GLOBAL ELECTRONICS COUNCIL

Sustainability for a Connected Future

EPEAT-COC-2025

Reduction of Chemicals of Concern Criteria

January 29, 2025

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Foreword

The Global Electronics Council (GEC) is a mission driven non-profit working to create a more sustainable and just world, focused on supporting institutional purchasers in procuring only credible sustainable and circular technology products and services. GEC owns and operates EPEAT®, a comprehensive voluntary sustainability ecolabel. GEC ecolabel criteria address priority impacts throughout the life cycle of the product, based on an evaluation of scientific evidence and international best practices, as presented in State of Sustainability Research for each criteria development process.

Criteria are developed in balanced, voluntary consensus processes consistent with:

- ISO 14024 *Environmental labels and declarations – Type 1 environmental labelling – Principles and procedures*[1], and
- US Executive Office of the President, Office of Management and Budget, OMB Circular A-119: *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*[2].

A summary of GEC's Criteria Development Process (P74) and procedures governing the process are publicly available on the EPEAT Registry.[3] Public stakeholder consultation occurs throughout the criteria development process. Stakeholder comments on criteria are considered by the Technical Committee as part of the Voluntary Consensus Process. Detailed policies for the EPEAT Program and criteria implementation are available in the EPEAT Policy Manual, also found on the EPEAT Registry. The EPEAT Program may issue temporary policy addenda to this document, EPEAT Policy Manual (P65), to address unforeseeable and extraordinary circumstances that are beyond the control of manufacturers. Such circumstances include but are not limited to natural disasters, acts of war or terrorism, significant labor strikes, devastating accidents to a supplier facility, epidemics, or pandemics.

These criteria were developed in collaboration with NSF. NSF facilitated the voluntary consensus process, in alignment with GEC's Criteria Development Process.

GEC Criteria are owned by GEC and, unless noted otherwise, their use is limited to the tools and resources developed by GEC as part of its mission activities. All GEC Criteria are publicly available.

[1] https://www.iso.org
[2] https://www.whitehouse.gov/wp-content/uploads/2020/07/revised_circular_a-119_as_of_1_22.pdf
[3] https://globalelectronicscouncil.org/ecolabels/

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Participants

The following stakeholders were members of the Technical Committee:

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Cannon
ChemFORWARD
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Covestro
Dell
Epson
Fujitsu
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Green Science Policy Institute
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KYOCERA
Lenovo
Microsoft
Ricoh USA, Inc.
Scivera
Sharp
Toshiba
TPV
US Department of Defense
US Department of Energy
US Environmental Protection Agency
United Nations Environment Programme
Xerox

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1.0 Purpose

The purpose of this document is to establish performance-based criteria to reduce life cycle impacts related to chemicals of concern, from manufacturing to end-of-life of the product. GEC's State of Sustainability Research for the Reduction of Chemicals of Concern[4] identifies priority impacts of chemicals on human health and the environment and strategies to reduce chemical risks for the sector, providing the scientific evidence-based foundation for criteria development. Criteria address manufacturer programs and activities to reduce sustainability impacts with respect to management of substances used in products, substance inventory and transparency, safer chemicals in manufacturing, products and packaging through alternatives assessment and/or reduction of chemicals of concern.

1.1 Scope

EPEAT applies these criteria to its product categories, providing an incentive for manufacturers to enable the safer and more sustainable use of chemicals, and allowing purchasers to identify more sustainable products. EPEAT policies and procedures govern the implementation of these criteria within the EPEAT Program.

2.0 Normative References

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. European Union Directives, which contain the adoption date in their title, are not treated as "dated references" (as described above). Unless explicitly indicated otherwise, when a European Union Directive is referenced in this document, a new or updated European Union Directive shall apply upon its enforcement date unless otherwise noted in the criteria.

ChemForward methodology[5]

Clean Production Action Greenscreen® for Safer Chemicals Hazard Assessment Guidance[6]

Cradle to Cradle Certified® chemical hazard assessment[7]

European Chemicals Agency (ECHA) Candidate List of substances of very high concern for Authorisation[8]

[4] https://globalelectronicscouncil.org/state-of-sustainability-research/

[5] https://www.chemforward.org/

[6] https://www.greenscreenchemicals.org/learn/guidance-and-method-documents-downloads

[7] https://www.c2ccertified.org/

[8] https://echa.europa.eu/candidate-list-table

European Chemicals Agency, Prolonged Contact with The Skin - Definition Building for Nickel.[9]

European Union, Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.[10]

European Union, Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006, concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.[11]

European Union, European Parliament and of the Council Directive 94/62/EC of the European Parliament and of the Council on Packaging and Packaging Waste.[12]

European Union, Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast).[13]

Greenscreen® for Safer Chemicals methodology.[14]

EN 14582, Characterization of waste — Halogen and sulfur content — Oxygen combustion in closed systems and determination methods.[15]

IEC 62321-3-1, Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.[16]

IEC 62321-3-2, Determination of certain substances in electrotechnical products - Part 3-2: Screening - Fluorine, bromine and chlorine in polymer and electronics by combustion-ion chromatography (C-IC).[17]

IEC 62474, Material declaration for products of and for the electrotechnical industry.[18]

[9] https://echa.europa.eu/documents/10162/13641/nickel_restriction_prolonged_contact_skin_en.pdf/b6f35357-da40-4a04-8085-fe42f6f543ab

[10] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A32023R1542

[11] https://echa.europa.eu/regulations/reach/legislation

[12] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01994L0062-20180704

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02011L0065-20230901

[14] https://www.greenscreenchemicals.org/

[15] https://standards.iteh.ai/catalog/standards/cen/53537f13-6c14-4d6a-b699-d0db89df47c2/en-14582-2016

[16] https://webstore.iec.ch/publication/6830

[17] https://webstore.iec.ch/publication/31477

[18] https://webstore.iec.ch/publication/29857

IEC 63000, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.[19]

Interstate Chemicals Clearinghouse (IC2), Alternatives Assessment Guide, Hybrid or Sequential Frameworks.[20]

ISO 10993, Biological evaluation of medical devices — Part 1: Evaluation and testing within a risk management process.[21]

ISO 14021, Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling).[22]

Organization for Economic Co-operation and Development's (OECD) Toward a New Comprehensive Global Database of Per- and Polyfluoroalkyl Substances (PFASs).[23]

Scivera GHS+ methodology.[24]

TCO Certified Accepted Substance List.[25]

Toxics in Packaging Clearinghouse (TPCH) Model Toxics in Packaging Legislation.[26]

United Nations Globally Harmonized System of Classification and Labelling of Chemicals.[27]

US Plastics Pact, Problematic and Unnecessary Materials List.[28]

3.0 Definitions and Acronyms

3.1 Definitions

article: An object which during production is given a special shape, surface or design that determines its function to a greater degree than its chemical composition. (Source: EU REACH Regulation.[29])

[19] https://webstore.iec.ch/publication/25985

[20] Interstate Chemicals Clearinghouse. 89 South Street, Suite 600, Boston, MA 02111-2651. http://www.theic2.org

[21] https://www.iso.org/standard/68936.html

[22] https://www.iso.org/standard/66652.html

[23] https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/risk-management-risk-reduction-and-sustainable-chemistry2/pfas-report-support-materials/global%20database%20of%20per%20and%20polyfluoroalkyl%20substances.xlsx

[24] https://www.scivera.com/ghsplus/

[25] https://tcocertified.com/industry/accepted-substance-list

[26] NERC. 139 Main Street, Suite 401, Brattleboro, VT 05301. https://toxicsinpackaging.org

[27] https://unece.org/about-ghs

[28] US Plastics Pact "Problematic and Unnecessary Materials List." https://usplasticspact.org/u-s-plastics-pact-brings-together-leading-brands-and-materials-manufacturers-to-seek-solutions-to-problematic-and-unnecessary-materials/

[29] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:02006R1907-20211001&from=EN#tocId7

battery: Any part consisting of one or several battery cells, including, as relevant to the product model, an electronic circuitry with battery-related sensors for battery management, housing(s), battery tray, brackets, shieldings, thermal interface materials, and electric connections to other assemblies of the device.

secondary cell: Cell which is designed to be electrically recharged (Source: IEC).[30]

confidential business information (CBI): Broadly defined as proprietary information, considered confidential to the submitter, the release of which would cause substantial business injury to the owner.

NOTE — Health and safety studies, information from health and safety studies, and information related to the functions and use may not be protected as CBI (Adapted from US Code, Title 15, Chapter 53, Subchapter I, § 2613 (b)).

conformity assessment body: An independent, third-party organization that conducts audits and determines conformance against the requirements of a specific standard.

conformance assurance process: Process used by the manufacturer to manage compliance of the product to a restricted substance requirement. The process includes:

- a description of how supplier, materials, parts, and, or subassemblies risk factors are evaluated and allocated;
- the utilization of risk rating (or high-risk status) to determine what evidence is required for suppliers, materials, parts, and, or subassemblies, as determined to be applicable by the manufacturer;
- the collection and evaluation of the evidence determined necessary for applicability, quality and accuracy, and associated action taken for a negative result; and

  NOTE — Analytical testing is an option, but is not required.
- a procedure to refresh the evidence as appropriate, based on the manufacturer's evaluation of risk.

corporation level: See Section 3.2, EPEAT Program Terms.

disclosure: Information made available to the audience specified in criterion (e.g., purchasers, public, etc.).

disposal: Any operation which does not lead to materials recovery, recycling, reclamation, or reuse of equipment or components, with or without energy reclamation. This includes operations which result in the deposition of waste into, or on, land or water, or treatment via incineration.

elemental chlorine free (ECF): Packaging material produced with pulp from virgin content that has been bleached using a chlorine derivative such as chlorine dioxide (ClO2), but without the use of elemental chlorine (Cl), or has not been bleached with chlorine compounds.

