in the manufacture of single-use plastics products.
- 2.2.2 The scope of raw materials in the denominator includes all raw materials used by the entity to produce inputs sold and/or used in the manufacture of single-use plastics products, including renewable, recycled raw materials, and virgin raw materials.
- 2.2.3 The total weight of raw materials shall be calculated as the total amount of raw materials in inventory at the beginning of the reporting period, plus the weight any purchase of raw materials made during the reporting period, less the weight of any raw materials in inventory on hand at the end of the reporting period.
- 3 The entity shall disclose the percentage of raw materials used in the manufacture of inputs for single-use plastics that were derived from renewable materials.
- 3.1 Renewable materials are defined, consistent with the *Global Protocol on Packaging Sustainability 2.0*, as those that are composed of biomass from a living source and are replenished at a rate equal to or greater than the rate of depletion, where renewable materials include materials from virgin and recycled sources.
- 3.2 Biomass is defined as a material of biological origin, excluding materials embedded in geological formations or transformed to fossilized material (excluding peat), and includes organic material from above- and belowground, such as trees, crops, grasses, tree litter, algae, animals, and waste of biological origin (e.g., manure), consistent with the *Global Protocol on Packaging Sustainability 2.0*.
- 3.3 The percentage shall be calculated as the total weight in metric tons of raw materials that are derived from renewable materials and used in the manufacture of inputs for single-use plastics products, divided by the total weight in metric tons of all raw materials used in the manufacture of inputs for single-use plastics.
- 3.3.1 The scope of raw materials in the numerator includes those that are derived from renewable materials and are used by the entity to produce inputs sold and/or used in the manufacture of single-use plastics products.
- 3.3.2 The scope of raw materials in the denominator includes all raw materials used by the entity to produce inputs sold and/or used in the manufacture of single-use plastics products, including renewable, recycled raw materials, and virgin raw materials.
- 3.3.3 The total weight of raw materials shall be calculated as the total amount of raw materials in inventory at the beginning of the reporting period, plus the weight any purchase of raw materials made during the reporting period, less the weight any raw materials in inventory on hand at the end of the reporting period.
- 4 In the case that raw materials are derived from materials that are both recyclable and renewable, the entity shall not double-count the raw materials when calculating the percentage.

**RT-CH-410d.5 Discussion of actual and potential environmental and social impacts from business activities intended to reduce the environmental impact of single-use plastics occurring at each key phase of the product lifecycle: production, transportation, use-phase, and end-of-life**

- 1 The entity shall discuss the actual and potential environmental and social impacts from business activities intended to reduce the environmental impact of single-use plastics occurring at each key phase of the product lifecycle.
  - 1.1 Single-use plastics are defined as products that are made wholly or partly from plastics and are typically intended to be used just once, for a short period of time, before being disposed of.
    - 1.1.1 Examples of single-use plastics include grocery bags, food packaging, beverage bottles, straws, containers, cups, cutlery, and medical devices such as plastic gloves, syringes, tubes, drip chambers, thermoformed trays, face masks, bags for IV, and tubing for infusion and injection.
    - 1.1.2 The scope excludes paints, inks, and adhesives, as well as plastics used to produce durable goods with a useful life of more than a year, such as appliances and transportation vehicles.
  - 1.2 The scope of the product lifecycle includes production, use-phase, transportation, and end-of-life.
    - 1.2.1 Production includes activities such as energy and raw material supply, refining, cracking, polymerization/compounding, and converting.
    - 1.2.2 Transportation includes activities associated with routing polymers and resins to manufacturing companies and final plastic products to market (e.g., trucking and shipping).
    - 1.2.3 Use-phase is defined as the course over which the entity's product is used by a customer or consumer as a final product and/or the course over which the entity's product is used by a customer or consumer to generate a final product (e.g., in a manufacturing or production process).
    - 1.2.4 End-of-life is defined as the end of useful life of products that will be disposed as waste in landfill or incineration or for recycling and processing for reuse.
- 2 The scope of business activities intended to reduce the environmental impact of single-use plastics throughout the lifecycle include but are not limited to:
  - 2.1 Designing manufacturing processes for "reduced energy consumption," "reduced resource use," "reduced water use," "waste reduction," and "reduced greenhouse gas emissions," in accordance with the *ISO 14021:2016 - Environmental labels and declarations*.
  - 2.2 Developing products to be "compostable," "degradable," "recyclable," "reusable," "disassembled," manufactured with "recycled content," and "refillable," as well as strategies to extend product life, as defined by *ISO 14021:2016 - Environmental labels and declarations*.
  - 2.3 Incorporating alternative, non-virgin fossil fuel (hydrocarbon) raw materials such as recycled content and renewable materials into the production of inputs used to produce single-use plastic products.

