Chemical Footprint Project (CFP)

Solar Survey 2023:
Product Module Guidance

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May 2023

Clean Production Action designs and delivers strategic solutions for green chemicals, sustainable materials and environmentally preferable products.

Additional information about Clean Production Action and the Chemical Footprint Project™ is available at www.chemicalfootprint.org.

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Acknowledgments

The Chemical Footprint Project (CFP) envisions a world where chemicals are healthy for people and the environment; where chemically related disease rates for cancer, infertility, asthma, and learning disabilities are low; and where consumer, government, and business demand drives the widespread supply of safer products. To achieve this vision CFP was created to benchmark and share data on corporate progress to safer chemicals in products, manufacturing, and supply chains.

The CFP Solar Survey – Product Module is a new initiative to advance safer chemicals in products and supply chains in the solar sector. It is specifically designed for the solar sector and builds upon the CFP Survey and the work of the Collaboratory for a Regenerative Economy to identify priority chemicals of high concern and safer alternatives in the solar sector.

Clean Production Action, the Lowell Center for Sustainable Production (LCSP) at the University of Massachusetts Lowell, and the consultancy, Pure Strategies launched the first CFP Survey in 2014. We thank Cheri Peele formerly of Clean Production Action and now with Toxic-Free Future, Sally Edwards, Sc.D. of the LCSP and CFP co-founder, and Tim Greiner of Pure Strategies and CFP co-founder, for their significant contributions to the many iterations of the CFP Survey over the years, which is the foundation to the Solar Survey.

The Collaboratory for a Regenerative Economy (CoRE) is an integrated research, education and civic entrepreneurship initiative that brings together academic experts in materials science with entrepreneurial nonprofit organizations to accelerate clean production and sustainable materials in the renewable energy economy. Partners in CoRE are the Department of Materials Design and Innovation, at the University at Buffalo – The State University of New York, Niagara Share, and Clean Production Action. We thank Krishna Rajan, Sc.D. and Chitra Rajan, Ph.D., of the University at Buffalo, Alexandra McPherson of Niagara Share and Clean Production Action's Investor Environmental Health Network, and Sheila Davis of the Silicon Valley Toxics Coalition for their innovative work in advancing cleaner production in the solar sector, which is integrated into this new Solar Survey.

We thank Kayla Williams and Beverley Thorpe of Clean Production Action for their leading work in developing communication resources and website content to support the dissemination and adoption of the Solar Survey.

The authors take full responsibility for all content and any flaws or errors contained herein. Being practitioners of the ethos, "don't let the perfect be the enemy of the good," we look forward to continuing to improve the Solar Survey in future iterations.

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Overview

Outline

This guidance document details the following components of the Chemical Footprint Project (CFP) Solar Survey—Product Module:

- Four pillars of the Survey: Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification.
- Questions within each pillar, including response options.
- Process for answering questions.
- Points available for each question, each pillar, and the entire Survey.
- For each question: how to earn points, supporting documentation requirements, and when appropriate, examples.

The CFP Solar Survey has two separate modules: product and manufacturing. This is the product module.

Clean Production Action's Role

CFP is a program of Clean Production Action. The founding organizations of CFP are Clean Production Action, the Lowell Center for Sustainable Production at the University of Massachusetts Lowell, and Pure Strategies. Clean Production Action is a 20 year old non-profit organization. Our mission is to design and deliver strategic solutions for green chemicals, sustainable materials, and environmentally preferable products.

The two core initiatives of CFP are the:

- Survey, which is holistic assessment of where responding organizations are on the journey away from chemicals of high concern to safer solutions. CPA now offers two versions of the Survey:
    - CFP Survey: a general survey for any company in any sector.
    - CFP Solar Survey: this is a new initiative launched in collaboration with the Collaboratory for a Regenerative Economy (https://www.corebuffalo.org/) and is designed specifically for manufacturers and the supply chain in the design and manufacture of photovoltaics (PV), PV components, and PV inverters.
- Chemical footprint metric: a quantitative measure for tracking the use and reduction of chemicals of high concern.

The BizNGO Chemicals Management Work Group, which is a stakeholder group of businesses, environmental organizations, and government agencies, provides feedback and comments on revisions to the CFP Survey and chemical footprint metric. BizNGO is a program of Clean Production Action.

For the CFP 2023 Solar Survey – Product Module, Clean Production Action will:

- Score responders to the Survey.
- Publicize results from the Survey through a final report. For responders that agree, include in the final report and on the website, www.chemicalfootprint.org, their: organization name, responses to the Survey, and/or final score for the Survey.

Signatories to the CFP Survey & Investors for Sustainable Solar

CFP Signatories are investors, retailers, large-scale purchasers, governments, and non-governmental organization (NGOs) that agree to:

- Encourage companies in their sphere of influence to participate in the CFP Survey.
- Be listed on the CFP website.
- Provide feedback on how to improve implementation of the CFP Survey.

For a complete list of CFP Signatories, which represent investors with $3 trillion in assets under management and purchasers with $900 billion in buying power, see https://chemicalfootprint.org/value/cfp-signatories. Organizations can be both Signatories and Responders to the Survey.

Investors for Sustainable Solar is a collaboration coordinated by the Investor Environmental Health Network (IEHN), including Boston Common Asset Management, Domini Impact Investments, Mercy Investment Services, and WHEB Asset Management LLP. This new collaboration is engaging solar photovoltaic energy and inverter companies in their efforts to adopt best practices for safer, more sustainable, and responsible solar energy production (see https://iehn.org/our-work/investors-for-sustainable-solar).

Responders to the CFP Solar Survey

The CFP Solar Survey – Product Module applies to companies manufacturing and/or selling products in the solar sector. Responders voluntarily answer questions to the Survey and submit their answers along with documentation to Clean Production Action.

Four Pillars of the CFP Solar Survey

The CFP Solar Survey scores companies across four pillars of chemicals management beyond regulatory compliance: Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification.

Total maximum points for each pillar are:

- Management Strategy = 20 points
- Chemical Inventory = 30 points
- Footprint Measurement = 33 points
- Disclosure & Verification = 22 points

The total maximum points for the CFP Solar Survey 2023 equals 105 points.

Contact Information

For more information on the Solar Survey visit www.chemicalfootprint.org or contact us at moreinfo@cleanproduction.org.

Terms & Definitions

TERM	DEFINITION
Alternatives assessment	A process for identifying, comparing and selecting safer alternatives to chemicals of concern (including those in materials, processes or technologies) on the basis of their hazards, performance, and economic viability. A primary goal of alternatives assessment is to reduce risk to humans and the environment by identifying safer choices.
Article	An object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition (https://www.reach-compliance.eu/english/REACH-ME/engine/sources/definitions.html, accessed 3/28/2023).
Chemical	A molecule (or molecular entity) composed of atoms of more than one element held together by chemical bonds and typically identified by CASRN.
Chemical footprint	Total mass of chemicals of high concern (CoHCs) used by an event, organization, service, building, or product. For a list of CoHCs see the CFP CoHCs Reference List.
Chemical footprint of an organization	Total mass of chemicals of high concern (CoHCs) in products sold by a company; used in its manufacturing operations, facilities, and by its suppliers; and contained in packaging. For a list of CoHCs see the CFP CoHCs Reference List.
Chemical Footprint Project Chemicals of High Concern Reference List – "CFP CoHCs Reference List"	List of CoHCs generated using GreenScreen® for Safer Chemicals chemical hazard assessment scores of: GreenScreen List Translator-1 (LT-1) and GreenScreen Benchmark-1 (https://www.greenscreenchemicals.org/learn/lt-vs-gs). GreenScreen List Translator uses authoritative lists of hazardous chemicals to identify LT-1 chemicals, including EU REACH Substances of Very High Concern Candidate List, International Agency for Research on Cancer (IARC), and California Proposition 65 (https://www.greenscreenchemicals.org/learn/greenscreen-list-translator). Substances on these lists that could not plausibly be an intentionally added ingredient of a product were excluded from the CFP CoHCs Reference List (e.g., viruses). While each source list is dynamic, to provide a consistent baseline for reporting the CFP CoHCs Reference List reflects the underlying lists as of October 31, 2018. For the CFP CoHCs Reference List go to https://chemicalfootprint.org/assess/survey-resources.

TERM	DEFINITION
Chemical Footprint Project Solar Chemicals of High Concern Reference List – "CFP Solar CoHCs Reference List"	The CFP Solar CoHCs Reference List encompasses: a. Chemicals on the Clean Electronics Production Network's Toward Zero Exposure pledge Priority Chemical List (https://www.towardzeroexposure.org/priority-chemicals). b. Chemicals on the European Union (EU) REACH Candidate Substances of Very High Concern (SVHCs) List (see https://echa.europa.eu/candidate-list-table). c. Chemicals restricted by the EU Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive (see https://environment.ec.europa.eu/topics/waste-and-recycling/rohs-directive_en#background). d. Chemicals on the International Electrotechnical Commission (IEC) 62474 Material Declaration for Products of and for the Electrotechnical Industry – Declarable Substance List (see https://std.iec.ch/iec62474/iec62474.nsf/Index?open&q=181540). e. Chlorine, bromine, and fluorine in electrical cables and plastic parts as referenced in NSF/ANSI 457 – 2019 Sustainability Leadership Standard for Photovoltaic Modules and Photovoltaic Inverters (https://globalelectronicscouncil.org/wp-content/uploads/NSF-457-2019-1.pdf). f. Per- and polyfluoroalkyl substances (PFAS): For the PFAS reference list see The Comprehensive Global Database of PFAS by the Organisation for Economic Cooperation and Development (OECD) (http://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals).
Chemical hazard	Inherent property of a substance having the potential to cause adverse effects when an organism, system, or population is exposed, based on its chemical or physical characteristics**.**
Chemical hazard assessment	The process of determining whether a chemical is capable of causing adverse effects to human health or the environment and the circumstances under which these effects may occur.
Chemical mixture	See "Mixture."
Chemical of concern	A chemical that is of moderate to high concern for ecotoxicity or human toxicity, but is not a Chemical of High Concern (CoHC).
Chemical of high concern (CoHC)	A carcinogen, mutagen, or developmental/reproductive toxicant; persistent, bioaccumulative, and toxic substance (PBT); very persistent and very bioaccumulative (vPvB); or any other chemical for which there is scientific evidence of probable serious effects to human health or the environment that give rise to an equivalent level of concern, such as endocrine disruption or neurotoxicity, or a chemical whose breakdown products result in a CoHC that meets any of the above criteria. This definition of a CoHC aligns with criteria for GreenScreen Benchmark-1, GreenScreen List Translator-1 chemicals, as well as the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

TERM	DEFINITION
Chemicals policy	A statement of how a company manages chemicals in its products, supply chains, manufacturing operations, facilities, and/or packaging beyond legal requirements.
Chemicals policy – facilities	Addresses chemicals in products used or contained in offices, retail spaces, laboratories, distribution centers, cafeterias, or outdoor spaces. For example, chemicals contained in furniture, furnishings, and/or products used for cleaning, food service ware, and landscape maintenance. Note a facility chemicals policy does not include chemicals used directly in manufacturing operations.
Chemicals policy – manufacturing operations	Addresses chemicals used in manufacturing operations, which are used on their own or in mixtures, directly in or created during the manufacture of a product that are not incorporated in whole or in part in the product.
Chemicals policy – packaging	Addresses chemicals in primary, secondary, and/or tertiary packaging. See "packaging" definition.
Chemicals policy – products	Addresses chemicals in products sold, licensed, or distributed by a company.
Chemicals policy – supply chains	Addresses chemicals used, at a minimum, by Tier 1 suppliers.
Chemical substance	See "Substance."
Formulated product	A mix of substances and/or mixtures. Examples include: paints, adhesives, cosmetics, lubricants, detergents, and cleaning products. Can be sold to another formulator, fabricator, or distributor, or sold as a final product to a retailer or consumer.
Formulator	Downstream user who produces mixtures and usually supplies them further down the supply chain or directly to consumers. A formulator mixes together substances and/or mixtures, with no chemical reaction taking place during the process. Examples of such mixtures include paints, adhesives, cosmetics, lubricants, detergents and diagnostic kits (https://echa.europa.eu/regulations/reach/downstream-users/who-is-a-downstream-user/formulators/classifying-mixtures, accessed 3/28/2023).
Full chemical ingredient information	CFP defines "full chemical ingredient information" as follows: • **For formulated products:** a company knows: o 100% of the intentionally added substances by mass and o any impurities that are both a CoHC and present at 100 parts per million (ppm) or higher in the formulation. • **For articles:** a company knows: o 95% of the intentionally added substances by mass and o any impurities that are both a CoHC and present at 1000 ppm or higher in a homogeneous material.
Generic material content	The general name of a material, such as steel, nylon fabric, adhesive, or type of plastic (for example, polyethylene terephthalate or PET). CAS Registry Number is not required.