[30] https://www.electropedia.org/iev/iev.nsf/display?openform&ievref=482-01-03

end-of-life: Life cycle stage of electronic equipment and components when they are no longer intended for use and are destined, or intended to be destined for, dismantling, material recovery, recycling or disposal.

fan: A component (including its housing, circuit boards, etc. to operate as a thermal module) that produces a current of air for cooling and heat transfer purposes.

> NOTE — Cables that provide electrical power to the fan are not included in the definition.

homogeneous 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. (Source: Directive 2011/65/EU of the European Parliament and of the Council)

manufacturer: See Section 3.2, EPEAT Program Terms.

packaging: All materials of any nature to be used for the containment, protection, handling, delivery, and presentation of products from the manufacturer to the user or the customer.

> NOTE — For the purposes of this Criteria Document, unless otherwise noted, the term "packaging" only applies to sales packaging or primary packaging, i.e., packaging that contains and protects, and is designed to deliver a product unit to the final user or customer, and does not include pallets or the mechanism such as nails, screws, and bolts that is used to temporarily attach primary packaging to pallets.

packaging component: Any individual assembled part of packaging such as, but not limited to, any interior or exterior blocking, bracing, cushioning, weatherproofing, exterior strapping, coatings, closures, inks, and labels.

per- and polyfluoroalkyl substances: Any substance that contains at least one fully fluorinated methyl (CF3-) or methylene (-CF2-) carbon atom (without any H/Cl/Br/I attached to it). A substance that only contains the following structural elements is excluded from the scope: CF3-X or X-CF2-X', where X = -OR or -NRR' and X' = methyl (-CH3), methylene (- CH2-), an aromatic group, a carbonyl group (-C(O)-), -OR'', -SR'' or -NR''R'''; and where R/R'/R''/R''' is a hydrogen (-H), methyl (-CH3), methylene (-CH2-), an aromatic group or a carbonyl group (-C(O)-).[31]

phthalates: Any member of the class of organic chemicals that are di-esters of 1,2-benzene dicarboxylic acid (phthalic acid).

plastic: A material that contains, as an essential ingredient, one or more organic polymeric substances of large molecular weight, is solid in its finished state, and, at some stage in its manufacture or processing into finished articles, can be shaped by flow.

> NOTE — Rubber, textiles, adhesives, paint, inks and coatings, which may in some cases meet this definition are not considered plastics. (adapted from ASTM D883-24).[32]

[31] https://echa.europa.eu/documents/10162/1c480180-ece9-1bdd-1eb8-0f3f8e7c0c49
[32] ASTM International. 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. https://www.astm.org

plastic part: The plastic portion of a component's construction.

> NOTE — In some cases plastic pieces may be bonded together or connected to either another plastic piece or a different material. The "plastic part" refers to the plastic portion of the component's construction, comprised of homogeneous material.

post-consumer material: Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

pre-consumer material: Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

printed circuit board: A thin board made of fiberglass, composite epoxy, or other laminate material with conductive pathways etched or "printed" onto the board, with the purpose of, or to be used for, the connection of different components on the board, such as transistors, resistors, and integrated circuits.

printed circuit board electronic component: An individual electronic part or combination of parts that are typically directly attached to a printed circuit board. Examples include capacitors, diodes, resistors, and integrated circuits. This does not include those components attached to a PCB solely to draw power and/or those that perform an electromechanical function (such as a fan).

process chemicals: Chemicals (individual chemicals or mixtures) used during the manufacture and/or finishing of a product and/or maintenance of related production equipment that are not intentionally fully incorporated into the product. Examples of process chemicals include cleaning agents, solvents, lubricants, photochemicals, plating agents, refrigerants, hydraulic fluids, and solvents, including volatile chemicals emitted from adhesives, inks, and coatings during manufacturing.

processed chlorine free: Packaging material produced with pulp from virgin and/or recycled content that has been bleached without any type of chlorine, or that has not been bleached at all. Recycled content may have originally been bleached with chlorine or chlorine derivatives.

product category level: See Section 3.2, EPEAT Program Terms.

product level: See Section 3.2, EPEAT Program Terms.

prolonged skin contact: Contact with the skin of potentially more than 10 minutes on three or more occasions within two weeks or 30 minutes on one or more occasions within two weeks (Adapted from European Chemicals Agency, Prolonged Contact with The Skin - Definition Building for Nickel).

product: See Section 3.2, EPEAT Program Terms.

publicly available: Obtainable by the public without restriction of access; for example, cannot require member only access. A requirement to provide a name and/or organization to obtain access is not considered a "restriction of access".

recovery: Operations that are part of a process to recapture elements, compounds, or materials, and transform them into commodities.

recycled content: Proportion, by mass, of recycled material in a product or packaging. Only pre-consumer and post-consumer materials shall be considered as recycled content. (Source: ISO 14021:2016).

supplier: Entity that provides goods or services to the manufacturer.

totally chlorine free (TCF): Packaging material produced with pulp from virgin content that has been bleached without any type of chlorine, or that has not been bleached at all.

3.2 EPEAT Program Terms

The terms below are important for the application of these criteria in the EPEAT Program. They are defined by the EPEAT Program for the purpose of assessment of conformance to the criteria in this document.

corporation level: Evidence provided to support conformance with the criterion addresses, at a minimum, all product categories in which the manufacturer has EPEAT registered products.

manufacturer: A brand owner that registers products to the EPEAT Ecolabel and is responsible for ensuring ongoing conformance of products to criteria; also referred to as "Participating Manufacturer" in EPEAT policy documents.

product: A marketing model and chassis type associated with a unique product registration, including accessories and peripherals, integral to the operation of the product and contained by default in the point of sale (POS) packaging associated with the unique product registration, excluding consumables in imaging equipment.

> NOTE 1 — "Integral" means the accessory or peripheral is fundamental or essential to product function. If the manufacturer does not include the peripheral or accessory in the POS packaging by default, it is not within scope. "By default" means that the peripheral or accessory is standard in the POS package(s). Manufacturer may offer choices for the "default" peripheral or accessory (e.g., different mouse options or output tray options.)
>
> NOTE 2 — Criteria may modify product scope (e.g., include or exclude an accessory, peripheral or component) or define a calculation methodology that accounts for variation in accessories and peripherals included in POS packaging (e.g., recycled content.)
>
> NOTE 3 — "Unique product registration" may have multiple unique product identifiers.

product category: A group of products identified by the EPEAT Program for the purpose of product registration (e.g., computers and displays, servers, mobile phones, and imaging equipment).

product category level: Evidence provided to support conformance with the criterion covers all products registered by the manufacturer in the EPEAT product category. Manufacturers may indicate if the submitted evidence addresses multiple product categories.

product level: Evidence provided to support conformance with the criterion is for individual EPEAT-registered products.

product type: Sub-categories of products identified by the EPEAT Program for the purpose of product registration and searching the EPEAT Registry. For example, the following product types are included in the Computer and Display product category: desktop computer, monitor, integrated desktop computer, notebook computer, tablet/slate, thin client, workstation, signage display.

unique product identifier: A distinct code used to unambiguously identify and differentiate an individual sales unit on the marketplace, whether it be a specific version or model of a device, or a bundle or multi-pack of multiple products. Common unique product identifiers include Global Trade Item Numbers (GTIN) (e.g., Universal Product Code (UPC), European Article Number (EAN), and Manufacturer Part Number (MPN).

3.3 Acronyms

CAS: chemical abstract number

CBI: confidential business information

CEPN: Clean Electronics Product Network

EC: European Community

EN: European Norm (standard)

EPA: Environmental Protection Agency

EU: European Union

GEC: Global Electronics Council

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

IEC: International Electrotechnical Commission

ISO: International Organization for Standardization

MCV: maximum concentration values

MITI: Ministry of International Trade and Industry

OECD: Organization for Economic Co-operation and Development

PFAS: per- and polyfluoroalkyl substances

PCR: post-consumer recycled

PDF: Portable Document Format

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

RoHS: Restriction of the use of certain Hazardous Substances in electrical and electronic equipment

SVHC: Substances of Very High Concern

URL(s): uniform resource locator(s)

UN: United Nations

US: United States

4.0 This section is intentionally left blank.

5.0 This section is intentionally left blank.

6.0 Reduction of Chemicals of Concern

6.1 Management of substances used in product

6.1.1 Required – Conformance with provisions of European Union RoHS Directive

The product shall meet the substance restriction requirements of the European Union RoHS Directive and its amendments, in effect on the date of EPEAT product registration. All valid exemptions to the substance restrictions as defined by the Directive are applicable. An exemption is no longer valid if deemed "No Longer Valid," as identified in the Directive.

