cradle to cradle products innovation institute

CRADLE TO CRADLE CERTIFIED®

PRODUCT STANDARD (Full Scope)

DRAFT VERSION 4.2

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Foreword

The Cradle to Cradle Products Innovation Institute (C2CPII) is an independent, nonprofit organization dedicated to maximizing the positive impacts of products and materials. As the standard setting and certification body for the Cradle to Cradle Certified® Product Standard, C2CPII works closely with leading organizations worldwide to guide and validate their efforts to apply the principles of material health, product circularity, clean air and climate protection, water and soil stewardship, and social fairness to product design and manufacturing. The standard provides designers, manufacturers, and suppliers with a framework for continually improving what products are made of and how they are made. Cradle to Cradle Certified is a respected mark of products and materials made for the circular economy.

Version 4.2 was released on [to be determined].

The effective date of Version 4.2 is [to be determined]. Products certified to prior versions of the standard are required to certify to Version 4.2 according to the transition policy on the C2CPII website.

Further information about C2CPII and the Cradle to Cradle Certified Product Standard is available at www.c2ccertified.org.

Inquiries regarding C2CPII and the Cradle to Cradle Certified Product Standard may be directed to info@c2ccertified.org.

Acknowledgements

The Cradle to Cradle Products Innovation Institute (C2CPII) would like to thank the extraordinary group of individuals that contributed their time and expertise to the development of Versions 4.0, 4.1, and 4.2 of the Cradle to Cradle Certified Product Standard. C2CPII developed the new standard through a multi-stakeholder process informed by a diverse group of stakeholders, including technical subject matter experts, leading manufacturers, independent assessors, and other market representatives. C2CPII is especially grateful to current and past members of the C2CPII Standards Steering Committee (formerly Certifications Standard Board), who led the development of the new standard in collaboration with C2CPII staff, as well as the numerous volunteers that served on the Technical Advisory Groups, Stakeholder Advisory Council, and the Cosmetics & Personal Care User Group RSL Task Team. C2CPII is also especially appreciative of the companies that participated in the Version 4.0 Pilot Program, whose leadership and input directly informed the requirements in the final version of the standard.

A complete list of key C2CPII staff contributors and volunteers who served on the C2CPII committees during the development of the Cradle to Cradle Certified® Product Standard Version 4.0 is provided in the Appendix.

The Water & Soil Stewardship and Social Fairness requirement frameworks were developed with financial support from the Laudes Foundation.

1 // Introduction

1.1 History and Background

In 2005, MBDC created the Cradle to Cradle Certified Products Program to acknowledge the high levels of sustainability achieved by its clients in developing products based on Cradle to Cradle® design principles, and to inspire others to optimize their products and "remake the way they make things." MBDC released Version 1.0 of the Cradle to Cradle Certified Product Standard in 2005 and Version 2.0 in 2008.

In 2010, William McDonough and Dr. Michael Braungart created the Cradle to Cradle Products Innovation Institute (C2CPII), a 501(c)(3) nonprofit organization, to scale Cradle to Cradle certification globally. In 2012, C2CPII took over administration of the Cradle to Cradle Certified Products Program from MBDC and began to independently certify products. Following the release of Version 3.0 of the standard, which was developed by MBDC and launched by C2CPII in January 2013, C2CPII took over development and maintenance of the Cradle to Cradle Certified Product Standard. C2CPII is now established as a fully independent nonprofit organization with ownership of the Cradle to Cradle Certified Products Program and exclusive authority over the development of the standard and the administration of certification. The founders continue to serve as non-voting, honorary advisors to the C2CPII Standards Steering Committee.