- 2.3.1 Recycled content is defined consistent with definitions from *ISO 14021:2016 - Environmental labels and declarations*.
- 2.3.2 Renewable materials are defined, consistent with the *Global Protocol on Packaging Sustainability 2.0*, as those that are composed of biomass from a living source and are replenished at a rate equal to or greater than the rate of depletion, where renewable materials include materials from virgin and recycled sources.
- 2.3.3 Biomass is defined as a material of biological origin, excluding materials embedded in geological formations or transformed to fossilized material (excluding peat), and includes organic material from above- and belowground, such as trees, crops, grasses, tree litter, algae, animals, and waste of biological origin (e.g., manure), consistent with the *Global Protocol on Packaging Sustainability 2.0*.
- 2.4 Investing in logistics, technologies, development, and/or infrastructure to increase plastics recycling such as facilitating and/or increasing collection and sorting of plastic materials for reuse or recycling, mechanical recycling, chemical recycling, and chemical additives to products/process to improve quality of materials derived from processing of plastic waste.
  - 2.4.1 Mechanical recycling is defined consistent with the *Sustainable Packaging Coalition*, as operations that aim to recover plastics waste via mechanical processes (e.g., grinding, washing, separating, drying, re-granulating, and compounding) where polymers stay intact, which permits for multiple reuse of polymers in the same or similar product.
  - 2.4.2 Chemical recycling is defined as a process that breaks down the polymers into their chemical constituents and converts them into useful products such as basic chemicals and/or polymers for new plastics, not for generating energy or fuel.
- 3 Actual and potential environmental and social impacts from mitigation business activities associated with single-use plastics for each key product lifecycle phase include but are not limited to:
  - 3.1 Production phase: Potential food scarcity issues, increased use of natural resources (e.g., water), toxic chemicals, and/or fuel associated with the increased use of renewable materials in the production of polymers and resins.
  - 3.2 Transportation phase: An increased weight of reusable packaging alternatives, such as glass containers, potentially leading to less-efficient transportation logistics, increased fuel consumption, and emissions.
  - 3.3 Use phase: Potential negative impacts arising from the use of single-use plastic alternatives that reduce shelf-life of products and result in spoilage and waste.
  - 3.4 End-of-life phase: Potential negative impacts related to the use biodegradable plastics, such as contributions to marine waste and microplastics, increased methane emission during decomposition, increased use of natural resources (e.g., water), and energy consumption from industrial processors and new recycling technologies such as chemical recycling.

- 4 The entity shall disclose any relevant performance measures, targets, or goals it uses to measure the effectiveness of its business activities intended to mitigate environmental impacts from single-use plastics, as well as its progress against such targets.
- 5 The entity shall explain the methodologies and/or major assumptions employed to assess lifecycle impacts associated with its products used to manufacture single-use plastics.
  - 5.1 If the entity uses lifecycle assessment (LCA) analysis to assess the impacts of its single-use plastics products, it shall discuss the context of its approach to environmental impact reduction.
  - 5.2 Improvements to the environmental impacts of single-use plastic products may be discussed in terms of LCA functional unit service parameters (e.g., time, extent, and quality of function).

RECOMMENDED CHANGES