Verification requirements:

This criterion is verified at the product level.

a) Evidence of technical documentation and implementation in accordance with module A of Annex II to Decision No 768/2008/EC; or

b) Evidence of implementation of a conformity assurance process that demonstrates conformity to this criterion through effective control of the supply chain; or

c) Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion.

References and details: The European Union RoHS Directive stipulates maximum concentration values (MCVs) by weight for the presence of each substance within homogeneous materials.

Technical documentation, as required in Article 7(b) of the European Union RoHS Directive, can be generated per, IEC 63000 "Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances."

6.1.2 Required – Conformance with substance restriction requirements of the European Union Battery Regulation

Batteries in the product shall meet the substance restriction requirements of the European Union Battery Regulation, in effect in the EU at the date of battery manufacture.

The manufacturer may indicate "Not Applicable" if the product does not contain batteries.

Verification requirements:

This criterion is verified at the product level.

a) List of batteries that are contained within or sold with the product, including their chemistry (e.g., lithium ion, nickel metal hydride, etc.)

b) At least one of the following:

i. Evidence of implementation of a conformance assurance process that demonstrates conformity to this criterion through effective control of the supply chain; or

ii. Test results demonstrating that battery(ies) in the product meets the substance restriction requirements of the European Union Battery Regulation;

iii. Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that battery(ies) in the product meets the substance restriction requirements of the European Union Battery Regulation.

References and details: This criterion applies only to those substances for which the European Union Battery Regulation establishes threshold limits on the amount of the substance in batteries. This criterion does not apply to those substances only subject to the European Union Battery Regulation labeling requirements. For the purposes of this criterion, the definition of "battery" as defined in the EU Battery Regulation applies.

6.1.3 Required – Conformance with supply chain communication provisions of European Union REACH Regulation

Manufacturer shall disclose information on Substances of Very High Concern present in any article in the product above the threshold, in accordance with Article 33 requirements of the European Union REACH Regulation. In addition, manufacturer shall publicly disclose the presence of those Substances of Very High Concern. Disclosure must meet the requirements in effect at the time the product is registered to EPEAT.

Manufacturer shall provide the location of the public disclosure on the EPEAT Registry.

Verification requirements:

This criterion is verified at the product level.

a) Disclosure of substances on REACH Candidate List present in any article in the product above the threshold. Acceptable public disclosure includes, but is not limited to, disclosure on the manufacturer's website. Manufacturer may provide URL(s) associated with article(s) submitted to European Union Waste Framework Directive (2008/98/EC) Substances of Concern In articles, as such or in complex objects (Products) (SCIP) database of Candidate List Substances of Very High Concern in accordance with the Waste Framework Directive (Articles 9.1 and 9.2) for reporting to the European Chemicals Agency (ECHA). In the event that a product has one name in SCIP database but a different name in the US, a disclosure for the EU model is sufficient if the manufacturer can demonstrate that the verification requirements are met for the model registered.

References and details: None.

6.1.4 Optional – Reduction of substances on the European Union REACH Regulation Candidate List of SVHCs for Authorization

The product shall not contain EU REACH Candidate List of Substances of Very High Concern (SVHC) for Authorization above 0.1% per substance by weight per "article", excluding uses and concentrations permittable under the EU RoHS Directive and its amendments in effect at the time the product is registered. Substances on the REACH Candidate List of SVHCs with a *Date of inclusion* two years or more before the product is registered to EPEAT for this criterion are subject to this requirement.

In order to identify substances that may be present in electronics, manufacturers may pre-screen the EU REACH Candidate List of SVHC for Authorization using IEC 62474 Material Declaration for Products of and for the Electrotechnical Industry Declarable substance groups and declarable substances list (DSL).

The manufacturer shall utilize a conformance assurance process to ensure that the product does not contain applicable substances above 0.1% by weight per "article".

Point value: 1

Verification requirements:

This criterion is verified at the product level.

a) Method or procedure for identifying substance(s) that may be present in the product.

b) One of the following:

   i. Evidence of implementation of a conformance assurance process that demonstrates conformity to this criterion through effective control of the supply chain; or

   ii. Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion.

References and details: None.

6.1.5 Required – Reduction of bromine and chlorine content of plastic parts

Plastic parts ≥ 25 g (≥ 10 g for mobile phones) shall not contain > 1000 ppm chlorine (w/w) and shall not contain > 1000 ppm bromine (w/w), at the homogeneous level. Plastic parts that contain ≥ 25% post-consumer recycled (PCR) content shall not contain > 5000 ppm chlorine (w/w) nor > 5000 ppm bromine (w/w). See 5.1.1 Required – Disclosure of post-consumer reused or recycled and/or biobased plastic content in *GEC Sustainable Use of Resources Criteria* for the method of calculating PCR content.

The following exceptions apply:

- Printed circuit boards, cables and wiring, fans, plastic parts (other than external casings) containing brominated or chlorinated flame retardants in order to comply with mandatory fire safety standards (e.g., UL 94 V0, V1, V2, 5VA or 5VB) for which other non-halogenated flame retardants cannot be used to achieve the required material properties and performance, and printed circuit board electronic components.

The manufacturer may indicate "Not Applicable" if the product does not contain plastic parts ≥ 25 g (≥ 10 g for mobile phones).

Verification requirements:

This criterion is verified at the product level.

a) A list of all plastic parts in the product that are ≥ 25 g (≥ 10 g for mobile phones), and identification of any such parts falling within the exceptions to this criterion.

b) One of the following:

   i. Test data showing that all plastic parts or resin or pellets used to manufacture the part, ≥ 25 g (≥ 10 g for mobile phones) meet the thresholds identified in the criterion when tested using an applicable test method(s). Acceptable test methods include, but are not limited to, IEC 62321-3-1, IEC 62321-3-2, and EN 14582. The laboratory must have the applicable test method(s) included in its scope of accreditation. If relying on resin or pellet data, a statement from the part supplier that brominated and chlorinated substances were not subsequently added to plastic parts in registered products; or

   ii. Evidence of implementation of a conformance assurance process that demonstrates conformity to this criterion, for plastic parts ≥ 25 g (≥ 10 g for mobile phones), through effective control of the supply chain, or

   iii. Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion.

c) For all plastic parts that contain ≥ 25% PCR content, supplier declaration(s) that identifies the part(s) and states that the part(s) contains ≥ 25% PCR content.

d) For all plastic parts ≥ 25 g (≥ 10 g for mobile phones) which a manufacturer declares contain brominated or chlorinated flame retardants in order to comply with mandatory fire safety standards (e.g., UL 94 V0, V1, V2, 5VA or 5VB), manufacturer's technical documentation or supplier declaration(s) that (a) identifies the part(s) and the flammability standards required and (b) states that the part(s) contains chlorine or bromine for the purpose of flame retardancy, and that other non-halogenated flame retardants cannot be used.

References and details: Common brominated and chlorinated substances used in electronics include, but are not limited to, those listed in IEC 62474 Reference Substance List (RSL).

6.1.6 Optional – Further reduction of bromine and chlorine content of plastic parts

Plastic parts ≥ 5 g shall not contain > 1000 ppm chlorine (w/w) and shall not contain > 1000 ppm bromine (w/w), at the homogeneous level in accordance with Table 6.1.6.

Table 6.1.6.

Plastic parts	Optional points
Any two of the following exceptions from criterion 6.1.5: • all printed circuit board laminates (excluding components soldered or affixed to the printed circuit board); or • fans; or • internal cabling; or • all plastic parts to which fire safety standards (e.g., UL 94 V0, V1, V2, 5VA or 5VB) apply, excluding power cords.	1
All plastic parts ≥ 5 g, (including printed circuit board electronic components, excluding power cords)	2

The manufacturer may indicate "Not Applicable" if the product does not contain any of the plastic parts ≥ 5 g in Table 6.1.6.

Point value: 1 or 2 (maximum of 2 points)

Verification requirements:

This criterion is verified at the product level.

a) A list of all plastic parts in the product that are ≥ 5 g.

b) One of the following:

i. Test data showing that all plastic parts or resin or pellets used to manufacture the part, ≥ 5 g meets the thresholds identified in the criterion when tested using an applicable test method(s).

Acceptable test methods include, but are not limited to, IEC 62321-3-1, IEC 62321-3-2, and EN 14582. The laboratory must have the applicable test method(s) included in its scope of accreditation. If relying on resin or pellet data, a statement from the part supplier that brominated and chlorinated substances were not subsequently added to plastic parts in registered products; or

ii. Evidence of implementation of a conformance assurance process that demonstrates conformity to this criterion, for plastic parts ≥ 5 g, through effective control of the supply chain; or

iii. Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion.

References and details: Common brominated and chlorinated substances used in electronics include, but are not limited to, those listed in IEC 62474 Reference Substance List (RSL).

6.1.7 Optional – Reduction of PFAS content of plastic parts

Manufacturer shall demonstrate that PFAS are not 1) present in plastic parts ≥ 25 g (≥ 10 g for mobile phones) in the product nor 2) used in or as a coating on plastic parts ≥ 25 g (≥ 10 g for mobile phones).