1.2 Standard Development

Since its launch in 2005, the Cradle to Cradle Certified Product Standard has been evolving to address a greater understanding of the environmental and human health impacts of the design, manufacturing, use, reuse, and disposal of materials, advances in best practices and technology, and its application to a wider variety of product and material types. Ongoing improvements to the standard are developed by C2CPII staff, volunteer committees, and external subject matter experts under the direction of the C2CPII Standards Steering Committee, as detailed in the Process for Development of the Cradle to Cradle Certified Product Standard. Updates to the standard requirements and development of new versions of the standard are subject to review and approval by the C2CPII Standards Steering Committee under the supervision of the C2CPII Board of Directors. The development process is based on principles of transparency, openness, and inclusiveness.

The Cradle to Cradle Certified Product Standard will be updated on a regular development cycle. The C2CPII Standards Steering Committee will review the need for standard revisions at least every three years and will make recommendations to the C2CPII Board of Directors on a proposed scope and timeline for updating the standard based on the analysis of certification adoption/achievement data, available science, and market trends. The next review will take place in or before 2028.

1.3 Cradle to Cradle Certified Product Standard Version 4.2

The vision of C2CPII is a world where safe materials and products are designed and manufactured in a prosperous, circular economy to maximize health and well-being for people and planet. C2CPII's mission is to lead, inspire, and enable all stakeholders across the global economy to create and use innovative

products and materials that positively impact people and planet.

1.3.1 Standard Requirement Categories

The standard requirements are based on the Cradle to Cradle® design principles outlined in William McDonough and Michael Braungart's 2002 book, *Cradle to Cradle: Remaking the Way We Make Things*, and provide guidance in five key categories. These requirement categories and their intended outcomes are listed below.

Material Health – Chemicals and materials used in the product are selected to prioritize the protection of human health and the environment, generating a positive impact on the quality of materials available for future use and cycling.

Product Circularity – Products are intentionally designed for their next use and are actively cycled in their intended cycling pathway(s).

Clean Air & Climate Protection – Product manufacturing results in a positive impact on air quality, the renewable energy supply, and the balance of climate-changing greenhouse gases.

Water & Soil Stewardship – Water and soil are treated as precious and shared resources. Watersheds and soil ecosystems are protected, and clean water and healthy soils are available to people and all other organisms.

Social Fairness – Companies are committed to upholding human rights and applying fair and equitable business practices.

In addition to these five key categories, new categories have been introduced in Version 4 to address other important environmental impact areas, including Animal Welfare and Packaging.

1.3.2 Certification Requirements and Levels

The Cradle to Cradle Certified Products Program is based on the concept of continuous improvement and, thus, there are four possible levels of achievement within each of the standard's five key requirement categories: Bronze, Silver, Gold, and Platinum. To reach a desired achievement level within each category, the product must meet all of the requirements for that level, in addition to the requirements at all lower levels.

Certification is awarded to a product when it meets the requirements for the desired achievement level in each of the five key categories (Sections 4-8), as well as the general requirements (Section 3), the packaging requirements (Section 9, if applicable), and the animal welfare requirements (Section 10, if applicable). The product's overall certification level is equal to the lowest level achieved in these categories (Bronze, Silver, Gold, or Platinum).

The product's certification level is stated on the Cradle to Cradle certificate, and the certification level, along with a scorecard indicating the level achieved in each of the categories, is stated in the Cradle to Cradle Certified Products Registry on the C2CPII website (www.c2ccertified.org).

Each product certification is valid for three years. The product must be recertified by its expiration date to maintain its status as a certified product. As part of the recertification process, the product assessment must be updated and reviewed by C2CPII to ensure continued compliance with the standard requirements.

Note: Some requirements in the standard address activities that are also subject to regulation by local, state, or federal authorities. However, nothing contained in the Cradle to Cradle Certified Product Standard changes legal regulatory requirements or prescribes how compliance is to be achieved. Demonstration of compliance with certain key regulations is required in some sections of the standard, but this in no way changes the underlying regulatory requirements.