TERM	DEFINITION
Global Harmonized System of Classification and Labeling of Chemicals (GHS)	An international system for standardizing and harmonizing the classification and labeling of chemicals (https://unece.org/about-ghs).
Green chemistry approach to chemicals management	A Green Chemistry approach utilizes the 12 Principles for Green Chemistry* for an organization's chemicals management framework, with a particular focus on replacing/avoiding hazardous chemicals with inherently safer chemicals by following Principles: "#1. Prevention: It is better to prevent waste than to treat or clean up waste after it has been created." "#3. Less Hazardous Chemical Syntheses: Wherever practicable, synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health and the environment." "#4. Designing Safer Chemicals: Chemical products should be designed to effect their desired function while minimizing their toxicity." "#5. Safer Solvents and Auxiliaries: The use of auxiliary substances (e.g., solvents, separation agents, etc.) should be made unnecessary wherever possible and innocuous when used." "#12. Inherently Safer Chemistry for Accident Prevention: Substances and the form of a substance used in a chemical process should be chosen to minimize the potential for chemical accidents, including releases, explosions, and fires." *Source: Anastas, P. T. and Warner, J. C. *Green Chemistry: Theory and Practice*. Oxford University Press: New York, 1998, p. 30 (see https://greenchemistry.yale.edu/about/principles-green-chemistry, accessed 3/29/2023).
GreenScreen Benchmark™ Score	A score that is assigned to a chemical evaluated using the GreenScreen® for Safer Chemicals method. GreenScreen Benchmark scores range from 1 to 4, with each increasing Benchmark score defining progressively less hazardous chemicals (GreenScreen Guidance and Resources; https://www.greenscreenchemicals.org/learn/full-greenscreen-method).
GreenScreen List Translator™	A streamlined chemical hazard assessment method developed by Clean Production Action that produces a GreenScreen List Translator score (GreenScreen Guidance and Resources Section IV; https://www.greenscreenchemicals.org/learn/guidance-and-method-documents-downloads).
GreenScreen List Translator™ Score	A score that is assigned to a chemical screened against all GreenScreen Specified Lists (Annex 11) using GreenScreen List Translator guidance. List Translator scores include LT-1, LT-P1, LT-UNK and NoGSLT (GreenScreen Guidance and Resources Section IV; https://www.greenscreenchemicals.org/learn/guidance-and-method-documents-downloads).

TERM	DEFINITION
Homogenous material	One material of uniform composition throughout or a material, consisting of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes. This definition is consistent with Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS 2).
Impurity	"An unintended constituent present in a substance as manufactured. It may, for example, originate from the starting materials or be the result of secondary or incomplete reactions during the production process. While it is present in the final substance, it was not intentionally added. In most cases impurities constitute less than 10% of the substance" (ECHA; https://echa-term.echa.europa.eu, accessed 4/1/2023)
Incidental component	(1) a chemical which was added during the manufacturing process at any point in a product, a raw material, or an ingredient's supply chain, but which has no functional or technical effect in the finished product, including an unreacted chemical; or (2) a chemical present in the environment as a contaminant which was introduced into a product, a raw material, or a product ingredient at any point in the supply chain for the product, raw material, or ingredient, as a result of the use of an environmental medium, such as a naturally occurring mineral, air, soil, or water, in the manufacturing process.
Intentionally added	Included to serve a desired function; not an impurity, non-functional constituent, incidental component, or a residual.
Manufacturing Restricted Substances List (MRSL)	A list of chemicals banned from intentional use in facilities that process materials, components, and/or products. An MRSL establishes acceptable concentration limits for substances in chemical formulations used within manufacturing facilities (adapted from ZDHC - https://mrsl.roadmaptozero.com/).
Mixture	"A mixture or a solution composed of two or more substances in which they do not react" (GHS Rev. 9; https://unece.org/sites/default/files/2021-09/GHS_Rev9E_0.pdf, accessed 3/28/2023).
Non-functional constituent	A chemical that has no functional or technical effect on the designated product and is present as an *incidental component* of an intentionally added ingredient, a breakdown product of an intentionally added ingredient, or a byproduct of the manufacturing process.
Precautionary approach to chemicals management	A precautionary approach to chemicals management includes a commitment to avoid adverse inherently hazardous chemicals, even in the face of lacking full scientific certainty. For example, as defined by Principle 15 of the 1992 Rio Declaration: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (source: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf, accessed 3/29/2023).

TERM	DEFINITION
Preventive approach to chemicals management	Based on the concepts of pollution prevention and toxics use reduction, a preventive approach includes a commitment to reduce exposure to hazardous chemicals by reducing, eliminating, or avoiding the use of hazardous chemicals. For example, see the Commonwealth of Massachusetts's definition of: "Toxics use reduction:" "in-plant changes in production processes or raw materials that reduce, avoid, or eliminate the use of toxic or hazardous substances or generation of hazardous byproducts per unit of product, so as to reduce risks to the health of workers, consumers, or the environment, without shifting risks between workers, consumers, or parts of the environment" (source: https://malegislature.gov/Laws/GeneralLaws/PartI/TitleII/Chapter21I/Section2, accessed 3/29/2023).
Product	A finished good composed of parts, homogeneous materials, and/or chemical substances. A product may function as part of another product. A product may be made of one or more homogeneous materials.
Residual	Chemical or substance added upstream in the supply chain to serve a desired function: 1) In the additive or homogeneous material but not in the final product as placed on the market; or 2) In the production of the additive or homogeneous material. For example, this may refer to substances included in a manufacturing process to aid processing, as well as inputs to a reaction process such as reagents, catalysts, monomers, or preservatives for raw materials.
Restricted Substances List (RSL)	A list of chemicals and/or chemical classes restricted by a company in products, parts, or components from its suppliers.
Safer chemical	A chemical that, due to its inherent chemical and physical properties, exhibits a lower propensity to persist in the environment, accumulate in organisms, and/or induce adverse effects in humans or the environment. For example, GreenScreen® Benchmark-2, -3, or -4 chemical is a safer chemical than a GreenScreen Benchmark-1 chemical.
Safer material	A material that, due to its inherent chemical and physical properties, exhibits a lower propensity to persist in the environment, accumulates in organisms, and/or induces adverse effects in humans or the environment.
Substance	"A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition" (https://reachonline.eu/reach/en/title-i-chapter-2-article-3.html, accessed 3/28/2023).
Safer alternative	A chemical, material, product, process or technology that is less hazardous for humans and the environment than the existing approach.

TERM	DEFINITION
Supply chain	"A network between a company and its suppliers to produce and distribute a specific product to the final buyer" (https://www.investopedia.com/terms/s/supplychain.asp, accessed 3/28/2023).
Tier 1, 2, and 3 suppliers	Tier 1 Suppliers: Partners that a company directly conducts business with, including contracted manufacturing facilities or production partners. Tier 2 Suppliers: Sources of chemicals, materials, or products for Tier 1 suppliers. Tier 3 Suppliers: Sources of chemicals, materials, or products for a Tier 2 suppliers. See for example https://www.sustain.life/blog/tier-suppliers#:~:text=TIER%201%20SUPPLIERS,is%20a%20Tier%201%20supplier (accessed 3/28/2023).
Watch list	A list of chemicals of concern and/or classes of chemicals of concern that a company does not restrict, but is considering restricting in the future.

Pre-Questions

Pre-questions address general questions including: company size and scope of products covered by your Survey responses. All pre-questions must be answered. No points are awarded for these questions. If pre-questions are not answered, then the responses will not be scored.

Question P1: Company Size

P1.1 What size is your company (select one)?

a. Our company is privately held. If you selected this option, proceed to Question P1.2.
b. Our company is publicly traded. If you selected this option, proceed to Question P1.3.

P1.2 Our company is privately held, with revenue for the latest fiscal year of (select one):

a. Revenue greater than $50 billion
b. Revenue greater than $5 billion and less than or equal to $50 billion
c. Revenue greater than $0.5 billion and less than or equal to $5 billion
d. Revenue less than or equal to $0.5 billion

P1.3 Our company is publicly traded, with revenue for the latest fiscal year of (provide annual revenue in US dollars): _____.

Question P2: Scope of Product Portfolio Reported

P2.1 Indicate the scope of your product portfolio for which you are reporting (select one):

a. Includes all product lines. If you selected this option, proceed to Question P3.
b. Did not include all product lines or divisions. If you selected this option, proceed to Question P2.2.

P2.2 Indicate the product lines or divisions for which you are reporting (provide answer below):

Question P3: Disclose Company Name as Responder to the CFP Solar Survey

P3 Does your company agree to allow CFP to publicly list the name of your company as a responder to the CFP Solar Survey - Product Module (select one)?

a. Yes
b. No

Question P4: Time Period Covered by Your Responses

P4 Indicate the time period you are reporting for (select one and provide the dates – mm/yyyy to mm/yyyy):

a. Most recent fiscal year: _____.
a. Past two fiscal years: _____.

Management Strategy Pillar (20 points)

Management Strategy (M) measures the scope of corporate chemical policies and their integration into business strategy, internal accountability and incentives for safer chemical use, as well as external support of initiatives and public policies for safer chemicals. The four Management Strategy questions and maximum points for each question are:

- Question M1: Chemicals Policy = 8 points
- Question M2: Business Strategy & Sustainability = 4 points
- Question M3: External Engagement = 4 points
- Question M4: Accountability = 4 points

See below for details on each question, including response options, how to earn points, examples, and documentation requirements.