For plastic parts ≥ 25 g (≥ 10 g for mobile phones), manufacturer shall test for total fluorine (or provide supplier test data) and demonstrate, except as provided in (a), (b) or (c), total fluorine is not present at concentration > 100 ppm fluorine (w/w) at the homogeneous level.

a) If fluorine is present at concentrations > 100 ppm at the homogeneous level, manufacturer shall demonstrate that the fluorine content is non-PFAS fluorine based on a calculated elemental analysis of the molecular structure using supplier formulation information to demonstrate at least 80% fluorine content present is due to non-PFAS.

b) Manufacturer shall demonstrate that fluorine is not present at concentration > 5000 ppm fluorine (w/w) at the homogeneous level for the following:

   i. Plastic parts containing ≥ 25% PCR content; or

   ii. Plastic parts containing PFAS for the purpose of meeting required fire safety standards (e.g., UL 94), where other non-halogenated additives cannot be used to achieve the required material properties and performance.

c) Plastic parts in contact with toner, ink, or paper, where the use, type, and value of PFAS is declared.

For coatings on plastic parts ≥ 25 g (≥ 10 g for mobile phones), manufacturers shall provide a statement from parts supplier that PFAS are not used in or as coating.

The manufacturer may indicate “Not Applicable” if the product does not contain plastic parts ≥ 25 g (≥ 10 g for mobile phones).

Point value: 1 point

Verification requirements:

This criterion is verified at the product level.

a) A list of all plastic parts in the product that are ≥ 25 g (≥ 10 g for mobile phones).

b) For each plastic part in the product ≥ 25 g (≥ 10 g for mobile phones), demonstration of one of the following:

i. Test data showing that all plastic parts or resins or pellets used to manufacture the part, ≥ 25 g (≥ 10 g for mobile phones) meet the thresholds identified in the criterion when tested using an acceptable test method(s). Acceptable test methods include, but are not limited to, IEC 62321-3-2, and EN 14582. The laboratory must have the acceptable test method(s) included in its scope of accreditation.

a. If relying on resin or pellet data, a statement from the part supplier that PFAS were not subsequently added to plastic parts in registered products;

or

ii. For plastic parts with a concentration of fluorine > 100 ppm (w/w) at the homogeneous level, demonstration of provide either a) an elemental analysis consisting of the concentration of fluorine in the material and a calculation of the chemical composition information for at least 80% of the fluorine content, based on supplier formulation information or b) a declaration from the material supplier stating the source (i.e., compound), function, and concentration of the fluorine content.

c) For all plastic parts ≥ 25g (≥ 10g for mobile phones) where manufacturer declares use of PFAS and where fire safety standards (e.g., UL 94) are required, manufacturer's technical documentation or supplier declaration(s) that identifies the part(s), the flammability standards required and states that:

i. the part(s) contains PFAS for the purpose of meeting fire safety standards, and

ii. other non-halogenated additives cannot be used, and

iii. fluorine is not present at concentrations >5000 ppm w/w at the homogeneous level.

d) For all plastic parts ≥ 25g (≥ 10g for mobile phones) that contain ≥ 25% PCR content, supplier declaration(s) that identifies the part(s) and states that the part(s) contains ≥ 25% PCR content and that fluorine is not present at concentration > 5000 ppm fluorine (w/w) at the homogeneous level.

e) For all plastic parts ≥ 25g (≥ 10g for mobile phones) in contact with toner, ink, or paper, declaration(s) that identifies the part(s), the use, type, and value of PFAS, and states that the part(s) is in contact with toner, ink, or paper.

f) For coatings on plastic parts ≥25g (≥10g for mobile phones), a statement that PFAS are not used in or as coating.

References and details: Analytical testing reports or Safety Data Sheet (SDS) may assist in the elemental analysis consisting of the concentration of fluorine in the material and a calculation of the chemical composition information.

6.1.8 Optional – Reduction of beryllium content

The product shall not contain beryllium > 1000 ppm (w/w) in homogeneous materials.

Point value: 1 point

Verification requirements:

This criterion is verified at the product level.

a) Evidence of implementation of a conformance assurance process that demonstrates conformity to this criterion through effective control of the supply chain; or

b) Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion.

References and details: Technical documentation can be generated per IEC 63000, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

6.1.9 Optional – Suitability and risk assessment of materials in prolonged skin contact

The manufacturer shall have a documented standard internal process or procedure to evaluate products, materials and chemical substances for prolonged skin contact (PSC) including skin irritation and skin sensitization. Optional points are awarded for a process that evaluate substances for 1) skin irritation (1 point) and 2) skin sensitization (1 point). The process shall include:

1. Identification of parts (for example in mobile phones, or mice, keyboards, remote controls, headsets included as part of the product) with potential for PSC and the associated materials and chemical substances in each part with the potential for PSC.[33];

2. A risk assessment of the chemical substances of concern.[34] in PSC materials shall include: (1) a hazard profile of the known skin irritation and/or sensitization properties and (2) the potential for dermal

[33] Prolonged skin contact is defined as contact with the skin of potentially more than 10 minutes on three or more occasions within two weeks or 30 minutes on one or more occasions within two weeks. (NOTE — Derived from EU REACH Annex XVII, entry 27 but not limited to nickel)

[34] A prolonged skin contact chemical substances of concern is any chemical known to be in prolonged skin contact materials and are listed in the EU Classification, Labeling and Packaging (CLP) Regulation EC No 1272/2008 in Annex V1, and have Hazard Category 1, 1A or 1B.

exposure that results in skin sensitization and/or irritation based on compositional information, information on chemical migration to the skin and normal and reasonably foreseeable conditions for use of the product. Risk assessments for skin irritation may be qualitative, but risk assessments for skin sensitization must be quantitative. The hazard profile for skin sensitization and/or irritation may use literature and supplier information including the following: (a) chemical and physical properties, (b) existing information on the skin irritant and/or skin sensitization potential as well as structurally related chemicals, (c) read-across of quantitative structure-activity relationship, (QSAR) predictions, and (d) biological testing[35]. Safety Data Sheets can be utilized to help inform the risk assessment, but cannot be used exclusively to establish hazard; and

3. Based on the risk assessment, a determination of whether the material is acceptable for use in registered products where acceptability is a toxicological risk-based decision or a scientific data-driven decision.

4. The risk assessment and determination of acceptability should be performed by an individual with expertise and experience in pharmacology, toxicology, industrial hygiene, or medicine, within or outside of the company.

PSC chemicals of concern are chemical substances in products that pose a risk of skin irritation and/or sensitization.

Point value: 1 or 2 points (maximum of 2 points)

Verification requirements:

This criterion is verified at the product or corporation level.

a) List of parts with potential for PSC and the associated materials and chemical substances of concern which remain in registered products with PSC. If there are none, verification requirement b), c), and d) are not applicable.

b) Evidence of a risk assessment having been conducted.

c) Evidence of a determination of acceptability for use in registered products.

d) Evidence that the individual conducting the risk assessment and acceptability meets the specified qualifications.

References and details: None.

[35] In vitro test for skin sensitization can include the kinetic Direct Peptide Reactivity assay (kDPRA, OECD 442C), KeratinoSens™ (OECD TG442d) and human Cell Line Activation Test (h-CLAT, OECD TG 442E). In vivo tests for skin sensitization should include either OECD TG 406: Skin Sensitisation Guinea Pig Maximisation Test and Buehler Test; or OECD TG 429: Skin Sensitisation: Local Lymph Node Assay. In vitro tests for skin irritation should include EpiDerm Skin irritation test (OECD 439). In vivo tests for skin irritation should include OECD TG 404: Acute Dermal Irritation/Corrosion.

6.2 Substance inventory and transparency

6.2.1 Required – Record of declarable substances

The manufacturer shall record the presence of IEC 62474 declarable substance groups and declarable substances in the product at or above the reporting threshold amounts identified in the IEC 62474 database at the time the product is registered in EPEAT. The record shall include all declarable substance groups and declarable substances corresponding to reportable applications in the IEC 62474 database, as follows:

- all criteria 1 designated declarable substance groups and declarable substances; and
- each declarable substance and declarable substance groups designated criteria 2 and 3 with a *First Added* date one year or more before the product is registered to EPEAT.

All valid exemptions and reportable applications for the specified conditions for which the declarable substance groups and declarable substances are permitted as defined by a current IEC 62474 exemption list in the IEC 62474 database are applicable. An exemption is no longer valid if deemed "Expired" in a current IEC 62474 exemption list.

The manufacturer shall have a process to manage, maintain, and update data received from suppliers on declarable substances listed in IEC 62474.

Verification requirements:

This criterion is verified at the product level.

1. Record of IEC 62474 declarable substance groups and declarable substances (designated 1, 2, and 3) in the product at or above the reporting threshold, including the substances and/or substance groups and CAS number for each declarable substance.
2. Documentation of a process to manage, maintain and update data received from suppliers on declarable substances listed in IEC 62474.

References and details: None.