1.3.3 Restrictions to Bronze Level Certification

At the Bronze level, a product is starting out on the path to Cradle to Cradle certification. A company must conduct an inventory of the materials used to make the product, the energy use, water and soil stewardship, and social fairness issues affecting their industry and production region. The company must also define optimization strategies and take initial steps toward the development of circular products and responsible manufacturing practices. The Bronze level of certification is designed to recognize a company's intent to improve the way their product is made, establishing a commitment to ongoing assessment and optimization.

As such, a product may be certified at the Bronze level for a maximum of six years (i.e., two, three-year certification cycles), and must recertify at the Silver level or higher once the second, three-year Bronze certification has expired or it will be delisted from the program. Alternatively, in cases where technical, performance, or market barriers prevent the achievement of the Silver level in any standard category, the product may be recertified at the Bronze level if:

1. The applicant publicly discloses an explanation of the limitation(s) preventing achievement of the Silver level requirements,
2. On-going measurable improvement is achieved (see Section 3.3), and
3. The product meets the Silver achievement level in at least one other category by the end of the sixth year of Bronze level certification (i.e., the expiration date of the second three-year certification).

1.4 Standard Supporting Documents

C2CPII develops and maintains documents to support implementation of the Cradle to Cradle Certified Product Standard, including the Certification Manual, Material Health Assessment methodologies, and standard reference documents. These documents are meant to educate and provide the necessary information for the certification community to have a robust understanding of the standard. These supporting documents are regularly updated to reflect the improvements made to the standard. All standard supporting documents are available on the C2CPII website at www.c2ccertified.org.

The Cradle to Cradle Certified Version 4.2 Certification Manual is the supporting document that contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. The Certification Manual document includes the following:

- Version 4.2 standard requirements: The requirements are listed in the same order as they appear in the Version 4.2 standard, with the same section numbers.

- Further Explanation: These sections provide information regarding how to meet each requirement, including links to resources, applicable test methods, and background information.
- Required Documentation: These sections list the information and documents that must be submitted with a certification application and at recertification to demonstrate compliance with the standard requirements.

Please see the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

1.5 Certification Process

Key steps in the process for achieving Cradle to Cradle certification, certification program fees, and resources for implementation including the standard and supporting reference documents, certification manual, assessment methodologies, and program policies, are available on the C2CPII website (www.c2ccertified.org).

For all levels of certification, a final manufacturing facility site visit must be conducted as part of the certification process to verify that the standard requirements have been met. The manufacturing facility site visit requirements are provided in Appendix 1 of the Cradle to Cradle Certified Product Standard, Version 4.2 Certification Manual.

2 // Product Eligibility

2.1 Products Eligible for Certification

The Cradle to Cradle Certified® Products Program applies to products. For certification purposes, a "product" is defined as any physical item that can be routinely and individually purchased from the certification applicant by other entities. This definition includes materials, sub-assemblies, and finished products. See the definition of a product in Section 12 for more information.

Please see the Cradle to Cradle Certified Products Registry on the C2CPII website for a complete listing of all currently certified products. To determine the eligibility for a product type that is not currently certified, please contact C2CPII before submitting a certification application or beginning a product assessment. C2CPII reserves the right to refuse to certify a product type for which the standard is not currently designed to certify, or is determined to not align with C2C principles in its sole discretion.

For a list of product types that are not eligible for certification, see the Cradle to Cradle Certified Version 4.2 Certification Manual.

2.2 Products Not Eligible for the Bronze Achievement Level in Material Health

Children's products, cosmetics, and personal care products are not eligible for certification at the Bronze achievement level in the Material Health category (i.e., they must meet the Silver achievement level requirements or higher in Material Health). The intent is to ensure they do not contain carcinogens, mutagens, or reproductive toxicants (CMRs); persistent, bioaccumulative, and toxic substances (PBTs); very persistent and very bioaccumulative substances (vPvBs); or substances that cause an equivalent level of concern.