Question M1: Chemicals Policy (8 points)

Indicate whether you have a chemicals policy for products, supply chains, and/or facilities. For each of these areas, indicate whether the policy: a) addresses the reduction of chemicals of high concern (CoHCs); b) includes an explicit reference to utilizing a precautionary, preventive, or green chemistry approach to reduce the hazards of chemicals in products; c) includes an explicit reference for safer alternatives; and d) is publicly disclosed.

M1.1 Does your company have a chemicals policy that addresses PRODUCTS (select one)?

a. Yes, proceed to Question M1.2.
b. No, proceed to Question M1.3.

M1.2 Our company's chemicals policy for PRODUCTS (select all that apply):

a. Addresses the reduction of chemicals of high concern (CoHCs).
b. Includes an explicit reference to utilizing a precautionary, preventive, or green chemistry approach to reduce the hazards of chemicals.
c. Includes an explicit preference for safer alternatives.
d. Is publicly disclosed.

M1.3 Does your company have a chemicals policy that addresses its SUPPLY CHAINS (select one)?

a. Yes, proceed to Question M1.4.
b. No, proceed to Question M1.5.

M1.4 Our company's chemicals policy for SUPPLY CHAINS (select all that apply):

a. Addresses the reduction of CoHCs.
b. Includes an explicit reference to utilizing a precautionary, preventive, or green chemistry approach to reduce the hazards of chemicals.
c. Includes an explicit preference for safer alternatives.
d. Is publicly disclosed.

M1.5 Does your company have a chemicals policy that addresses FACILITIES (select one)?

a. Yes, proceed to Question M1.4.
b. No, proceed to Question M2.

M1.6 Our company's chemicals policy for FACILITIES (select all that apply):

a. Addresses the reduction of CoHCs.
b. Includes an explicit reference to utilizing a precautionary, preventive, or green chemistry approach to reduce the hazards of chemicals.
c. Includes an explicit preference for safer alternatives.
d. Is publicly disclosed.

How to earn points, examples, and supporting documentation requirements

Question M1 seeks to understand the scope of a company's chemicals policy or policies that are broader than legal compliance. A chemicals policy must go beyond regulatory compliance. Merely stating that the company complies with all chemical-related regulations is insufficient to score points for Question M1.

Specifically we are interested in understanding how your chemicals policy or policies address chemicals in products, supply chains, and/or facilities beyond what is legally required by regulations. A chemicals policy is distinct from a company's overall sustainability policy in providing specific guidance related to chemicals management.

Question M1 has three core components:

- **First, does the chemicals policy apply to chemicals in products, supply chains, and/or facilities?**
  - A chemicals policy for **products** addresses chemicals in products sold, licensed, or distributed by a company.
  - A chemicals policy for **supply chains** addresses chemicals used at a minimum by Tier 1 suppliers.
  - A chemicals policy for **facilities** addresses chemicals in products used or contained in offices, retail spaces, laboratories, distribution centers, cafeterias, or outdoor spaces. For example, chemicals contained in: cleaning products, furniture, food service ware products in cafeterias, and landscape maintenance products. Note: a facility chemicals policy does not include chemicals used directly in manufacturing operations.
- **Second, does the chemicals policy cover any of the following**, beyond regulatory requirements:
  - **Addresses the reduction of CoHCs** in products, supply chains, and/or facilities? For example the policy covers: classes of chemicals of concern such as per- and polyfluoroalkyl substances (PFAS); emerging substances of concern such as nanomaterials; chemicals associated with specific adverse health or environmental impacts such as endocrine disruptors; or lists of CoHCs such as the EU REACH Candidate Substances of Very High Concern (SVHCs) List.

  - **Includes an explicit reference to utilizing a precautionary, preventive, or green chemistry approach** to reducing the hazards of chemicals in products, supply chains, and/or facilities? See Terms & Definitions for an explanation of precautionary, preventive, and green chemistry approaches to chemicals management.
  - **Includes an explicit preference for safer alternatives** in products, supply chains, and/or facilities? See Terms & Definitions for definition of "safer alternatives."
- **Third, is the chemicals policy publicly available on the company's website?** CFP encourages responders to make their chemicals policies publicly available.

A chemicals policy may aspire to eliminate all chemicals of high concern, may encourage transparency of chemical ingredient information throughout the supply chain, and/or may identify how a company assesses alternatives to chemicals it seeks to reduce or eliminate.

For model chemical policies see:

- BizNGO Model Chemicals Policy for Brands and Manufacturers (https://www.biznGO.org/safer-chemicals/corporate-chemicals-policy-template).
- For an example of a comprehensive corporate chemicals policy from the technology sector, see HP's Materials and Chemical Management Policy (https://h20195.www2.hp.com/v2/getpdf.aspx/c05354207.pdf).

Supporting documentation requirements:

- Provide a narrative summary of how your company's chemicals policy addresses each appropriate response option.
- Provide a copy of and/or a link to your chemicals policy. Links must be provided to receive credit for public disclosure.

If policies are embedded within a larger document, provide the page number(s) you would like to be considered as relevant documentation.

Question M2: Business Strategy & Sustainability (4 points)

Question M2 seeks to understand how chemicals management strategies and policies are integrated into a company's business strategy as well as other sustainability initiatives, such as circularity.

M2.1 Is safer chemicals management integrated into your business strategy and other sustainability initiatives (select one)?

a. Our company has integrated safer chemicals management into our business strategy or other sustainability initiatives as listed in Question M2.2. If you selected this option, proceed to Question M2.2.
b. Our company has not integrated safer chemicals management into our business strategy or other corporate sustainability initiatives as listed in Question M.2.2. If you selected this option, proceed to Question M3.

M2.2 Our company has integrated safer chemicals management into our business strategy and other sustainability initiatives by (select all that apply):

a. Highlighting the use of safer chemicals and/or materials in product marketing.
b. Completing a materiality assessment or participating in an industry sector-based materiality assessment that analyzed where and how chemicals use is relevant to the topics included in the materiality assessment.
c. Connecting safer chemicals management to other sustainability efforts, such as circularity, biodiversity loss, climate change, environmental justice, and/or plastic reduction in publicly available documents or webpages.
d. Explicitly linking our safer chemicals/materials management work to one or more of the following: the Sustainability Accounting Standards Board (SASB) industry standard, the Global Reporting Initiative (GRI) Standard, or one or more of the UN Sustainable Development Goals (SDGs).

How to earn points and supporting documentation requirements

Option M2.2a
Specify how your organization includes information on safer chemicals and materials in marketing materials for customers. This information needs to appear in other places beyond a company's sustainability webpage or equivalent, such as the product catalog.

Option M2.2b
Option b encourages companies to analyze the role of chemicals within the context of their materiality assessments. Environmental, Social, and Governance (ESG) materiality assessments are becoming standard business practice. Yet, companies may not consider how chemical-related issues interconnect to topics identified in their materiality assessment.

How companies approach a materiality assessment varies given the lack of a standardized definition of and criteria for a materiality assessment. The Global Reporting Initiative (GRI), for example, defines "material topics" as "those that reflect the organization's significant economic, environmental and social impacts; or that substantively influence the assessments and decisions of stakeholders. To determine if a topic is material, qualitative analysis, quantitative assessment and discussion are needed" (source: https://www.globalreporting.org/standards/media/2335/item-20-transition-to-gri-standards-mock-up-of-sustainability-reporting-standard-2-content-principles.pdf).

Currently, CFP does not specify an approach or approaches to performing a materiality assessment. GRI, for one, is advancing the concept of "double materiality" which encompasses both "financial materiality" – "information on economic value creation at the level of the reporting company for the benefit of investors (shareholders)" and "impact materiality" – "information on the reporting company's impact on the economy, environment and people for the benefit of multiple stakeholders, such as investors, employees, customers, suppliers and local communities" (source: https://www.globalreporting.org/media/r2oojx53/gri-perspective-the-materiality-madness.pdf).

Option b has two parts and companies only receive a point for Option b if they answer "yes" to both parts of the question. First, has your company completed a materiality assessment or participated in an industry sector-based materiality assessment? If yes, then has your company analyzed where and how chemicals are relevant to the topic(s) identified in the materiality assessment?

Chemicals are relevant to many materiality topics, including circularity, packaging, biodiversity, product design/stewardship, occupational health and safety, human rights, supply chains, responsible sourcing, responsible production, and social and environmental justice. Companies will receive credit for the second part of the question by demonstrating that they assessed how chemicals are relevant to one or more of their materiality topics. For example, if "circularity" was identified as a topic in the materiality assessment by the company or stakeholders, then the organization would receive credit by demonstrating that it has assessed whether/how hazardous chemicals are a risk to its circularity initiatives.

Option M2.2c
Chemicals are interlinked with other global environmental crises, including biodiversity loss, climate change, plastic pollution, and environmental injustices. Companies will receive credit for this question by demonstrating that they publicly connect the need to address CoHCs, chemical pollution, and/or use safer alternatives to other critical sustainability issues.

Option M2.2d
Sound management of chemicals for sustainable development and protecting human health and the environment are part of the commitments to achieve the UN Sustainable Development Goals (SDGs). In addition, globally recognized reporting standards such as the Sustainability Accounting Standards Board (SASB) include key performance indicators (KPIs) for chemicals management. Companies will receive credit if their KPIs and information reported in sustainability reports are interlinked to global strategic goals for chemical management, such as the UN SDGs, or to global reporting standards, such as the GRI or SASB.

For examples of how the SDGs relate to the CFP Survey in general see page 8 from CFP 2018 Report (https://chemicalfootprint.org/assets/downloads/2018ChemicalFootprintProjectReport.pdf).
Supporting documentation requirements:

- Option M2.2a: Provide marketing materials that highlight use of safer chemicals/materials or avoidance of chemicals of concern in products.
- Option M2.2b: Provide a copy of your materiality assessment and analysis of how chemicals or chemical pollution relate to topics in the materiality assessment.
- Option M2.2c: Provide evidence, for example from a sustainability report, of how your company connects chemicals to biodiversity loss, climate change, plastic pollution, or environmental injustices.
- Option M2.2d: Provide evidence, for example from a sustainability report, of how your company connects chemicals to UN SDGs, SASB, and/or GRI.

Question M3: External Engagement (4 points)

Question M3 seeks to understand how your company engages externally to: increase chemical ingredient transparency in products and supply chains, restrict chemicals of concern based on inherent hazards (such as PFAS), and promote inherently safer alternatives.

M3.1 Does your company advocate externally for proactive chemicals management that includes: increasing the transparency of chemical ingredients in products and supply chains, restricting chemicals of concern based on their inherent hazards including classes of chemicals of concern such as PFAS, and promoting inherently safer alternatives (select one)?

a. Our company advocates externally to promote the actions listed in Question M3.2. If you selected this option, proceed to Question M3.2.
b. Our company does not advocate externally to promote the actions listed in Question M3.2. If you selected this option, proceed to Question M4.

M3.2 Our company (select all that apply):

a. Collaborates with **non-governmental organizations (NGOs)** that advance inherently safer alternatives to chemicals of concern.
b. **Advocates for safer chemicals/materials in government legislation or regulation**, either directly or is a member of a trade association that advocates for increasing chemical ingredients transparency in products and supply chains, restricting chemicals of concern based on inherent hazards, or promoting inherently safer alternatives. Advocacy includes submitting written comments, making oral comments, or testifying to elected bodies or regulatory agencies.
c. **Supports safer chemicals/materials management in standards, certifications, eco-labels, or NGO-led pledges**, either directly or as a member of a trade association that advocates for increasing chemical ingredient transparency in products and supply chains, restricting chemicals of concern based on inherent hazards, or requiring inherently safer alternatives. Support includes written and verbal comments to standard setting bodies.
d. **Presents publicly, states on our website, or publishes documents** that support hazard-based frameworks for increasing chemical ingredient transparency in products and supply chains, restricting chemicals of concern based on inherent hazards, or requiring inherently safer alternatives.