6.2.2 Optional – Disclosure of declarable substances

The manufacturer shall make publicly available on their website the record of IEC 62474 declarable substance groups and declarable substances identified in criterion 6.2.1 (Required – Record of declarable substances). The inventory shall contain the CAS number for each declarable substance. Declarable substance groups must be disclosed but a CAS number is not required for declarable substance groups. The manufacturer shall provide on the EPEAT Registry the URL(s) for the manufacturer's public website disclosing this information. The manufacturer shall update the record on public website when new IEC 62474 declarable substance groups and declarable substances are found to be contained in the product to conform with criterion 6.2.1 (Required – Record of declarable substances). In the event that an update to the IEC 62474 declarable substance list (DSL) or exemption lists includes a substance present in the product at or above the

reporting threshold amounts identified in the DSL update, the manufacturer shall include the new declarable substance in the manufacturer's publicly available website within 2 years of the date of the relevant DSL update.

Point value: 1 point

Verification requirements:

This criterion is verified at the product level.

a) Manufacturer's website URL(s); and

b) Demonstration that the website contains public disclosure of the record of IEC 62474 declarable substance groups and declarable substances, including the substances and/or substance groups and CAS number for each declarable substance.

References and details: None.

6.2.3 Required – Requesting substance inventory

The manufacturer shall request information from suppliers for chemical substances in materials, components, and parts comprising at least 80% of the total weight of the product.

The manufacturer shall have a documented process, and a system or tool, to record the collected information included in this criterion. The manufacturer shall request suppliers to disclose the standardized number (for example CAS, EC, MITI) and concentration for each chemical substance. Concentration may be expressed as an approximate range for each standardized chemical number that makes up the part or substance being supplied (e.g., CAS XX-XX-X at 1-5% and CAS YY-YY-Y at 95-99%). If a standardized number is not available a unique material identifier, may be used.

For instances where there are multiple suppliers for a given material, component, or part, at a minimum the manufacturer shall select which inventoried supplier mass(es) to include in the calculation.

"Request" means one or more of the following:

1. the manufacturer, or an agent or supplier of the manufacturer, has requested this information in writing from the supplier directly (for example, email, letter); or

2. a contract, agreement, or purchase order between the supplier and the manufacturer (or between the supplier and an intermediary supplier, for example, a contract manufacturer) that requires the supplier to provide this information; or

3. a specification or other document between the supplier and the manufacturer (or between the supplier and an intermediary supplier) that requests this information.

Manufacturers of imaging equipment designated as EPEAT Bronze shall meet this criterion no later than 1 year from the publication date of this criteria document. Manufacturers of imaging equipment designated as EPEAT Silver or Gold shall meet this criterion at the time of product registration.

Verification requirements:

This criterion is verified at the product level.

a) Evidence of manufacturer's "request" to suppliers for chemical substance inventory information for materials, components, and parts comprising at least 80% of the total product weight of registered products. The total weight of the product can be demonstrated using pictures of the product weight, weight shown on a test report, supplier attestation, manufacturer's website, or any other verifiable means as provided by the manufacturer.

b) Evidence of an information management system or tool for collecting and maintaining the requested substance information.

c) Calculation demonstrating that at least 80% of the total product weight is met.

References and details: None.

6.2.4 Optional – Obtaining substance inventory

The manufacturer shall obtain (or otherwise have access to) information from suppliers for chemical substances in materials, components, and parts contained in the product to conform with disclosure requests and information management system or tool requirements of criterion 6.2.3 (Required – Requesting full substance inventory).

The manufacturer shall demonstrate that it has received (or otherwise obtained) a list of the substances in the products/components supplied to the manufacturer from its suppliers that meets one of the percentages identified in Table 6.2.4 below. The manufacturer shall also have a process for validating reports or other substance ingredient disclosures from its suppliers for quality and accuracy and taking corrective action for incomplete or incorrect submissions.

The following equation shall be used to calculate the percentage:

$$\%\ \text{mass of inventory of substances of the product} = \left(\frac{\text{Mass of substances inventoried}}{\text{Total mass of the product}}\right) \times 100$$

In the calculation, only the portion of materials, components, and parts for which substance inventory information is received from the supplier shall be counted in the numerator. If a supplier withholds disclosure on the basis of confidential business information (CBI), the mass of the undisclosed substances shall not be included in the numerator.

For instances where there are multiple suppliers for a given material, component, or part, at a minimum the manufacturer shall select which inventoried supplier mass(es) to include in the calculation.

The manufacturer may claim the points associated with only one level in the following table:

Table 6.2.4.

Data acquired on substance inventory	Optional points
Minimum of 60% of total product mass	1
Minimum of 90% of total product mass	2

Point value: 1 or 2 points (maximum of 2 points)

Verification requirements:

This criterion is verified at the product level.

a) Evidence that the information management system or tool utilized as per verification requirement criterion 6.2.3, includes a list of identified substances in the products/components supplied to the manufacturer from its suppliers.

b) Calculation demonstrating the percentage of total product mass for which the manufacturer has a complete list of substances.

c) Evidence supporting the existence and use of a system for validating reports or other substance ingredient disclosures from its suppliers for quality and accuracy and taking corrective action. Evidence supporting use of a system include, for example, documentation demonstrating routine data entry, dated references of activity, or ongoing updates.

References and details: None.

6.2.5 Optional – Record and public disclosure of PFAS

Part A:

The manufacturer shall obtain (or otherwise have access to) information from suppliers for intentionally added PFAS in materials, components, and parts contained in the product. (1 point)

Obtaining this information shall conform with the disclosure requests and information management system or tool requirements of Criterion 6.2.3 (Required – Requesting full substance inventory). The manufacturer record shall include a standardized number (for example CAS, EC, MITI), for each chemical substance, unless a standardized number does not exist.

The manufacturer shall also have a process for validating reports or other substance ingredient disclosures from its suppliers for quality and accuracy and taking corrective action.

Part B:

The manufacturer shall make publicly available the record of PFAS in the product identified in Part A. The public disclosure of PFAS in the product shall contain the CAS number for each individual PFAS substance or contain the identification number designated by applicable laws or regulation for confidentiality purposes or contain PFAS substance group that are defined by applicable laws/regulations or GADSL. Where a supplier claims that the identity of a PFAS is confidential business information (CBI), the manufacturer shall note that a PFAS is present but that the identity is being withheld as CBI. The public disclosure of this information shall be provided on the manufacturer's website or other public website. The URL(s) for the public disclosure shall be provided on the EPEAT Registry. (1 point)

Point value: 1 or 2

Verification requirements:

This criterion is verified at the product level.

Part A

a) Evidence that the information management system or tool utilized as per verification requirement in Criterion 6.2.3, includes a list of identified PFAS in the product/components/material supplied to the manufacturer from its suppliers.

b) Evidence supporting the existence of a process for validating reports or other substance ingredient disclosures from its suppliers for quality and accuracy and taking corrective action.

Part B

a) Public website URL; and

b) Demonstration that the website contains public disclosure of a list of identified PFAS and CAS number for each substance.

References and details: None.

6.3 Hazard assessments and public disclosure

6.3.1 Optional – Improving substance selection

The manufacturer shall demonstrate that substance hazard assessments have been conducted using a Qualified Chemical Hazard Assessment Methodology (as identified in Table 6.3.1.1 or as specified in Annex B), on each substance > 1000 ppm (w/w) in homogenous materials of plastic parts meeting the weight threshold in Table 6.3.1.2, that are intentionally added to the products to serve the following functions:

1. flame retardants
2. plasticizers

Table 6.3.1.1

Hazard Performance Level	
A	All assessed substances are not in the highest hazard category; achievement levels include: 1. GreenScreen® - not Benchmark-1 or Benchmark-U with a worst-case scenario score of Benchmark-1 2. Scivera GHS+ Chemical Hazard Assessment - not Hazard Category Red or Gray 3. Cradle to Cradle Certified® - not x-CMR, x-PBT, x/c-CMR(Cat 1), x/c-E 4. ChemForward –not Hazard Band F or Unknown (U)
B	All assessed substances are not in the highest or second highest hazard categories; achievement levels include: 1. GreenScreen®- not Benchmark-1 or 2 or Benchmark-U with a worst-case scenario score of Benchmark-1 2. Scivera GHS+ Chemical Hazard Assessment - not Hazard Categories Red, Yellow or Gray 3. Cradle to Cradle Certified®- not x-CMR, x-PBT, x/c-CMR(Cat 1), x/c-E, c, x, x/c, x/c-CMR(Cat 2), grey/c, and c/b-CRE 4. ChemForward –not Hazard Band F, C, or Unknown (U) 5. ChemForward Hazard Band D and a GreenScreen, Scivera GHS+, or Cradle-to-Cradle substance hazard assessment, at achievement levels 1 to 3, in Hazard Performance Level B, above
NOTE — If trademark or brand of Chemical Hazard Assessment Methodology identified in Table 6.3.1.1 changes, manufacturer shall note the equivalent. Other hazard assessment methodologies may be evaluated by the EPEAT Program for equivalency with the requirements of this criterion based on evidence provided by the manufacturer demonstrating meeting the criteria in Annex B, and if deemed equivalent may be used by manufacturers to demonstrate conformance to this criterion. In making a determination of equivalency, the EPEAT Program seeks and incorporates stakeholder feedback.	