2.3 Products Not Eligible for the Bronze or Silver Achievement Level in Product Circularity

Eligible single-use plastic products and plastic packaging products (when certified as a separate product) are not eligible for certification at the Bronze or Silver achievement level in the Product Circularity category (i.e., they must meet the Gold or Platinum achievement level requirements in Product Circularity). The intent is to ensure alignment with the Cradle to Cradle principles for these typically non-circular product types. An exemption is made for plastic packaging that is part of a refill/reuse system (e.g., soap refill pouches), which may be certified at any achievement level in the Product Circularity category.

3 // General Requirements

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

3.1 Certification Compliance Assurance

Intended Outcome(s)

A compliance assurance system is in place to ensure the Cradle to Cradle Certified requirements are met at all times.

Applicable Achievement Level(s)

Bronze

Requirement(s)

A documented certification compliance assurance system is in place.

The certification applicant/holder company must have a documented certification compliance assurance system in place that includes:

1. Designated staff responsible for maintaining the integrity of certified product(s) as defined by the standard.
2. A process for controlling for changes pertinent to the certification and notifying the certification body when relevant changes are planned or otherwise identified. Pertinent changes include, but are not limited to, changes to certified product names or group names, and the list of specific product variations included in or excluded from a certified group.
3. A method of staying informed about and/or controlling for material changes that may occur in the supply chain.
4. Management system best practices including:
    a. A document control process,
    b. Internal self-audits conducted at regular planned intervals (at least once each certification cycle), and
    c. A corrective action process.

3.2 Transparency

Intended Outcome(s)

Product and manufacturing data are available to stakeholders, demonstrating the manufacturer's

commitment to accountability for their impacts on people and the environment, encouraging ever-improving performance.

Applicable Achievement Level(s)
The level(s) the product has achieved in each of the five core Cradle to Cradle Certified standard categories (Sections 4-8) – Bronze, Silver, Gold, or Platinum

Requirement(s)
Publicly disclose information and/or data consistent with the product's level of achievement in each standard category, as defined by the requirements in the Cradle to Cradle Certified Transparency reference document.

Note: The applicable requirements in this section correspond to the level achieved in each of the five core standard categories (Sections 4-8) and are not determined separately based on the applicant's choice. For example, if a product achieved the Gold level in the Clean Air & Climate Protection category (Section 6), the requirements for the Gold level in the Clean Air & Climate Protection category noted in the Cradle to Cradle Certified Transparency reference document apply.

3.3 Measurable Improvement

Intended Outcome(s)

What a product is made of and how it is made is measurably improved until the product achieves at least the Gold level requirements in all five Cradle to Cradle Certified key categories. While the Gold level reflects high achievement, reaching the Platinum level in all categories is the ultimate goal.

Applicable Achievement Level(s)

Bronze and Silver

Requirement(s)

Develop a strategy or plan towards achieving the next certification level. At recertification, demonstrate that at least one measurable improvement has been made in at least one of the five key program categories since the prior certification.

The measurable improvement required is in addition to any actions already required in individual program categories at recertification.

4 // Material Health Requirements

Category Intent

Chemicals and materials used in the product are selected to prioritize the protection of human health and the environment, generating a positive impact on the quality of materials available for future use and cycling.

Requirements Summary

To achieve a desired level within the category, the requirements at all lower levels must also be met.

Requirement	Bronze	Silver	Gold	Platinum
4.1: Product complies with leading chemical regulations.	●	●	●	●
4.2: Product does not contain organohalogen substances of special concern, or functionally related, non-halogenated classes of equivalent concern, above relevant thresholds.	●	●	●	●
4.3: Product is 100% characterized by generic material.	●	●	●	●
4.3 and 4.4: Product is ≥ 75% assessed (complete formulation information collected for 100% of materials released directly into the biosphere).	●	●	●	●
4.3 and 4.4: Product is ≥ 95% assessed (complete formulation information collected for 100% of materials released directly into the biosphere).		●	●	●
4.2: Product does not contain materials with > 1% carbon-bonded halogens by weight.		●	●	●
4.5: Product does not contain CMRs or substances causing an equivalent level of concern, or exposure is unlikely or expected to be negligible. Product does not contain or recognized PBTs or vPvBs.		●	●	●
4.6: Product has low VOC emissions (required for products permanently installed in buildings).		●	●	●
4.7: Product complies with VOC content limits (required for liquid and aerosol construction products).		●	●	●