How to earn points, examples, and supporting documentation requirements

This question evaluates whether the company advocates for the proactive management of chemicals in diverse settings. For example, a company may be a proactive member of a group advocating for better chemicals management, a supporter of better regulations of chemical ingredients and restriction of chemicals of concern, and may be part of an industry group working towards these goals in public policies or industry standards.

Option M3.2a

A company earns points for Option a if it is an active member of an NGO initiative or collaborates with NGOs that advance inherently safer alternatives to chemicals of concern. Examples include: Collaboratory for a Regenerative Economy (https://www.corebuffalo.org/), Green Chemistry & Commerce Council (GC3), Green America's Clean Electronics Production Network, Clean Production Action's BizNGO Working Group for Safer Chemicals & Sustainable Materials, and ChemSec's Business Group. For example, see HP's Green Chemistry Timeline, which highlights numerous collaborations with NGOs, including GC3 and Clean Production Action (https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06048911). Being an "active member" means that your company does more than pay membership dues; for example, a company representative attends annual meetings and actively supports, participates, and engages in work groups.

Option M3.2b
A company earns points for Option b if it, or a trade association to which it is a member, is on public record in supporting legislation or regulations that: increase the transparency of chemical ingredients in products and supply chains, restrict chemicals of concern based on their inherent hazards, or promote inherently safer alternatives. For example, in 2017, Reckitt Benckiser (RB) publicly supported legislation in California that mandated specific ingredient disclosure for cleaning products (see https://markets.businessinsider.com/news/stocks/rb-supports-california-ingredient-disclosure-bill-675459?miRedirects=1).

Option M3.2c
A company earns points for Option c if it, or a trade association to which it is a member, is on public record in supporting safer chemicals/materials management (increasing transparency, restricting chemicals of concern based on inherent hazards, or requiring inherently safer alternatives) in: comments on standards, certifications; eco-labels; peer reviews of standards, certifications, or eco-labels; or NGO-led pledges or sign-on documents. For example, a company that is a signatory to the BizNGO Principles for Chemical Ingredient Disclosure (https://www.biznGO.org/public-policies/principles-for-chemical-ingredient-disclosure) or the Clean Electronics Production Network Toward Zero Exposure commitment (https://www.towardzeroexposure.org/).

Option M3.2d
A company earns points for Option d if it made public presentations, has statements on its website, or statements in publications (such as a corporate sustainability report) in support of hazard-based frameworks for prioritizing and restricting chemicals of concern, increased transparency of chemical ingredients in products, and safer alternatives.

Supporting documentation requirements for demonstrating how your company engages externally to increase chemical ingredient transparency in products and supply chains, restrict chemicals of concern based on inherent hazards (PFAS), and promote inherently safer alternatives are:

- Option M3.2a: Provide name of NGO(s) your company collaborates with and describe how your organization actively supports this work by, for example, participating in work groups, attending annual meetings, making presentations, etc.
- Option M3.2b: Provide references to/examples of written/oral comments/testimonies to regulatory/legislative bodies by your company or a trade association you are a member of in support of this work.
- Option M3.2c: Provide: a) references to/examples of written comments to standard setting bodies by your company or a trade association you are a member of in support of this work; and/or b) link to NGO website stating your organization signed on to an NGO-led pledge.
- Option M3.2d: Provide links to public presentations, articles, blogs, webinars, or corporate statements in support of this work by your company. If listing a corporate sustainability report, must include relevant page number(s).

Question M4: Accountability (4 points)

Question M4 evaluates whether the implementation of your chemicals policy and achievement of footprint reduction goals is clearly delineated in the work responsibilities of your company's employees, senior management, and/or board members.

M4 What means of accountability does your company have in place to ensure the implementation of your chemicals policy (M1) and/or footprint reduction goal(s) (F1)?

M4.1 Our company (select one):

a. Has a means of accountability listed in Question M4.2 below to ensure the implementation of our chemicals policy and/or footprint reduction goal. If you selected this option, proceed to Question M4.2.
b. Does not have the means of accountability listed in Question M4.2 below to ensure the implementation of our chemicals policy and/or footprint reduction goals. If you selected this option, proceed to Question I1.

M4.2 Our company (select all that apply):

a. Delineates chemicals management responsibilities in job descriptions and individual annual performance metrics.
b. Assigns member(s) of senior management responsibility for meeting chemical policy goals and objectives.
c. Have financial incentives for senior management to meet corporate sustainability goals, including chemicals policy-related or footprint reduction goals.
d. Has Board level engagement in implementing our chemicals policy or footprint reduction goal.

How to earn points, example, and supporting documentation requirements

Implementing a chemicals policy and/or footprint reduction goal includes setting objectives and targets, tracking and reporting on performance, and reviewing of activities. Implementation of this work requires having employees who are knowledgeable about the policy and/or footprint reduction goal, engaged in its implementation, and rewarded for success. In addition, a systematic transition toward using safer chemicals and products requires support and accountability at the highest levels of an organization. When an organization's executive team member is responsible for reducing the use of chemicals of high concern, this member will engage other company members to help achieve this objective. Board-level visibility of chemicals policy goals and progress toward those goals signals a high level of commitment to implementing the policy and achieving the goal.

For an example of meeting Options a, b, and c, see HP's 2019 Sustainable Impact Report, which states that: "All members of the executive leadership team oversee Sustainable Impact targets relevant to their organizations and are evaluated annually against objective related to Sustainable Impact … Performance against these and other business objectives is tied to total compensation" (source: https://h20195.www2.hp.com/v2/getpdf.aspx/c06601778.pdf, page 15).

Supporting documentation requirements: provide a narrative summary for each option selected, including the title and description of responsibilities for the highest ranking person in the company responsible for chemicals management. When referencing any document, such as a sustainability report, you must provide the page numbers(s) relevant to each option selected.

Chemical Inventory Pillar (30 points)

Chemical Inventory (I) assesses a company's knowledge of the chemicals in its products, systems for managing chemical data, and processes for ensuring supplier compliance with reporting requirements. The six Chemical Inventory questions and maximum points for each question are:

- Question I1: Restricted Substances List (RSL) = 5 points
- Question I2: RSL Compliance = 5 points
- Question I3: Data Collection = 5 points
- Question I4: Full Chemical Ingredient Information = 5 points
- Question I5: Data Management = 5 points
- Question I6: Supplier Conformance = 5 points

See below for details on each question, including response options, how to earn points, examples, and documentation requirements.

Question I1: Restricted Substances List (RSL) (5 points)

Question I1 assesses whether your company has a restricted substances list (RSL) for chemicals in products that is more stringent than legal requirements and, if yes, the scope of that RSL.

I1. What is the scope of chemicals of concern restricted in products?

I1.1 What is the scope of chemicals of concern restricted in products (select one)?

a. Our company has developed a list of chemicals of concern. If you selected this option, proceed to Question I1.2.
b. Our company has not developed a list of chemicals of concern. If you selected this option, proceed to Question I3.

I1.2 Our company (select all that apply):

a. Uses an RSL for products to manage legal compliance within each market where it operates. Our RSL includes only chemicals that are legally restricted in each market.
b. Has an RSL that includes ALL the chemicals restricted by the European Union (EU) Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive with no exceptions (https://environment.ec.europa.eu/topics/waste-and-recycling/rohs-directive_en#background).
c. Has an RSL that restricts ALL the chemicals on the European Union (EU) REACH Candidate Substances of Very High Concern (SVHCs) List with no exceptions (https://echa.europa.eu/candidate-list-table).
d. Has an RSL that restricts ALL PFAS in SOME components or products. List the functional uses for which PFAS are restricted and for which PFAS are allowed. CFP defines PFAS as a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom and the OECD's "Comprehensive Global Database of PFASs" to identify PFAS by CAS Registry Number (CASRN) (https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/).

e. Has an RSL that restricts ALL the chemicals listed by the International Electrotechnical Commission (IEC) 62474 Material Declaration for Products of and for the Electrotechnical Industry – Declarable Substance List with no exceptions (https://std.iec.ch/iec62474/iec62474.nsf/Index?open&q=181540).
f. Has an RSL that restricts chlorine, bromine, and fluorine in electrical cables and plastic parts as referenced in NSF/ANSI 457 – 2019 Sustainability Leadership Standard for Photovoltaic Modules and Photovoltaic Inverters (https://globalelectronicscouncil.org/wp-content/uploads/NSF-457-2019-1.pdf).
g. Has its own RSL, which goes beyond regulatory compliance, and is different from the above lists.

How to earn points, examples, and supporting documentation requirements

CFP defines a restricted substances list (RSL) as a list of chemicals restricted by a company in products, parts, or components from its suppliers. An RSL may include only chemicals that are currently restricted by regulation. It may also include chemicals that are not yet legally restricted but have been identified as being of concern because of scientific evidence that they may cause harm to human health or the environment.

Option I1.2a
The scope of an RSL, at minimum, includes chemicals that are currently restricted or banned in products because of a regulation or law. Because jurisdictions have different chemical restrictions, a company may maintain separate RSLs for each jurisdiction where it operates. ***Select Option a if your RSL does not include restrictions on chemicals that go beyond legal compliance for any jurisdiction where you operate.***

Option I1.2b
Option b encompasses the European Union's Restriction of Hazardous Chemicals (RoHS) Directive. The EU RoHS restricts hazardous substances in electrical and electronic equipment. EU RoHS includes restrictions on the use of cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), and certain phthalates.

Companies receive points only if ***all*** RoHS chemicals are restricted from being intentionally added to products. Note that our requirement is more stringent than the requirement of being RoHS compliant since it means that there are no exceptions to the use of RoHS-listed chemicals. Provide a copy and/or a link to your RSL.

Option I1.2c
Option c encompasses the EU's Candidate List of Substances of Very High Concern (SVHCs) developed under the REACH regulations. The SVHC List includes hundreds of chemicals that may harm people or the environment. Companies receive points only if ***all*** REACH SVHCs are not intentionally added to their products. Provide a copy and/or a link to your RSL.

Option I1.2d
Option d encompasses the class of PFAS. Companies receive points if they restrict ***all*** PFAS in ***some*** components. See Terms & Definitions for definition of PFAS. List the functional uses for which PFAS are restricted and for which PFAS are allowed. Provide a copy and/or a link to your RSL.

Option I1.2e
Option e encompasses substances listed by IEC 62474 declarable substance groups. The IEC 62474 contains a list of regulated substances and chemical groups that should be declared to downstream manufacturers if present in the product. A reportable application and a reporting threshold level accompany each chemical or chemical group entry. The IEC 62474 list specifies to the electrical and electronics industry and its suppliers what substances, substance groups, and material classes need to be included in material declarations.

Companies receive points if their RSL includes ***all*** chemicals on the IEC Declarable Substances List. Provide a copy and/or a link to your RSL.