Optional Points are assigned based on the results of the hazard assessment of the substances from one of the indicated comparative hazard assessment tools and are awarded according to table 6.3.1.2 (maximum 3 points). It is acceptable for a supplier claiming confidential business information to provide a substance hazard assessment that redacts the CAS number and substance name, if the assessment otherwise meets all of the above elements for an identified function (e.g., plasticizer or flame retardant).

Table 6.3.1.2

Plastic Parts in Scope	Hazard Performance Level (as indicated in Table 6.3.1.1)	Total points
Plastic parts ≥ 25 g (≥ 10 g for mobile phones): The manufacturer may exclude conducting hazard assessments on the flame retardant substances in printed circuit boards, internal and external cables, heating and fusing elements, connectors, fans and power supplies.	A - Substances are not in the highest hazard category	1
	B - Substances are not in the highest or second highest hazard categories	2
All plastic parts ≥ 25 g (≥ 10 g for mobile phones) in the product	B - Substances are not in the highest or second highest hazard categories	3
NOTE — To achieve points, all flame retardant and plasticizer substances assessed intentionally added to the homogeneous materials of plastic parts ≥ 25 g (≥ 10 g for mobile phones) shall meet the requirements for the point(s).		

The manufacturer shall only use hazard assessments completed no more than 5 years prior to when the product is registered. The assessment methodology utilized shall be available for third-party peer review. If during the 5-year period after the hazard assessment is completed, the hazard assessment score for a substance changes to indicate higher hazard, the manufacturer may continue to use that substance assessment score for no more than 18 months from the time the new score is available.[36]

Assessments shall be performed by assessors with each of the following qualifications:

1. have the appropriate expertise including chemistry, human toxicology, environmental toxicology, and fate, and
2. are authorized by the authors/certifying bodies of the Chemical Hazard Assessment Methodology, who have a documented process for demonstrating proficiency, and

[36] The chemical score for a chemical can change at any time after the initial assessment if the score is disputed with new research better demonstrating the chemical's hazard traits. Since such degradations of a chemical hazard score cannot be anticipated, an 18-month grace period allows for the use of previously standing score until the revised score can be appropriately incorporated in manufacturer's product planning.

3. experience conducting at least one assessment that has been peer-reviewed by methodology author's certifying body in the field or published in relevant journals or in repositories of assessments.

The assessments shall include the following information:

1. name of assessor,
2. date of the assessment and date of expiration,
3. substance(s) assessed and at a minimum a summary of hazard assessment score results, including known transformation products.

The manufacturer may indicate "Not Applicable" if the product does not contain plastic parts weighing ≥ 25 g (≥ 10 g for mobile phones), or if the plastic parts weighing ≥ 25 g (≥ 10 g for mobile phones) do not contain flame retardants or plasticizers > 1000 ppm (w/w).

Point value: 1, 2 or 3 points (maximum of 3 points)

Verification requirements:

This criterion is verified at the product level.

a) List of applicable plastic parts ≥ 25 g (≥ 10 g for mobile phones).

b) List of all flame retardant and plasticizer substances used in applicable plastic parts ≥25 g and their hazard assessment scores.

c) Demonstration that each of those substances have:

   i. been assessed by an assessor with the qualifications listed in the criterion; or

   ii. valid (i.e., not expired) publicly available assessments such as those available on the Interstate Chemicals Clearinghouse Chemical Hazard Assessment Database (IC2), ChemFORWARD,[37] SciVera Lens; or

   iii. is listed on an accepted substance list that meets the criteria in Table 6.3.1.2 such as the TCO Certified's Accepted Substance List; or

   iv. hazard assessment information where the supplier has performed i, ii, or iii and reported the results.

d) If meeting verification c, by requirement i., ii., or iv., demonstration that the assessments contain the information as required in the criterion, specifically name of assessor, date of assessment and expiration date and assessment of transformation products.

References and details: None.

[37] https://alternatives.chemforward.org/preview/ojotns3e75gd/portfolios/38

6.3.2 Optional – Substance hazard assessment for PFAS

The manufacturer shall demonstrate that substance hazard assessment(s) have been conducted using a Qualified Chemical Hazard Assessment Methodology (as identified in Table 6.3.1.1 or as specified in Annex B) and achieves the hazard category score, for the specified substances and applications, as identified in Table 6.3.2.1 for the current or prior use of a PFAS or the alternative replacing the PFAS in:

1. Surfactants containing PFAS used in etching solutions for semiconductors integrated in priority components in the product.

   Priority components are the following:

   a) main printed circuit board,

   b) integrated circuits: central processing units (CPUs), solid state drives (SSDs), hard disk drives (HDDs), random access memory (RAM), graphic processing unit (GPUs),

   c) power supply units, and

   d) display panels.

2. Solvents containing PFAS used in lubricants, coatings, adhesives in the product.
3. Materials containing PFAS used in rechargeable (i.e., secondary li-ion) batteries in the product.
4. One or more PFAS in two different materials, not including PFAS use claimed towards 1 to 3 above.

One point is awarded for each hazard assessment (of the PFAS or its replacement) in each of the applications 1 to 4, for a maximum of 3 points.

Manufacturer may earn maximum points if no PFAS are intentionally added to any surfactants in etching solutions for semiconductors, solvents in lubricants, coatings or adhesives, and rechargeable batteries.

Alternatively, manufacturer may indicate "Not Applicable" to reduce the number of optional points for this criterion. For surfactants in etching solutions for semiconductors, solvents in lubricants, coatings or adhesives, and rechargeable batteries, if the product does not utilize PFAS substances in

- 2 of the applications, the manufacturer may indicate "Not Applicable" and eliminate 1 optional point from the denominator for product calculations.
- 3 of the applications, the manufacturer may indicate "Not Applicable" and eliminate 2 optional points from the denominator for product calculations.

If product does not utilize PFAS substances in all the 4 applications above, the manufacturer may indicate "Not Applicable" to this criterion and eliminate 3 optional points from the denominator for product calculations.

Table 6.3.2.1

Hazard Performance Level
The PFAS or PFAS alternative assessed substance(s) are not in the highest or second highest hazard categories; achievement levels include: 1. GreenScreen® - not Benchmark-1 or 2 or Benchmark-U with a worst-case scenario score of Benchmark-1 2. Scivera's GHS+ Chemical Hazard Assessment - not Hazard Categories Red, Yellow or Gray 3. Cradle to Cradle Certified®™ - not x-CMR, x-PBT, x/c-CMR(Cat 1), x/c-E, c, x, x/c, x/c-CMR(Cat 2), grey/c, and c/b-CRE 4. ChemForward – not Hazard Band F, C, or Unknown (U) 5. ChemForward Hazard Band D and a GreenScreen, Scivera GHS+, or Cradle-to-Cradle substance hazard assessment, at achievement levels 1 to 3, in Hazard Performance Level B, above
NOTE — If trademark or brand of Chemical Hazard Assessment Methodology identified in Table 6.3.2.1 changes, manufacturer shall note the equivalent. Other hazard assessment methodologies may be evaluated by the EPEAT Program for equivalency with the requirements of this criterion based on evidence provided by the manufacturer demonstrating meeting the criteria in Annex B, and if deemed equivalent may be used by manufacturers to demonstrate conformance to this criterion. In making a determination of equivalency, the EPEAT Program seeks and incorporates stakeholder feedback.

The manufacturer shall only use hazard assessments completed no more than 5 years prior to when the product is registered. The assessment methodology utilized shall be available for third-party peer review. If during the 5-year period after the hazard assessment is completed, the hazard assessment score for a substance changes to indicate higher hazard, the manufacturer may continue to use that substance assessment score for no more than 18 months from the time the new score is available.[38]

Assessments shall be performed by assessors with each of the following qualifications:

1. have the appropriate expertise including chemistry, human toxicology, environmental toxicology, and fate, and
2. are authorized by the authors/certifying bodies of the Chemical Hazard Assessment Methodology, who have a documented process for demonstrating proficiency, and

[38] The chemical score for a chemical can change at any time after the initial assessment if the score is disputed with new research better demonstrating the chemical's hazard traits. Since such degradations of a chemical hazard score cannot be anticipated, an 18-month grace period allows for the use of previously standing score until the revised score can be appropriately incorporated in manufacturer's product planning.

3. experience conducting at least one assessment that has been peer-reviewed by methodology author's certifying body in the field or published in relevant journals or in repositories of assessments.

The assessments shall include the following information:

1. name of assessor,
2. date of the assessment and date of expiration,
3. substance(s) assessed and at a minimum a summary of hazard assessment score results, including known transformation products.