4.3 and 4.4: 100% of homogeneous materials subject to review are assessed (i.e., none have a grey rating due to insufficient data).			●	●
4.2: Homogeneous materials do not contain organohalogen substances above chemical subject to review limits.			●	●
4.5: Product is optimized for Material Health (i.e., all x-assessed chemicals replaced or phased out).			●	●
4.6: Product has very low VOC emissions or is inherently non-emitting (required for products permanently installed in buildings).			●	●
4.7: Product complies with VOC content limits (required for liquid and aerosol consumer products).			●	●
4.4 and 4.5: All product-relevant process chemicals are assessed (i.e., none have a grey rating due to insufficient data) and no x-assessed chemicals are used.				●
4.5: > 25% of the product is assessed as A/a or B/b.				●
4.8: ≥ 25% of the product's input materials or chemicals have a C2C Certified Material Health Certificate at the Gold or Platinum level or ≥ 15% of the product's input materials or chemicals are Cradle to Cradle Certified at the Gold or Platinum level or equivalent. OR Environmental health impact hotspot analysis based on life cycle assessment completed, emissions and resource use hotspots that impact human and environmental health are identified, and a strategy/plan is developed based on the results. Progress must be demonstrated at each recertification.				●

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the

Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

4.1 Compliance with Leading Chemical Regulations

Intended Outcome(s)

In alignment with leading regulations that aim to protect human health and the environment, the use of well-known toxic chemicals in the product is avoided.

Applicable Achievement Level(s)

Bronze

Requirement(s)

The product complies with leading chemical regulations.

Note: In addition to the chemical restrictions in this section, products seeking certification are also subject to the applicable chemical restrictions in Sections 4.2 and 4.5.

The product and its homogeneous materials subject to review comply with leading chemical regulations, as defined by the applicable Bronze level regulatory restrictions in the Cradle to Cradle Certified® Restricted Substances reference document. See Section 4.3 for more information on how to define homogeneous materials subject to review in a product seeking certification.

For textile chemical formulations, the product may alternatively comply with the most recent version of the Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substances List (MRSL) or equivalent.

For all product types, the product may alternatively be certified to a C2CPII-recognized standard that restricts the use of well-known toxic substances.

4.2 Avoidance of Organohalogens and Functionally Related Chemical Classes of Concern

Intended Outcome(s)

Organohalogens, a class of substances associated with toxicity concerns in multiple use-cycle stages, are progressively avoided, beginning with classes of special concern, halogenated polymers, and functionally related, non-halogenated classes of equivalent concern (e.g., organophosphate ester flame retardants being used in lieu of halogenated flame retardants).

Applicable Achievement Level(s)

Bronze, Silver, Gold

Requirement(s)

Bronze level: Homogeneous materials subject to review are not and do not contain organohalogen substances of special concern, or functionally related, non-halogenated substances of equivalent concern (i.e., per- and polyfluoroalkyl substances (PFASs), halogenated flame retardants (HFRs), organophosphate ester flame retardants (OPFRs), and halogenated polymers), above relevant thresholds. Certain exemptions apply.

Silver level: Homogeneous materials subject to review do not contain organohalogen substances in exceedance of 1% by weight. Certain exemptions apply.

Gold level: Homogeneous materials subject to review do not contain organohalogen substances above chemical subject to review limits (i.e., 100 ppm or lower if specific concentration limits are defined).