Option I1.2f
Option f encompasses substances all uses of chlorine, bromine, and fluorine in electrical cables and plastic parts as referenced in NSF/ANSI 457 – 2019 Sustainability Leadership Standard for Photovoltaic Modules and Photovoltaic Inverters (https://globalelectronicscouncil.org/wp-content/uploads/NSF-457-2019-1.pdf) Companies receive points if their RSL includes meets the requirements specified in NSF/ANSI 457 for restricting chlorine, bromine, and fluorine in electrical cables and plastic parts. Provide a copy and/or a link to your RSL.

Option I1.2g
Option g provides an option for companies whose RSL is broader than legal requirements but differs from the above lists. Describe how your company's RSL goes beyond legal compliance and provide a copy and/or a link to your RSL.

HP's Standard 011 General Specification for the Environment is an example from the technology sector of an RSL that includes many of the above elements (see https://h20195.www2.hp.com/v2/getpdf.aspx/c04932490.pdf).

Question I2: RSL Compliance (5 points)

Question I2 seeks to understand the actions your company takes to ensure compliance with its RSL for products, keep the RSL up-to-date, and share the RSL with the public.

I2.1 What actions does your company take to ensure that its requirements regarding the RSL for products are current and implemented effectively (respond only if you selected Option a for Question I1.1)?

a. Our company takes the actions listed in Question I2.2 below to ensure that its requirements are current and implemented effectively. If you selected this option, proceed to Question I2.2.
b. Our company does not take the actions listed in Question I2.2 below to ensure that requirements regarding our List of chemicals of high concern are current and implemented effectively. If you selected this option, proceed to Question I3.

I2.2 Our company (select all that apply)?

a. Delineates compliance requirements in contracts with suppliers.
b. Trains suppliers about how to comply with our requirements.
c. Updates our RSL for products and/or other requirements on an annual basis (or more frequently).
d. Publicly discloses our RSL for products and/or other requirements.

How to earn points, examples, and supporting documentation requirements

A company will earn points for:

- **Option I2.2a** if it provides supporting documentation to verify that supplier contracts specify these requirements. For example see HP's: General Specification for the Environment (https://h20195.www2.hp.com/v2/getpdf.aspx/c04932490.pdf) and Supplier Code of Conduct, which delineates all supplier compliance requirements (https://h20195.www2.hp.com/v2/getpdf.aspx/c04797684).
- **Option I2.2b** if it describes how suppliers receive training on compliance with its RSL.
- **Option I2.2c** if it provides supporting documentation to verify that the RSL is updated at least annually.
- **Option I2.2d** if it provides a publicly available link to its RSL. Note that if you also answer "yes" to Question D2, the link to your chemicals policy will be included in the public listing of your responses on the Chemical Footprint Project's website. Many companies publicly post their RSL.

For examples of RSLs and conformance requirements from the technology sector, see:

- HP's General Specification for the Environment (https://h20195.www2.hp.com/v2/getpdf.aspx/c04932490.pdf) and Supplier Code of Conduct (https://h20195.www2.hp.com/v2/getpdf.aspx/c04797684), which delineate all supplier compliance requirements.
- Apple's Regulated Substances Specification (https://www.apple.com/environment/pdf/Apple_Regulated_Substances_Specification_March2021.pdf).

Question I3: Data Collection (5 points)

Question I3 seeks to understand the scope of the information you collect from suppliers on chemicals in products, parts, and components.

I3.1 What chemical information does your company, either directly or through a third-party, collect from suppliers (select one)?

a. Our company collects chemical ingredient information from suppliers. If you selected this option, proceed to Question I3.2.
b. Our company does not collect chemical ingredient information from suppliers. If you selected this option, proceed to Question I5.

I3.2 Our company (select one):

a. Requires suppliers to confirm that they comply with our RSL for products.
b. Requires suppliers to confirm that they comply with our RSL for products and to provide information on chemicals on our Watch List, which includes at least 10 chemicals or one class of chemicals such as PFAS.
c. Requests that suppliers provide full chemical ingredient information.
d. Requires suppliers to provide full chemical ingredient information.

How to earn points, examples, and supporting documentation requirements

Option I3.2a
A company earns points for Option a if it requires suppliers to confirm compliance to its RSL.

Provide supporting documentation of how your company requires supplier conformance to your RSL.

Option I3.2b
A company earns points for Option b if it requires suppliers to confirm compliance to its RSL and asks suppliers to provide information on its "Watch List" or equivalent. A Watch List is a list of chemicals of concern and/or classes of chemicals that a company does not restrict, but is considering restricting in the future. For example, a company asks suppliers to report on PFAS in products to understand which products contain PFAS and whether safer alternatives are available to PFAS in those products. Organizations may use a variety of terms for a "watch list." We are not concerned with the name of the list. Rather we want to know, does your company have a list of chemicals of concern or classes of chemicals of concern that it does not restrict, but is considering restricting in the future.

Provide a copy of and/or a link to your Watch List or equivalent.

Options I3.2c and I3.2d
A company earns points for Option I3.2c if it "requests," but does not "require," that suppliers provide full chemical ingredient information.

A company earns points for Option I3.2d if it "requires" that suppliers provide full chemical ingredient information.

Some companies refer to this as "full materials disclosure." For CFP, "full chemical ingredient information" is synonymous with "full materials disclosure."

CFP defines "full chemical ingredient information" for **articles** as a company knows:

- 95% of the intentionally added substances by mass and
- any impurities that are both a CoHC and present at 1000 ppm or higher in a homogeneous material.

A company may have suppliers report directly to them on chemicals in products or utilize a third-party service provider to collect this information to protect confidential business information. Suppliers often utilize a third-party service provider to protect confidential business information when full materials disclosure is required.

Provide documentation demonstrating that your company requests or requires full chemical ingredient information.

Question I4: Full Chemical Ingredient Disclosure from Suppliers (5 points)

Question I4 seeks to understand the scope of chemical ingredient information your company collects from suppliers.

I4.1 ARTICLES: For what percentage of articles sold by your company do you collect full chemical ingredient information? Respond only if you selected Option c or d for Question I3.2.
Enter percentage: _____.

How to earn points, example, and supporting documentation requirements

Question I4 seeks to understand the scope of your company's data collection on full chemical ingredient information (Question I3). It is only applicable to your company if you selected Options c or d for Question I3.2. Note that it is essential to use the CFP's definition of "full chemical ingredient information" for "articles" (see Question I3 or Terms & Definition section).

Calculate percentage of products with full chemical ingredient information using either mass (kilograms) or sales (dollars) as the unit of measurement. For example, our company collects full chemical ingredient information of 50% of articles sold by sales. If using another unit of measurement state what it is and why it was used.

For example, HP as part of its full materials disclosure program, collected an inventory of more than 90% of the substances used by its suppliers by product weight for EPEAT® 2019-registered commercial personal systems products (see https://h20195.www2.hp.com/v2/getpdf.aspx/c06601778.pdf, page 83).

Supporting documentation requirement: Companies earn points for I4 if they provide percentage of products for which full chemical ingredient is collected and documentation of how they calculated this percentage.

Question I5: Data Management (5 points)

Question I5 assesses your company's capabilities for interacting with tier 1 suppliers, managing chemical ingredient data, and communicating with customers.

I5.1 What capabilities does your company have for managing data on chemical ingredients in its products (select one)?

a. Our company has capabilities for managing data on chemical ingredients in products listed in Question I5.2. If you selected this option, proceed to Question I5.2.
b. Our company is not capable of managing data on chemical ingredients in products listed in Question I5.2. If you selected this option, proceed to Question I6.

I5.2 Our company has (select all that apply):

a. An internal named point of contact or outside contractor who communicates with suppliers concerning chemical information requirements.
b. A data system, internal or third party, to manage an inventory of chemicals in products.
c. A data system, internal or third party, which links our inventory of chemicals in products to chemical hazard information.
d. A data system for generating reports on chemical/material ingredient declarations to customers.

How to earn points, examples, and supporting documentation requirements

Implementing a data management system is essential after determining what chemicals may be of concern in your company's products and requesting data from suppliers on these substances.

Option I5.2a

A company earns points for Option a if it has a named point of contact to communicate with suppliers concerning chemical information requirements. A point of contact can be a person or a department serving as the coordinator or focal point of information concerning chemical information and management systems for a company. A company could, for example, have a product stewardship team responsible for communicating chemical information requirements with suppliers and collecting chemical/material ingredient information.

Supporting documentation requirement: Provide point of contact for suppliers and role of the point of contact.

Options I5.2b-d

A company earns points for Options b-d if it has a data management system, either internal or through a third party, that:

- Manages the inventory of chemicals in products (Option b). For example:
  - Beautycounter maintains an online Ingredients Glossary, which lists every ingredient in its products (https://www.beautycounter.com/ingredient-glossary).
  - Walmart uses UL Solutions WERCSmart® to collect full product formulations from all national and private brand suppliers of formulated consumables to all Walmart U.S. and Sam's Club U.S. stores (https://www.walmartsustainabilityhub.com/sustainable-chemistry/walmart-sustainable-chemistry-commitment).
- Provides hazard data on chemicals in products (Option c). Examples of tools and digital platforms include:
  - Health Product Declaration (HPD) Open Standard provides a template for reporting chemical ingredients and their hazard data on building products (https://www.hpd-collaborative.org/hpd-open-standard-all-versions/).
  - Healthy Building Network's Pharos database provides hazard, use, and exposure information on chemicals and products (https://pharosproject.net/)
  - Toxnot (https://toxnot.com/) and UL's WERCSmart® (https://www.ulwercsmart.com/) and PurView® (https://www.ulpurview.com/PurviewUI/Home) provide digital platforms for managing chemical ingredient and hazard information.

- Generates chemical ingredient reports for customers, either business-to-business or business-to-consumer (Option d). For example:
    - The HPD Builder provides a guided tool for entering data, performing hazard screening and formatting reports to be consistent with the HPD Open Standard (https://www.hpd-collaborative.org/builder/).

Supporting documentation requirement: provide narrative description of your company's chemical data management system and how it manages chemical inventories, provides data on chemical hazards, and/or generates chemical ingredient reports. If referencing publications, provide relevant page numbers for the sources of the information.

Question I6: Supplier Conformance (5 points)

Question I6 assesses the measures your company takes to ensure supplier conformance with reporting requirements concerning chemicals in parts, components, or products.

I6.1 How does your company ensure conformance with your chemical management requirements (select one)?

a. Our company ensures conformance with chemical management requirements through methods listed in Question I6.2. If you selected this option, proceed to Question I6.2.
b. Our company does not ensure conformance with the chemical management requirements through methods listed in Question I6.2. If you selected this option, proceed to Question F1.

I6.2 Our company (select all that apply):

a. Has an audit program to verify supplier-submitted data.
b. Requires suppliers to test parts in third-party approved labs and provide results.
c. Trains suppliers on how to comply with reporting requirements.
d. Routinely tests parts, components, or products to assure conformance with reporting requirements.

How to earn points, examples, and supporting documentation requirements

Option I6.2a

A company earns points for Option a if it routinely audits suppliers. For example, HP's supplier audit process is an essential component of its assessment framework and for identifying opportunities for sustained improvement with suppliers. HP also works with its final assembly suppliers to confirm that they audit companies in their supply chains (see HP's *Sustainable Impact Report*, 2019, https://h20195.www2.hp.com/v2/getpdf.aspx/c06601778.pdf, page 45).