Point value: 1, 2, or 3 points (maximum of 3 points)

Verification requirements:

This criterion is verified at the product level.

a) List of fluorinated substance, materials, or PFAS for which a hazard assessment has been conducted, including identification and applications of the fluorinated substance, materials, or PFAS.

b) Evidence that the assessed application previously contained PFAS (e.g., supplier data, manufacturing process information, or peer-reviewed or government report on uses) or that the prior generation product used PFAS for an application for which the product did not.

c) Demonstration that each of those substances have:

   i. been assessed by an assessor with the qualifications listed in the criterion; or

   ii. valid (i.e., not expired) publicly available assessments such as those available on the Interstate Chemicals Clearinghouse Chemical Hazard Assessment Database (IC2), ChemFORWARD,[37] SciVera Lens; or

   iii. is listed on an accepted substance list that meets the criteria in Table 6.3.2.2 such as the TCO Certified's Accepted Substance List; or

   iv. hazard assessment information where the supplier has performed i, ii, or iii and reported the results.

d) If meeting verification c, by requirement i., ii., or iv., demonstration that the assessments contain the information as required in the criterion, specifically name of assessor, date of assessment and expiration date and assessment of transformation products.

e) If indicating "Not Applicable" or if claiming maximum points based on "no intentionally added" PFAS in any of the applications, evidence that the applications do not contain PFAS, including for example, supplier or manufacturer test data.

References and details: None.

6.3.3 Optional – Making safer substance use hazard assessments publicly available

The manufacturer shall make publicly available or participate in a collaborative program that makes publicly available the relevant substances, methods, and overall hazard assessment scores in accordance with criterion 6.3.1 (Optional – Improving substance selection).

The URL(s) for the public website disclosing this information shall be provided during product registration.

The manufacturer may indicate "Not Applicable" if the product does not contain plastic parts weighing ≥ 25 g (≥ 10 g for mobile phones), or if the plastic parts weighing ≥ 25 g (≥ 10 g for mobile phones) do not contain flame retardants or plasticizers > 1000 ppm (w/w).

Point value: 1

Verification requirements:

This criterion is verified at the product level.

a) URL(s) for the publicly available information, either on the manufacturer or other public website, or the membership in the collaborative program.

b) The publicly available hazard assessment scores for all hazard assessments performed to conform with criterion 6.3.1 (Optional – Improving substance selection).

References and details: None.

6.4 Manufacturing process chemicals

6.4.1 Optional – Manufacturer program for reduction of high priority process chemicals

The manufacturer shall have a program to identify and reduce or eliminate the use of high priority process chemicals in the manufacturing process of registered products. The program shall include the following elements, at a minimum:

1. Process by which the manufacturer identifies high priority process chemicals, which:
    - represent a high hazard to workers or the environment, as supported by one of the following: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS), authoritative list of priority chemicals (e.g., REACH SVHC, CA Proposition 65, etc.), or independent assessment (e.g., Clean Electronics Production Network Priority Chemicals, Responsible Business Alliance Industry Focus Process Chemical List); and
    - are known or suspected to be used in the relevant manufacturing processes, as demonstrated through data collected by the manufacturer (e.g., see criterion 6.4.2), industry surveys, relevant academic literature, industry partnerships, or other verifiable information.

2. Manufacturer shall require that within three years each high priority process chemical be eliminated for facilities in scope, except as provided in 2(i). Manufacturer shall demonstrate that the requirements are documented through procedures for their owned facilities and/or agreements with suppliers for registered products. Examples of acceptable supplier requirements include but are not limited to contracts, specifications, purchase orders, or other documented requirements).

    i. Use of a high priority process chemical is permitted for five years for those uses for which the manufacturer has, after reasonable efforts and appropriate consultation with stakeholders, been unable to identify a functionally equivalent safer alternative, and is engaged in a multi-stakeholder collaboration to identify and test alternatives (e.g., pre-competitive industry consortium, partnership with academics.)

    ii. For each use identified in i., above, shall indicate the chemical use and application, document evaluation of alternatives and require facilities in scope to minimize worker exposure for these chemical applications through the use of appropriate control technologies, and evidence of multi-stakeholder collaboration.

3. Annual reporting on progress toward elimination or reduction of high priority process chemicals, including, for example, research and development activities or multi-stakeholder collaboration to identify alternatives. Information must be publicly available on the manufacturer's website or other existing annual corporate reporting available on manufacturer's website.

Facilities in Scope: These requirements shall apply to either:

a) 15 total facilities (manufacturer-owned manufacturing facilities and/or suppliers' manufacturing or final assembly facilities) in the supply chain of registered products; or

b) At least 50% of the total number of: 1) manufacturer-owned manufacturing facilities, and 2) 80% (based on annual spend) of directly contracted supplier manufacturing and final assembly facilities in the supply chain of registered products, in the case where the total number of facilities in the supply chain for registered products is less than 30.[39]

Facilities shall be prioritized by:

- Suppliers by spend; and/or
- Highest risk, based on criteria such as but not limited to volume and number of priority chemicals used or number of workers, for example.

Point value: 1

[39] For example, a manufacturer owns 2 manufacturing facilities and directly contracts with suppliers operating 6 manufacturing or final assembly facilities with 4 of those facilities representing 80% of total annual spend, then "facilities in scope" equals 3 facilities (50% * (2 + 4)).

Verification requirements:

This criterion is verified at the product category level.

a) Documentation of all program elements required in the criterion, including:

   i. Process to identify and collect information on high priority process chemicals.

   ii. Requirements for the elimination or reduction of the use of high priority process chemicals.

   iii. For each allowance of conditional use, as applicable, documentation of:

      a. The chemical use and application,

      b. Evaluation of alternatives, including consultation with stakeholders,

      c. Steps taken to minimizing worker exposure for the use, and

      d. Engagement in a multi-stakeholder collaboration to identify and test alternatives (e.g., pre-competitive industry consortium, partnership with academics).

   iv. List of facilities in scope used to conform to this criterion, including documentation of their progress in meeting the goal of elimination or significant reduction of high priority process chemicals.

   v. Annual reporting, including documentation of the 12-month period reporting on, on progress towards elimination or reduction of high priority process chemicals.

   vi. The URL where the manufacturer makes publicly available annual reporting on progress toward elimination or reduction of high priority process chemicals.

or

b) Documentation of a formal commitment, such as a signed agreement, to meet the high priority process chemicals requirements of an independent multi-stakeholder program, as defined by the program that includes or exceeds the elements in this criterion, including:

   i. Evidence that the manufacturer fully meets the high priority process chemicals requirements of the independent multi-stakeholder program.

   ii. The URL where the manufacturer makes publicly available annual reporting on progress toward elimination or reduction of high priority process chemicals.

References and details: At the time of publication, Clean Electronics Production Network's (CEPN) Towards Zero Exposure program is recognized as an independent multi-stakeholder manufacturing process chemical program meeting the elements of this criterion. Additional priority process chemical reduction programs may be evaluated by the EPEAT Program for equivalency with the requirements of this criterion, and if deemed

equivalent may be used by manufacturers to demonstrate conformance to this criterion. In making a determination of equivalency, the EPEAT Program seeks and incorporates stakeholder feedback.

6.4.2 Optional – Collect information on process chemical use

The manufacturer shall annually collect inventory information on process chemicals used in the manufacturing of registered products from either:

- 30 total facilities (manufacturer-owned manufacturing facilities and/or suppliers' manufacturing or final assembly facilities) in the supply chain of registered products; or
- At least 50% of the total number of: 1) manufacturer-owned manufacturing facilities and 2) 80% (based on annual spend) of directly contracted supplier manufacturing and final assembly facilities in the supply chain of registered products, in the case where total number of facilities is less than 60.[40]

Facilities shall be prioritized by:

- Suppliers by spend; and/or
- Highest risk, based on criteria such as volume and number of priority chemicals used or number of workers, for example.

The manufacturer shall have a documented process and a tool or other method to record and review the collected information in this criterion.[41] Inventory information gathered from each facility shall include:

- Process chemical product used (name and manufacturer), or a proxy name and manufacturer may be used when needed to comply with regulatory restrictions (e.g., subject to export control or anti-terrorism laws).
- Use and controls, including chemical product application method, enclosure type, ventilation, number of workers handling the process chemical product.
- Name and Chemical Abstracts Service Registry Number (CAS RN) of each chemical ingredient in the product. CBI may be disguised using a structurally descriptive generic name (e.g., aromatic amine, brominated aryl compound) as a nonconfidential substitute for chemical name and CAS and shall include GHS hazard characteristics information.
- Volumes or weight of the process chemical product used annually.
- Processes where chemicals are generally used, such as parts cleaning, machine maintenance, board defluxing, etc.

[40] See example of calculation in footnote for criterion 4.6.1.

[41] An example of a tool that meets this requirement is the Clean Electronics Production Network (CEPN) Process Chemicals Data Collection (PCDC) Tool.

Point value: 1

Verification requirements:

This criterion is verified at the product category level.

a) Documentation demonstrating that, at a minimum, the manufacturer has gathered relevant data from the number of company-owned and/or supplier facilities specified above on at least an annual basis starting prior to when the product is registered.

b) Documentation of the process and tool to collect, review, and record data.