Note: In addition to the chemical restrictions in this section, products seeking certification are also subject to the applicable chemical restrictions in Sections 4.1 and 4.5.

For the Bronze level, the applicable restrictions for organohalogen substances of special concern are:

1. PFASs: Per- or polyfluoroalkyl substances are defined as fluorinated organic chemicals containing at least one fully fluorinated carbon atom. PFAS-based materials, including fluoropolymers and PFAS coatings, are not permitted for use (except in exempt materials/parts as noted below). If present as an impurity or minor additive in an otherwise non-fluorinated organic material, carbon-bonded fluorine within PFASs in the material must be < 1,000 ppm of the homogeneous material by weight.
2. HFRs: Halogenated flame retardants are defined as any chlorinated or brominated substance added to a material for the purpose of increasing heat/fire resistance or decreasing flammability. This restriction applies to the set of HFRs listed in the Cradle to Cradle Certified® Restricted Substances reference document for this section, regardless of the intended purpose/function in the material, and any halogenated substances intentionally added to the product for the purpose of increasing heat/fire resistance or decreasing flammability. In addition to the applicable Bronze level regulatory restrictions on specific HFRs (see Section 4.1), carbon-bonded chlorine and bromine within any flame retardant in the material (intentionally added or present as an impurity) must be < 1,000 ppm of the homogeneous material by weight (except in exempt materials/parts as noted below).
3. OPFRs: Organophosphate ester flame retardants are defined as any organic esters of phosphoric acid, containing either alkyl chains or aryl groups, that are added to a material for the purpose of increasing heat/fire resistance or decreasing flammability. This restriction applies to the set of OPFRs listed in the Cradle to Cradle Certified® Restricted Substances reference document for this section, regardless of the intended purpose/function in the material, and any organophosphate ester substances intentionally added to the product for the purpose of increasing heat/fire resistance or decreasing flammability unless the Material Health Assessment results in a, b, or c-assessment when exposure is assumed. Note that the restrictions in this section are in addition to any OPFRs restricted by the applicable regulations in Section 4.1 (e.g., TCEP). In addition to the applicable regulatory restriction(s) on specific OPFRs in Section 4.1 (e.g., TCEP), OPFR content

(intentionally added or present as an impurity) must be < 1,000 ppm of the homogeneous material by weight (except in exempt materials/parts as noted below).

4. Halogenated polymers: Any polymer containing a sum total of 10% or more of carbon-bonded fluorine, chlorine, and/or bromine by weight is considered a halogenated polymer and is thus not permitted for use (except in exempt materials/parts as noted below).

For the Silver and Gold levels, the percentage of organohalogen substances within a homogeneous material that is subject to review in the product is equal to the percentage by weight of all carbon-bonded halogen atoms (Cl, Br, F, and I) within the material.

Alternatively, the product may be certified to one or more C2CPII-recognized standards that restrict the use of organohalogen substances of special concern, and/or functionally related, non-halogenated substances of equivalent concern (i.e., per- and polyfluoroalkyl substances (PFASs), halogenated flame retardants (HFRs), organophosphate ester flame retardants (OPFRs), and halogenated polymers).

Exemptions

For the Bronze and Silver levels, a homogeneous material that is subject to review may be exempt from meeting this requirement if any of the following conditions are met:

1. It is present at < 1% of the finished product by weight. Materials that are surface coatings applied to foodservice ware or textiles, including apparel, carpets, and furnishings do not qualify for this exemption. Note: Foodservice ware includes any product intended to be used for cooking, serving, distributing, holding, packaging and/or transporting food.
2. It is contained in a part that is < 1% of the finished product by weight.
3. The use of a halogenated organic substance or functionally related chemical of concern in the material is required to meet regulatory requirements (e.g., fire standards). To claim this exemption the following conditions must be met:
    a. Alternative methods of meeting the regulatory requirement must not exist, and
    b. The applicant must conduct ongoing research into alternative ways of complying with the regulation without the use of the substance or another x-assessed substance.