Option I6.2b

A company earns points for Option b if it requires suppliers to test parts in an approved laboratory and provide these results. A company could, for example, require suppliers to comply with chemical requirements by providing the company with up-to-date laboratory analysis results and/or relevant certification documents. Testing requirements may be communicated in supplier contracts to ensure suppliers conduct all relevant tests in certified labs and provide the company with results.

Option I6.2c
A company earns points for Option c if it trains suppliers in complying with its reporting requirements. Companies may train suppliers on how to meet company standards and unacceptable ingredients, ensure compliance with reporting and provide suppliers with clear information. This may include training on how to meet requirements that are beyond legal compliance and how to complete and submit all forms and documents.
Option I6.2d
A company earns points for Option d if it conducts routine testing of parts, components, or products to assure conformance with reporting requirements. For example, routinely sends materials, parts, components, or products to a third party for testing to ensure that the supply chain meets all chemicals requirements. While products should be tested routinely, it is important to test whenever there is a change in formulation to ensure suppliers are continuing to meet requirements.

Supporting documentation requirements: provide a narrative description in support of your answers. If referencing publications, provide relevant page numbers for the sources of the information.

If your company avoids all CoHCs in its products and as impurities, describe how you ensure these chemicals are not in your products.

Footprint Measurement Pillar (33 points)

Footprint Measurement (F) measures whether a company sets goals to reduce chemicals of high concern, has established a baseline corporate chemical footprint and measured progress in reducing chemicals of high concern, and whether safer alternatives are assessed, identified, and used. The five Footprint Measurement questions and maximum points for each question are:

- Question F1: Chemicals of High Concern (CoHCs) Reduction Goal = 6 points
- Question F2: Footprint Measurement = 8 points
- Question F3: Footprint Change = 10 points
- Question F4: Hazard Assessment = 3 points
- Question F5: Safer Alternatives = 6 points

See below for details on each question, including response options, how to earn points, examples, and documentation requirements.

Question F1: Footprint Reduction Goal (6 points)

Question F1 asks about your company's specific goals for reducing its chemical footprint, particularly CoHCs in products, and its public disclosure of these goals and progress towards achieving them.

F1.1 Has your company set goals for reducing chemicals of high concern (CoHCs) and/or chemical classes in the products you sell and measured progress toward these goals (select one)?

a. Yes, our company has a goal to reduce CoHCs or chemical classes. If you selected this option, proceed to Question F1.2.
b. No, our company does not have a goal to reduce CoHCs or chemical classes. If you selected this option, proceed to Question F2.

F1.2 Our company (select all that apply from Options "a-f" or Option "g"):

a. Has set a goal for reducing CoHCs by count or mass.
b. Has set a goal to eliminate one or more chemicals classes of concern.
c. Has set a goal to reduce its chemical footprint.
d. Publicly discloses the goal, which at a minimum includes percentage reduction and time period.
e. Publicly discloses specific CoHCs included in the goal.
f. Publicly reports annually on progress towards meeting the goal.

or

g. Has no CoHCs on the CFP CoHCs Reference List in our products and publicly discloses this information.

F1.3 If you answered "Yes" to F1.2a, which list(s) of chemicals of high concern (CoHCs) in products has your company eliminated or set goals to eliminate (choose all that apply):

a. European Union (EU) Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive – restricted substances list (see https://environment.ec.europa.eu/topics/waste-and-recycling/rohs-directive_en#background).
b. EU REACH Candidate Substances of Very High Concern (SVHCs) List (see https://echa.europa.eu/candidate-list-table).

c. International Electrotechnical Commission (IEC) 62474 Material Declaration for Products of and for the Electrotechnical Industry – Declarable Substance List (see https://std.iec.ch/iec62474/iec62474.nsf/Index?open&q=181540).
d. PFAS: For the PFAS reference list see The Comprehensive Global Database of PFAS by the Organisation for Economic Cooperation and Development (OECD) (http://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals).
e. Chlorine, bromine, and fluorine in electrical cables and plastic parts as referenced in NSF/ANSI 457 – 2019 Sustainability Leadership Standard for Photovoltaic Modules and Photovoltaic Inverters (https://globalelectronicscouncil.org/wp-content/uploads/NSF-457-2019-1.pdf).

How to earn points, examples, and supporting documentation requirements

Setting time-bound goals provide a means for measuring progress and communicating progress to stakeholders in reducing chemical footprints. Having a formal process for setting goals and measuring and reporting on progress toward these goals provides accountability to your company's stakeholders and shareholders. Ideally, a regular process for reviewing goals and progress occurs annually and is part of reporting key performance indicators. In addition to setting these goals, publicly sharing them and reporting on progress toward meeting them is an additional means of ensuring accountability.

Option F1.2a
A company earns points for Option a by providing **documentation** that includes the following:

- chemicals of concern,
- reduction goal(s),
- relevant product categories, and
- timeline.

For example, our company will eliminate all uses of lead solder by December 31, 2024.

Option F1.2b
A company earns points for Option b by providing **documentation** that includes the following:

- chemical class(es) of concern,
- definition of each chemical classes, including specific Chemical Abstracts Service Registry Number (CAS RN),
- reduction goal(s),
- relevant product categories, and
- timeline.

For example, our company will eliminate the use of all ortho-phthalates by December 31, 2024.

Examples of chemical classes of concern include:

- Alkylphenols and alkylphenol ethoxylates
- Azo dyes
- Benzophenones
- Bisphenols
- Halogenated flame retardants
- Parabens
- Per- and polyfluoroalkyl substances (PFAS)

- Phthalates: Ortho-phthalates
- Polycyclic Aromatic Amines
- Ozone Depleting Substances (ODS)
- Siloxanes: cyclic volatile methyl siloxanes (D4, D5, D6)

By setting goals to eliminate a class of chemicals of concern, companies may reduce the likelihood of a "regrettable substitute" – a chemical alternative that turns out to be as or more toxic than the original chemical of concern.

Option F1.2c
A company earns points for Option c by providing **documentation** that includes the following:

- chemical footprint reduction goal,
- relevant product categories, and
- timeline.

A company earns points for Option c if it uses either the CFP Chemicals of High Concern (CoHCs) Reference List or the CFP Solar CoHCs Reference List to measure progress to its chemical footprint reduction goal. See Terms & Definitions section for definition of the CFP CoHCs Reference List and CFP Solar CoHCs Reference List. The Solar CoHCs Reference List is a subset of the CoHCs Reference List plus the addition of chemical classes relevant to the solar industry. CFP defines "chemical footprint of products" as "the total mass of CoHCs in products sold by a company."

Option C earns companies three points as compared to the one point for Option a or b.

Options F1.2d-f
A company earns points for Options d-f if it publicly discloses:

- The goal, including percentage reduction and time period (Option d).
- Specific CoHCs included in the goal (Option e).
- Progress towards meeting the goal (Option f).

Supporting documentation requirements: provide the public link or publication for with this content. If referencing a publication, include the relevant page numbers. If you choose "yes" in question D2, these links will be included in your publicly available response options posted on the CFP website.

For example, Walmart set a goal to reduce its chemical footprint of priority chemicals in formulated consumables by 10% compared to its 2017 baseline by 2022. In 2022, Walmart reported meeting this goal with 17% reduction of 39 million pounds (see https://corporate.walmart.com/esgreport/esg-issues/safer-healthier-food-other-products). In this case, Walmart earns points for Options c-f.

Option F1.2g
Supporting documentation requirement: provide narrative of how you determined that your products have no CoHCs on the CFP CoHCs Reference List and link to where you make that statement public.

Question F2: Footprint Measurement (8 points)

Question F2 inquires about your company's total use of CoHCs sold in products by count or mass.

F2.1 How does your company measure its baseline chemical footprint for products sold (select one)?

a. Our company has calculated its chemical footprint. If you selected this option, proceed to Question F2.2.
b. Our company is unable to calculate its chemical footprint at this time. If you selected this option, proceed to Question F3.

F2.2 Our company (select one and provide narrative of how you calculate your footprint including the time period covered):

a. Has calculated its chemical footprint by mass using the CFP CoHCs Reference List. If yes, answer Question F2.3.
b. Has calculated its chemical footprint by count using the CFP CoHCs Reference List. If yes, answer Question F2.4.
c. Has calculated its chemical footprint by mass using the CFP Solar CoHCs Reference List. If yes, answer Question F2.3.
d. Has calculated its chemical footprint by count using the CFP Solar CoHCs Reference List. If yes, answer Question F2.4.
e. Has calculated its chemical footprint by mass using the EU REACH Candidate List of SVHCs. If yes, answer Question F2.3.
f. Has calculated its chemical footprint by count using the EU REACH Candidate List of SVHCs. If yes, answer Question F2.4.
g. Has no intentionally added CoHCs, using the CFP CoHCs Reference List.

F2.3 Our company's chemical footprint in kilograms is (required response if you selected Option "a", "c", or “e” for Question F2.2):
Enter footprint in kilograms: _____.

F2.4 Our company's chemical footprint by count is (required response if you selected Option "b", "d", or “f” for Question F2.2):
Enter footprint by number of chemicals of high concern in your product portfolio: _____.

How to earn points, examples, and supporting documentation requirements

CFP best practice, and consistent with the CFP definition of the chemical footprint of products, is to calculate the chemical footprint of products sold by mass using the CFP CoHCs Reference List or equivalent. For example, see Walmart example in Question F1.

However, recognizing that companies are at different points in knowing chemicals in products, Question F2 offers different pathways for companies to calculate the chemical footprint of products sold.

First, is the list of CoHCs used. Responders to the Solar Survey have three choices for their list:

- **CFP CoHCs Reference List**, which is a broad list of chemicals generated from GreenScreen® List Translator™ and GreenScreen Benchmark-1 chemicals (see https://chemicalfootprint.org/assess/survey-resources) or equivalent.

- **CFP Solar CoHCs Reference List**, which is a subset of the CoHCs Reference List plus the addition of chemical classes relevant to the solar industry. See Terms & Definitions section for the scope of the Solar CoHCs Reference List.
- **EU REACH Candidate List of Substances of Very High Concern (SVHCs)** (see https://echa.europa.eu/candidate-list-table). Note all companies selling in Europe need to know if their products contain these substances.

Second, responders can report on CoHCs in products by mass or count:

- **"Mass"** is the weight of all CoHCs in products sold by a company over one year (for example, our products contained 1,000,000 kgs CFP CoHCs in all products sold from 1/1/2022-12/31/2022).
- **"Count"** is the number of CoHCs in products sold by a company over one year (for example, our products contained 21 CFP CoHCs from 1/1/2022-12/31/2022).

Responders earn the most points if they calculate chemical footprint by mass and use the CFP CoHCs Reference List.

Note that if you choose to use the EU REACH Candidate List of SVHCs, calculating your chemical footprint to be zero due to the lack of SVHCs is not an option because the products may have CoHCs included in the much more comprehensive CFP CoHCs Reference List.