References and details: For more detail about how to create structurally descriptive generic name, the manufacturer may refer to EPA's Guidance for Creating Generic Names for Confidential Chemical Substance Identity Reporting under the Toxic Substances Control Act.[42]

6.5 Reduction of substances of concern in packaging

6.5.1 Required – Elimination of substances of concern in packaging

Product packaging shall meet the following substance restriction requirements:

1. The metals – inorganic and organic lead, cadmium and mercury, and hexavalent chromium compounds – shall not be intentionally added to any package or packaging component. For incidental presence, the sum of the combined concentrations of lead, cadmium, mercury, and hexavalent chromium present in any packaging component shall not exceed 100 ppm (w/w);

2. Elemental chlorine shall not be used as a bleaching agent to bleach virgin or recovered content fibers used in paper-based product packaging (virgin and or recovered);

   NOTE — Product packaging that is Elemental Chlorine Free (ECF), Processed Chlorine Free or Total Chlorine Free (TCF) meets the requirements of elemental chlorine of this criterion. Additionally, recycled content that may have been previously bleached with chlorine or chlorine derivatives and unbleached packaging meets the requirement for elemental chlorine of this criterion.

3. Ortho-phthalates shall not be intentionally added to any package or packaging component. The sum of the combined concentrations of Ortho-Phthalates listed on EU RoHS and EU REACH Annex XIV (Authorization List) shall not exceed 500 ppm (w/w).

   Manufacturers shall have 2 years from the date on which a substance is added to the above lists to conform to this criterion for each substance on the list.[43] If a substance is added to the list after EPEAT

[42] https://www.epa.gov/sites/default/files/2018-06/documents/san6814_guidance_for_creating_tsca_generic_names_2018-06-13_final.pdf

[43] These lists are updated periodically. When a substance appears on the list for the first time, the date of publication of the updated substance list shall serve as the "date on which a substance is added" to the list. For example, if an updated list is published on July 31, 2022, then any substance first appearing on the list must meet this criterion no later than July 30, 2024.

product registration, the packaging for this previously registered product is not required to meet the restriction for a newly listed substance.

4. Polyvinylchloride (including polyvinylidene) shall not be intentionally added to any package or packaging component. The sum of the combined concentration of polyvinylchloride present in any packaging component shall not exceed 100 ppm chlorine by weight.

Verification requirements:

This criterion is verified at the product level.

a) Evidence of implementation a conformance assurance process that demonstrates conformity to this criterion through effective control of the supply chain; or

b) Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion; or

c) Supplier statement or supplier data submission to manufacturer for each packaging component or packaging material provided by the supplier that includes:

For metals

i. the specified metals have not been intentionally added to any package or packaging component;

ii. the sum of the combined concentration of the four metals present in any packaging component does not exceed 100 ppm (w/w);

For non-bleaching of fiber-based materials

iii. fiber-based materials are not bleached with elemental chlorine compounds. Documentation that packaging is made Elemental Chlorine Free (ECF), Processed Chlorine Free, or Total Chlorine Free (TCF) or meets this verification requirement;

For ortho-phthalates

iv. the specified ortho-phthalates have not been intentionally added to any package or packaging component; or

v. the sum of the combined concentration of the specified ortho-phthalates in any packaging component does not exceed 500 ppm (w/w).

References and details: Analytical testing of the packaging for the product declared to conform to this Standard is not required for verification to this criterion. However, it is implied that supplier statements or manufacturer programs are based on a conformance assurance system that includes periodic analytical testing.

6.5.2 Optional – Restriction of PFAS in packaging

Manufacturer shall state in the manufacturer's environmental packaging requirement that PFAS shall not be intentionally added to any package or packaging component. The concentrations of total fluorine present in any packaging component due to PFAS shall not exceed 100 ppm by weight with the exception of any packaging component that contains ≥ 25% post-consumer recycled (PCR) content which shall not exceed 1000 ppm by weight.

Exceptions - The manufacturer may exclude any of the following items from the calculation: plastic parts with a surface area less than 50 cm^2, labels affixed to plastics bags or wraps, tape, staples. This criterion does not apply to invoices or other shipping documents.

Point value: 1

Verification requirements:

This criterion is verified at the product level.

a) Copy of manufacturer's environmental packaging requirement as provided to packaging supplier; or

b) Evidence of implementation of a conformance assurance process that demonstrates conformity to this criterion through effective control of the supply chain; or

c) Evidence of technical documentation and implementation in accordance with EN IEC 63000:2018 demonstrating that the product meets the substance restriction requirements of this criterion.

References and details: None.

Annex A (Informative): Table of Criteria and Optional Points

Topic	Subtopic	Criterion	Optional Points
6.0 Reduction of Chemicals of Concern	6.1 Management of substances used in product	6.1.1 Required – Conformance with provisions of European Union RoHS Directive	N/A
		6.1.2 Required – Conformance with substance restriction requirements of the European Union Battery Directive	N/A
		6.1.3 Required – Conformance with supply chain communication provisions of European Union REACH Regulation	N/A
		6.1.4 Optional – Reduction of substances on the European Union REACH Regulation Candidate List of SVHCs for Authorization	1
		6.1.5 Required – Reduction of bromine and chlorine content of plastic parts ≥ 25 g	N/A
		6.1.6 Optional – Further reduction of bromine and chlorine content of plastic parts	1,2
		6.1.7 Optional – Reduction of PFAS content of plastic parts	1
		6.1.8 Optional – Reduction of beryllium content	1
		6.1.9 Optional – Suitability and risk assessment of materials in prolonged skin contact	1, 2
	6.2 Substance inventory and transparency	6.2.1 Required – Record of declarable substances	N/A
		6.2.2 Optional – Disclosure of declarable substances	1
		6.2.3 Required – Requesting substance inventory	N/A
		6.2.4 Optional – Obtaining substance inventory	1, 2
		6.2.5 Optional – Record and public disclosure of PFAS	1, 2
	6.3 Alternatives assessment for chemicals of concern and public disclosure	6.3.1 Optional – Improving substance selection	1, 2, 3
		6.3.2 Optional – Substance hazard assessment for alternative(s) to PFAS	1, 2, 3
		6.3.3 Optional – Making safer substance use hazard assessments publicly available	1
	6.4 Manufacturing process chemicals	6.4.1 Optional – Manufacturer program for reduction of high priority process chemicals	1
		6.4.2 Optional – Collect information on process chemical use	1
	6.5 Reduction of substances of concern in packaging	6.5.1 Required – Elimination of substances of concern in packaging	N/A
		6.5.2 Optional – Restriction of PFAS in packaging	1

Annex B (Normative): Qualified Chemical Hazard Assessment Methodology

Qualified Chemical Hazard Assessment Methodologies are identified in Table 6.3.1.1 or shall be evaluated and determined by EPEAT to meet minimum technical requirements 1) through 3) below.

The Minimum Technical Requirements for a Qualified Chemical Hazard Assessment Methodology are that the methodology shall:

1. Make freely and publicly available its data requirements, hazard endpoints assessed, and guidelines it provides for assigning classifications for hazard endpoints and deriving a chemical score.
2. For assessed substances, include transformation products, and consider a suite of hazard endpoints, including, at a minimum, all GHS endpoints plus persistence, bioaccumulation potential, endocrine disruption, and neurotoxicity.
3. Identify a clear process for firms to become and remain licensed to conduct assessments. Firms conducting assessments shall at a minimum meet the following:
    a. Have the appropriate expertise including chemistry, human toxicology, environmental toxicology and fate. This includes having at least one Toxicologist or closely related qualified professional on staff that is responsible for managing the program.
    b. Have a quality control/peer reviewed process for each assessment. At least one toxicologist or other closely related qualified professional technically competent in chemical hazard assessment authors the assessment and at least one other toxicologist or other closely related qualified professional technically competent in chemical hazard assessment completes the review. There is a process in place to adequately address all gaps or shortcomings identified during the review.
    c. Comply with the following business practices: firm is a legal entity or a defined part of a legal entity, has legally binding contracts to protect CBI, has adequate arrangements to cover liabilities arising from its operations e.g., carry general liability and errors and omissions insurance, and have internal measures in place to maintain neutrality, impartiality, trustworthiness and reliability.
    d. Commit to disclosing any conflicts of interest.
    e. Are licensed by the authors/certifying bodies of the Chemical Hazard Assessment Methodology, who have a documented process for demonstrating proficiency.
    f. Actively participate with the authors/certifying bodies of the Chemical Hazard Assessment Methodology in oversight of assessments including processes for resolution of conflicts or disputes to results (e.g., through expert panels with appropriate subject matter expertise).

Annex C (Informative): Bibliography

The following references are provided as informative references for the application of this document.

Clean Electronics Production Network Priority Chemicals.[44]

Clean Electronics Production Network (CEPN) Towards Zero Exposure program.[45]

European Chemicals Agency (ECHA) Classification and Labelling (C&L) Inventory database.[46]

European Union Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

Responsible Business Alliance Industry Focus Process Chemical List.[47]

UL 94 Standard for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances.[48]

[44] https://cleanelectronicsproduction.org/tools-resources/priority-chemicals

[45] https://www.towardzeroexposure.org/

[46] https://echa.europa.eu/information-on-chemicals/cl-inventory-database

[47] https://www.responsiblebusiness.org/media/docs/RBAIFPCL.pdf

[48] UL LLC. 33 Pfingsten Road, Northbrook, IL 60062. https://www.ul.com

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Sustainability for a Connected Future

Document Change History

Issue	Revision	Author	Description of Change	Approver	Approval Date	Effective Date
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