To measure your company's chemical footprint:

1. **Select the scope of the footprint**. We ask companies to determine the total mass and/or count of CoHCs in the products they sell over one or two years. Responders may report the chemical footprint for all the products they sell or a limited part of their product portfolio. The extent of the footprint scope must be provided in the documentation.
2. **Select a CoHC list**: CFP CoHCs Reference List, CFP Solar CoHCs Reference List, or EU REACH Candidate List of SVHCs.
3. **Determine which chemicals on your list occur in products within your given scope**. Sources for this information vary by company but are typically derived from chemical ingredient information provided by suppliers. Generally, the more complete and accurate the chemical ingredient information from suppliers, the more accurate the chemical footprint calculation will be. Other possible sources may include internal knowledge of product formulations, manufacturing inputs purchased by your company, data from product teardowns conducted to verify supplier data, literature reviews, and subject expertise.
   The number of chemicals of concern from your chosen reference list that occur in products across your chosen scope is your chemical footprint by count. Note that the count is the total of individual CoHCs added up across all products. For example, one product contains methylene chloride, another contains DEHP and cadmium, and a third product contains cadmium. Therefore, the total count is three CoHCs.
4. **Determine the mass of chemicals from your chosen CoHC list in products within your scope**. Data sources to calculate mass vary by company but may include the volume of materials or parts purchased, product specifications, product sales data, or other sources. Report the total in kilograms. CFP sets threshold levels for calculating the chemical footprint for: Articles as:
   a. 95% of intentionally added CoHCs by mass (this means a company needs to know at least 95% of the intentionally added chemicals in a product by weight); and
   b. any impurities that are both CoHCs and present at 1000 ppm or higher in a homogeneous material.

5. **Calculate your company's total chemical footprint**. Calculate the chemical footprint for each product type and sum footprints for all products sold in a year. For example, if you sell one product with 1 kg of CoHCs in it and 1,000 products over one year, your chemical footprint by mass is 1,000 kgs.

Provide a summary of how you calculated your company's baseline chemical footprint.

If you selected Option F2.2e, our products have no intentionally added CoHCs, provide narrative of how you determined that your products have no CoHCs on the CFP CoHCs Reference List.

Question F3: Footprint Change (10 points)

Question F3 asks for a quantitative measurement of changes in intentionally added CoHCs in your company's products over the most recent one or two years.

F3.1 Over the most recent one or two years for which you have data, how much have intentionally added CoHCs in your products changed (select one)?

a. Our company has calculated the change in intentionally added CoHCs. If you selected this option, proceed to Question F3.2.
b. Our company is unable to answer this Question at this time. If you selected this option, proceed to Question F4.

F3.2 Our company (select one):

a. Has calculated the change in its chemical footprint by mass using the CFP CoHCs Reference List. If yes, answer Question F3.3.
b. Has calculated the change in its chemical footprint by count using the CFP CoHCs Reference List. If yes, answer Question F3.4.
c. Has calculated the change in its chemical footprint by mass using the CFP Solar CoHCs Reference List. If yes, answer Question F3.3.
d. Has calculated its chemical footprint by count using the CFP Solar CoHCs Reference List. If yes, answer Question F3.4.
e. Has calculated the change in its chemical footprint by mass, using the EU REACH Candidate List of SVHCs. If yes, answer Question F3.3.
f. Has calculated the change in its chemical footprint by count, using the EU REACH Candidate List of SVHCs. If yes, answer Question F3.4.
g. Is unable to calculate its baseline chemical footprint for beginning of reporting period. However, it is able to calculate the change in the number and/or mass of intentionally added CoHCs over the reporting period. If yes, answer Question F3.5.
h. Had no products containing intentionally added CoHCs using the CFP CoHCs Reference List for the reporting period.

F3.3 Our company's change in chemical footprint in kilograms is (required response if you selected Option "a", "c", or "e" for Question F3.2):

Enter your change in chemical footprint in kilograms below.

Note: an additional two points are awarded to companies that calculated their chemical footprint according to Option F3.2a and reported a reduction in their footprint by mass using the CFP CoHCs Reference List.

F3.4 Our company's change in chemical footprint by count is (required response if you selected Option "b", "d", or "f" for Question F3.2):
Enter your change in chemical footprint by number of chemicals: _____.

F3.5 Our company's change in the number and/or mass of intentionally added CoHCs is (required response if you selected Option "g" for Question F3.2):
Enter your change in CoHCs by number and/or kilograms: _____.

How to earn points, examples, and supporting documentation requirements

To report a difference in your chemical footprint, subtract the footprint at the end of the reporting period from the footprint at the beginning by count and/or by mass. See Question F2 for details on how to calculate a chemical footprint.

Option F3.2e is for responders that cannot calculate their chemical footprint for both the beginning and the end of the reporting period, but have reduced or phased out the use of some CoHCs for that time. For example, if a company reduced its use of lead by 3,000 kg and cadmium by 2,000 kg over the reporting period, it would select the option "F3.2e" and, for the option "F3.5," enter "- 5,000 kg".

A company earns points for Question F3 primarily based on its ability to calculate the change in its chemical footprint, whether or not the footprint increased or decreased. An additional two points are awarded to companies that calculated their chemical footprint according to Option F3.2a and reported a reduction in their footprint by mass using the CFP CoHCs Reference List in F3.3.

Supporting documentation requirements, provide**:**

- Reporting period covered: most recent one or two years.
- List of CoHCs that your company has reduced or eliminated.
- Change in mass of CoHCs in kilograms.

If you selected Option F3.2h, our products have no intentionally added CoHCs, provide narrative of how you determined that your products have no CoHCs on the CFP CoHCs Reference List.

Question F4. Hazard Assessment (3 points)

Question F4 assesses how and to what extent your company assesses chemical hazards in products beyond regulatory requirements.

F4.1 How does your company assess the hazards of chemicals in its products and for what percent of your products has your company assessed these hazards? Our company (select one):

a. Assesses the hazards of chemicals in our products. If you selected this option, proceed to Question F4.2.

b. Does not assess the hazards of chemicals in our products beyond regulatory requirements. If you selected this option, proceed to Question F5.

F4.2 Our company (select all that apply):

a. Uses a system or tool, internal or third party, to evaluate chemical hazards. Identify the system or tool in attached documentation.
b. Asks suppliers to provide their evaluations of chemical hazards in the products they sell to us.

F4.3 Our company assessed the hazards for the following percent of our products (required response if you selected Option "a" or "b" for Question F4.2): _____% of products.

How to earn points, examples, and supporting documentation requirements

Many companies begin by reviewing Safety Data Sheets (SDSs) and/or evaluating CAS Registry Numbers against authoritative lists of hazardous chemicals. However, SDSs have their limitations because they often do not contain a complete ingredient listing because of confidential business information. Therefore, using SDSs alone is insufficient to receive credit for this Question.

Authoritative lists of chemicals of concern are helpful. Still, they are lagging indicators of chemical hazards as it takes time to add chemicals of concern when new scientific evidence becomes available. Therefore, to conduct a comprehensive evaluation, it is necessary to go beyond Safety Data Sheets and authoritative lists.

Companies often use in-house expertise or hire a qualified third party, such as a certified toxicologist, to review chemical hazards. To conduct a thorough evaluation, it is expected that the in-house expert or qualified third party will, at a minimum, evaluate chemical ingredients for the following hazard endpoints: carcinogenicity, mutagenicity, reproductive toxicity, persistence, bioaccumulation, aquatic toxicity (chronic and acute), and endocrine disruption. Companies may also request that their suppliers evaluate chemical hazards and provide the results of these reviews.

There are several evaluation tools available and third-party service providers that provide this service. For example, the Organization for Economic Cooperation and Development's (OECD's) *Substitution and Alternatives Assessment Tool Box* includes an inventory of chemical hazard assessment tools, data sources, and service providers to help organizations identify the resources most relevant to their substitution and alternatives assessment goals (https://www.oecd.org/chemicalsafety/risk-management/substitution-of-hazardous-chemicals/).

Companies earn points in Question F4 according to the percentage of their products for which they assess hazards (Option F4.2a) and/or for which they receive information from their suppliers (Option F4.2b).

Supporting documentation requirements: Identify and describe the system-, tool, or third-party provider your company uses; and indicate what percent of products are screened for hazards.

Examples – Option F4.2a

GreenScreen™ List Translator (GS-LT): This tool is an abbreviated version of GreenScreen® for Safer Chemicals, a globally recognized chemical hazard assessment method used to identify chemicals of high concern and safer alternatives.

The GreenScreen List Translator provides a "list of lists" approach to quickly identify CoHCs. it does this by scoring chemicals based on information from over 40 hazard lists developed by authoritative scientific bodies convened by international, national and state governmental agencies, intergovernmental agencies, and NGOs. These GreenScreen Specified Lists include REACH categorizations and chemical hazard classifications by countries using the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Each of GreenScreen specified list is mapped to hazard endpoints and a hazard level or range based on the GreenScreen hazard criteria.

Similar to a full GreenScreen assessment, the hazard classifications for endpoints are then used to derive a GreenScreen List Translator score. The List Translator scoring criteria align with the GreenScreen Benchmark-1 criteria. A List Translator score of "LT-1" means the hazard classifications for a given chemical meet one or more of the GreenScreen Benchmark-1 criteria. This information is based on authoritative lists: if a full GreenScreen assessment were conducted, the chemical would most likely be a Benchmark-1 chemical. A List Translator score of "LT-P1" means the hazard classifications for a given chemical meet one or more of the GreenScreen Benchmark-1 criteria, but the information is based on screening lists and/or there is some uncertainty about the classification for key endpoints. Further research is needed on the flagged endpoint(s) to determine if the chemical is indeed a GreenScreen Benchmark-1. A List Translator score of "LT-UNK" indicates that although the chemical was present on a list, there is insufficient information to apply the scoring algorithm to the chemical.

The GreenScreen List Translator is helpful in identifying chemicals that are on authoritative lists. It does not evaluate chemicals that may be of concern but are not on a list. These chemicals can be evaluated by doing a search of the toxicological literature for the health endpoints identified above. One approach is to conduct a full GreenScreen assessment on these chemicals. More information on the full GreenScreen method is available at https://www.greenscreenchemicals.org/learn/full-greenscreenmethod.

Health Product Declaration® (HPD): Another model for evaluating the hazard of chemical ingredients in products is the HPD Open Standard, which was designed for evaluating the material contents of building products and provides a standardized way of reporting these contents and the health effects associated with these materials. Materials are listed in descending order of quantity. Each of the substances listed are screened for their chemical hazard and receive a score. This score can either be a GreenScreen List Translator score, which indicates the chemical has been evaluated to see if it is found on an authoritative list of chemicals of concern, or a GreenScreen Benchmark score, which indicates that the chemical has undergone a more complete toxicological assessment. Information on the Health Product Declaration can be found here: https://www.hpd-collaborative.org/.

Question F5: Safer Alternatives (6 points)

This Question inquires about how your company encourages the use of safer alternatives to chemicals of concern.

F5.1 How does your company encourage the use of safer alternatives to chemicals of high concern? Our company (select one):

a. Uses methods listed in Question F5.2 to encourage the use of safer alternatives to CoHCs. If you selected this option, proceed to Question F5.2.
b. Does not use any of the methods listed in Question F5.2 to encourage the use of safer alternatives to CoHCs. If you selected this option, proceed to Question D1.

F5.2 Our company (select all that apply for Options "a-f" or only Option "g"):

a. Has a definition and criteria for a "safer alternative" that is consistent with the CFP definition, and we include such criteria in our business processes.
b. Communicates our criteria for safer alternatives to suppliers and asks suppliers to use our criteria when evaluating alternatives to CoHCs.
c. Rewards suppliers that use safer alternatives.
d. Has integrated criteria for safer alternatives into our product development process (for example, through our design and safety processes).
e. Has established a goal and is tracking progress to improve the profile of chemicals across our products, consistent with our company's criteria for a safer alternative.
f. Publicly discloses our company's definition for a "safer alternative" and our approach to integrating it into our business practices.

or

g. Products do not contain CoHCs using the CFP CoHCs Reference List and we publicly disclose how we evaluate the chemical safety of our products using a hazard-based framework. Describe in documentation how your company ensures that the safest chemicals available are used.

How to earn points, examples, and supporting documentation requirements

The search for safer alternatives is an iterative process. It often requires using alternative assessment methods to compare chemical hazards, evaluate trade-offs, and determine whether a safer alternative is technically feasible and commercially available. The OECD's Substitution and Alternatives Survey Toolbox includes a filterable inventory of chemical hazard surveys, data sources, and service providers to help organizations identify tools most relevant to their substitution and alternatives assessment goals (https://www.oecd.org/chemicalsafety/risk-management/substitution-of-hazardous-chemicals/).

Safer alternatives to a hazardous chemical may include direct replacement with a less hazardous chemical. However, it is often difficult to identify a drop-in replacement. In addition, using alternatives structurally similar to the original chemical may result in a regrettable substitution, which is a chemical that proves to be equally or more harmful to human health or the environment.

It may be more effective to eliminate the need for the chemical through a product redesign or material change. Users will likely accept such changes if they provide the functional performance for a particular product.

Option F5.2a
CFP defines a safer alternative as a chemical, material, product, process, or technology that is less hazardous to humans and the environment than the existing approach. To define relative hazard, CFP uses the GreenScreen® for Safer Chemicals methodology. CFP's definition of a chemical of high concern aligns with the criteria for a GreenScreen Benchmark 1 chemical. Alternatives meeting the criteria for GreenScreen Benchmarks 2, 3, and 4 would be considered progressively less hazardous.

Supporting documentation: provide your company's definition of "safer alternative" and how it integrates criteria for safer alternatives into business processes. We encourage companies to define "safer alternatives" consistent with the CFP definition.

Option F5.2b
To encourage the use of safer alternatives, it is crucial that a company has defined this term and communicated its meaning and criteria to its suppliers.

Supporting documentation: provide narrative describing how your company communicates your criteria for safer alternatives to suppliers.

Option F5.2c
Including requirements for safer alternatives in contracts can motivate suppliers to seek out safer chemicals and materials. If these alternatives are not commercially available, these requirements can stimulate green chemistry research and development. Green chemistry is the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances. Green chemistry applies across the life cycle of a chemical product, including its design, manufacture, and use, and includes 12 fundamental principles (https://www.acs.org/greenchemistry/principles/12-principles-of-green-chemistry.html).

Supporting documentation: provide narrative describing how your company rewards suppliers that use safer alternatives.

Option F5.2d
Integrating criteria for safer alternatives into the product development is a very effective and efficient point in which to reduce the use of hazardous chemicals. It is much harder to eliminate hazardous chemicals in existing products and production processes.

Supporting documentation: provide narrative describing how your company integrates criteria for safer alternatives into product development.

Option F5.2e
Goal setting and tracking progress are helpful internal metrics to motivate the search for and use of safer alternatives.

Supporting documentation: provide your company's goal(s) for using inherently safer and less hazardous chemicals in products, and how it tracks progress to safer alternatives.

Option F5.2f
Public disclosure of your company's definition of safer alternatives and your approach to implementation indicates corporate leadership and commitment to transparency and safer solutions to hazardous chemicals.

Supporting documentation: provide public link to your company's definition of “safer alternative” and how it integrates criteria for safer alternatives into business processes. Note: if you also select "yes" for Question D2, this link will be included in your publicly available responses.

Option F5.2g
Supporting documentation: For responders whose products do not contain CoHCs on the CFP CoHCs Reference List, provide public link to how your company evaluates chemical safety of products using a hazard-based approach and describe how your company ensures that the safest chemicals are used in products.

Examples from HP’s *General Specification for the Environment (GSE)* that meet some of the above criteria include (https://h20195.www2.hp.com/v2/getpdf.aspx/c04932490.pdf):

- *Option F5.2a:* HP follows a precautionary approach to exploring alternatives to currently used hazardous materials. HP incorporates the GreenScreen® for Safer Chemicals methodology and follows the National Academies of Science publication *A Framework to Guide Selection of Chemical Alternative.* In addition, the HP states that "when replacing substances, alternatives must have a lower potential impact on human health and the environment," and "non-chemical alternatives should be considered first."
- *Option F5.2b:* HP sets expectations and standards for suppliers, and includes a section on Substance and Materials Requirements that provides information and tools for replacing substances and alternative assessments. The GSE requires suppliers to replace substances with alternatives with a lower potential impact on human health and the environment. HP helps suppliers identify preferable alternatives through their alternative materials assessment program when using hazardous chemicals is currently unavoidable.

Disclosure & Verification Pillar (22 points)

The Public Disclosure and Verification (D) Pillar measures whether a company publicly releases information on the chemicals in its products and used in its manufacturing, whether it discloses its answers to the Survey questions and score, and whether its answers have been independently verified by a third party. The four Disclosure & Verification questions and maximum points for each question are:

- Question D1: Chemical Ingredients = 8 points
- Question D2: CFP Responses = 5 points
- Question D3: CFP Score = 5 points
- Question D4: Verification = 4 points

See below for details on each question, including response options, how to earn points, examples, and documentation requirements.

Question D1: Disclosure of Chemical Ingredients (8 points)

Increasingly, stakeholders want to know the chemical ingredients in products. Question D1 inquires about public disclosure of chemical ingredient information in your company's products. In addition, Question D1 seeks to understand how far beyond legal reporting requirements companies are progressing in disclosing chemical ingredient information about their products on their websites or packaging.

D1.1 ARTICLES: What information does your company disclose about the chemical ingredients in its articles?

a. We publicly disclose information about chemicals in our articles beyond legal requirements. If you answered this question, also answer Question D1.2.
b. We do not publicly disclose information about chemicals in our articles beyond legal requirements. If you selected this option, proceed to Question D2.

D1.2 For articles, our company publicly discloses (select one):

a. Generic material content for 95% by mass of chemicals in products at the SKU level. If you selected this option, proceed to Question D1.3.
b. Chemical identity for 95% by mass of chemicals in products at the SKU level. If selecting this option also answer Question D1.4.
c. Both "a" and "b" apply to our company. If selecting this option also answer Question D1.5.

D1.3 Our company discloses generic material content for 95% by mass of chemicals in products at the SKU level for the following percent of our article portfolio (required response if you selected D1.2a):
Enter percent below.

D1.4 ARTICLES: Our company discloses the chemical identity for 95% by mass of chemicals in products for the following percent of our article portfolio: (required response if you selected D1.2b):
Enter percent below.

D1.5 For articles, our company discloses (required response if you selected D1.2c, respond to both "a" and "b"):

a. Generic material content for 95% by mass of chemicals in products at the SKU level for the following percent of our article portfolio:
Enter percent below.

b. Our company discloses the chemical identity for 95% by mass of chemicals in products for the following percent of our article portfolio:
Enter percent below.

How to earn points, examples, and supporting documentation requirements

Companies earn a maximum of 8 points for Question D1. To receive all 8 points, a company must meet the requirements of D1.2b. for 100% of its products and provide that information on product packaging or the company website. For example, if a company disclosed chemical identity for 10% of products sold, it would receive 0.8 points for Question D1: 10% x 8 = 0.8.

Options D1.2a
Generic material content: To receive points for this response option a company must disclose generic material content for 95% by mass of chemicals in products. Generic material content is defined as the general name of a material, such as steel, nylon fabric, adhesive, or type of plastic (for example, polyethylene terephthalate (PET)). CAS Registry Number is not required.

D1.62
Chemical identity: To receive points for this response option companies must disclose chemical names for 95% by mass of chemicals in a product.

For an example of a company meeting the requirements for D1.6b, see HP's Product Material Content Information (https://h20195.www2.hp.com/v2/getpdf.aspx/c05117791.pdf). HP provides information on the materials and chemicals used in products and packaging processes to customers, workers, communities, and other stakeholders.

Supporting documentation requirements: Provide information on whether this information is disclosed on the packaging or your company's website, and provide relevant links. In addition, explain how chemicals covered by non-disclosure agreements (NDAs) are disclosed. For example, are they disclosed separately from the products with which they are associated? To receive credit for this question, unless ingredient disclosure is included only on packaging, relevant links must be provided. If you also select "yes" for Question D2, these links will be included in your public responses.

Question D2: Disclosure of CFP Responses (5 points)

Question D2 promotes greater transparency of where responders are on the journey to reduce their chemical footprint and use inherently safer alternatives. Investors and customers are increasingly demanding greater transparency on all aspects of sustainability work, including safer chemicals.

D2 Does your company agree to publicly disclose its responses to the CFP Solar Survey on the CFP website?
Select "a" or "b", then proceed to Question D3.
a. Yes
b. No

Explanation

If you select “yes,” your multiple-choice response options and any web links in response to Questions M1, I2, F1, F5, and D1 will be available on the CFP website (see https://www.chemicalfootprint.org/results/companies).

Question D3: Disclosure of CFP Score (5 points)

Question D3, similar to Question D2, promotes greater transparency of where responders are on the journey to reduce their chemical footprint and use inherently safer alternatives.

D3 Does your company agree to publicly disclose its score on the CFP website?
Select "a" or "b", then proceed to Question D4.
a. Yes
b. No

Explanation

If you select “yes,” your score will be posted on the CFP website (see https://www.chemicalfootprint.org/results/companies).

Question D4: Verification of CFP Responses (4 points)

D4.1 Have any of your company's responses to the Questions in the Survey been verified by an independent third party?

a. Yes, proceed to Question D4.2.
b. No, you are finished with the Survey.

D4.2 Our company's response options have been verified by an independent third party for (select one):

a. One of our response options.
b. Two to four of our response options.
c. At least eight of our response options.
d. At least twelve of our resp6onse options.
e. All response options except D2, D3, and D4.

How to earn points and supporting documentation requirements

CFP performs quality assurance and quality control reviews of responses based on information provided by companies as well as publicly available information. An additional level of verification of answers to the CFP Solar Survey is provided by a third party reviewing the answers.

To earn points for D4, you must attach an assurance statement from an independent third party verifying the authenticity of each response option for which you claim the credit. The verification must clearly relate to each response option in the CFP Solar Survey. For a list of approved CFP Verifiers see https://www.chemicalfootprint.org/assess/cfp-verifier-program. Other organizations will be considered for verifying answers on a case-by-case basis. Contact moreinfo@cleanproduction.org for more information.

CFP will not disclose the documentation or the verification results without permission from responders. Choose one response option, D4.2a – e.

Supporting documentation: provide document with third party verification statement.

Solar Survey 2023: Product Module Guidance

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