Exemptions #1 and #2 may be claimed for homogeneous materials that in sum make up no more than 5% by weight of the finished product. None of the exemptions (1-3 above) may be claimed to meet the Gold level requirement.

For all levels, a homogeneous material that is also an intermediate/input product intended for use in another end/finished product that is sold to the general public is exempt from meeting the restrictions in this section if it meets the following conditions:

1. It is listed as being exempt in Section 4.2 of the Version 4.2 Certification Manual, and

2. It is specified for use in the end/finished product at a concentration that ensures the organohalogen(s) or OPFR(s) in the final homogeneous material, as present in the end/finished product, is below the chemical subject to review limit or are below the relevant restriction limit for the associated achievement level.

When this intermediate/input product exemption is used, a disclaimer will be added to the certificate as follows: "The concentration of the certified [intermediate/input] product in final products sold to the general public must be at or below [X] for the assessment results to be valid. The requirements for certification have only been met under these conditions."

4.3 Material and Chemical Inventory

Intended Outcome(s)

An increasing percentage of the product's material and chemical composition is known so that possible risks the materials and chemicals may pose to human health and the environment can be assessed and strategies for using safer chemistry can be developed.

Applicable Achievement Level(s)

Bronze, Silver, Gold, and Platinum

Requirement(s)

Bronze level: Characterize all homogeneous materials in the product by concentration and generic material type or category/name. In addition, fully define the chemical composition of products that are released directly into the biosphere as part of their intended use (e.g., soaps, paints). For other product types, collect the chemical composition information necessary to assess at least 75% of the product.

Silver level: Fully define the chemical composition of products released directly into the biosphere as part of their intended use (e.g., soaps, paints). For other product types, collect the chemical composition information necessary to assess at least 95% of the product.

Gold level: Fully define the chemical composition of all homogeneous materials subject to review within the product.

Platinum level: Fully define the chemical composition of all process chemistry that comes into contact with the product or its material constituents during the final manufacturing stage.

Characterizing Materials in the Product

The concentration of each material as a percentage of the total product weight must be determined.

Fully Defining the Chemical Composition of Materials

Toxicological assessment of a material requires disclosure of its full chemical composition from the supplier(s)/formulator(s) controlling the chemical composition. A homogeneous material is considered

fully defined when the chemical names and chemical identifiers are known for all chemicals subject to review.

Homogeneous Materials Subject to Review

Homogeneous materials present at a concentration ≥ 0.01% (≥ 100 ppm) in the applicant product are subject to review. In addition, any homogeneous material in the final product that comes into routine and direct human contact during the normal use of the product is subject to review at any concentration.

For products composed of a single homogeneous material (e.g., formulated goods), the product as a whole is subject to review.

Note: Homogeneous materials that are subject to review are required to meet the standard requirements in Section 4.1 Restricted Substance Compliance, Section 4.2 Avoidance of Organohalogens and Functionally Related Chemical Classes of Concern, Section 4.3 Material and Chemical Inventory, and Section 4.4 Assessing Chemicals and Materials, unless exemptions apply. Homogeneous materials that are not subject to review, are not required to meet these requirements.

Chemicals Subject to Review

For each homogeneous material subject to review, the chemicals subject to review are those present in the material at a concentration ≥ 0.01% (≥ 100 ppm), with the following exceptions:

1. If a limit below 100 ppm is indicated for a specific substance by the applicable Bronze level regulatory restrictions in the Cradle to Cradle Certified® Restricted Substances reference document (see Section 4.1), the lower limit applies.
2. If a specific concentration limit (SCL) for any toxicity endpoint of a substance is below 100 ppm as indicated by the Table of Harmonized Entries in Annex VI to the Classification, Labelling, and Packaging of Substances and Mixtures regulation, the lower limit applies.
3. Exemption: A product may contain a maximum of 1% exempt components by weight. The exemption is allowed for minor, commodity type components including sewing thread and solid, preformed fasteners and bearings. Homogeneous materials and substances in these component types may be exempt from review if the following conditions are met:
4. Metallic components comply with the Restriction of Hazardous Substance (RoHS) directive.
5. Non-metallic components comply with the applicable Bronze level regulatory restrictions in the Cradle to Cradle Certified® Restricted Substances reference document (see Section 4.1).
6. In any case where the relevant specialized assessment methodology (e.g., Recycled Content Materials Assessment Methodology, Geological Materials Assessment Methodology, Externally Managed Component Assessment Methodology) allows or requires a different method of defining materials, including different methods and/or limits for determining what chemicals are subject to review, the methods indicated by the relevant methodology document(s) take precedence.

Note: For the Bronze and Silver levels, the percentage assessed is calculated using the methodology in Section 4.4.

Fully Defining Process Chemistry

Process chemistry is considered fully defined when the chemical names and chemical identifiers are known for all process chemicals subject to review.

Process chemicals subject to review are those that are used as an intentional part of any of the processes included in the final manufacturing stage, including:

1. Pure chemical substances.
2. Chemical substances present in mixtures at a concentration ≥ 0.1% (1000 ppm) prior to any dilution at the manufacturing site(s). The exceptions listed above for materials apply (per #1-4 in the subsection titled Fully Defining the Chemical Composition of Materials, with the default limit as 1000 ppm instead of 100 ppm). Additionally, for textile processing, the limits indicated by the Zero Discharge of Hazardous Chemical (ZDHC) Manufacturing Restricted Substances List (MRSL) take precedence if lower.

4.4 Assessing Chemicals and Materials

Intended Outcome(s)

To encourage continued improvement of Material Health, an increasing percentage of the product's chemicals and materials are assessed. By the time a product reaches the Gold level, all materials and chemicals subject to review within the product have been assessed as compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology. By the time a product reaches the Platinum level, all process chemistry has been assessed.

Applicable Achievement Level(s)

Bronze, Silver, Gold, and Platinum

Requirement(s)

Bronze level: Assess at least 75% of the product.

Silver level: Assess at least 95% of the product.

Gold level: Assess 100% of the product.

Platinum level: Assess 100% of the product AND all process chemistry that comes into contact with the product or its material constituents during the final manufacturing stage.

Assessing Chemicals and Materials

Homogeneous materials and chemicals subject to review, including process chemistry subject to review at the Platinum level, must be assessed according to the Material Health Assessment Methodology and supporting documents. Based on these methods, chemicals subject to review are assigned a, b, c, x, or grey chemical risk ratings and homogeneous materials subject to review are assigned A, B, C, X, or GREY

ratings. Note: Homogenous materials in the product that are not subject to review and chemicals not subject to review are not required to be assessed.

A chemical substance is considered to be assessed when it has been assigned an a, b, c, or x (abc-x) chemical risk rating.

A homogeneous material is considered to be assessed when it has been assigned an A, B, C, or X (ABC-X) assessment rating or is otherwise considered to be assessed based on the specific, relevant methodology (e.g., recycled content assessment methodology, externally managed component methodology).

A material or component that is separately Cradle to Cradle Certified and used in another product seeking certification may count as assessed at the same Material Health level and percentage assessed at which it is currently certified. Materials assessed as A, B, or C may only contain chemicals subject to review that have been assigned a, b, or c chemical risk ratings. Materials assessed as X will contain at least one chemical subject to review that has been assigned an x risk rating, and may also contain chemicals with grey ratings indicating insufficient data for assessment.

Determining Percentage Assessed

The percentage of the product that is assessed must be determined as follows:

1. For each homogeneous material in a product the applicant must either:
    a. Count the entire homogeneous material as assessed, by weight, if the material has received an A, B, C, or X (ABC-X) assessment rating, or
    b. Count the homogeneous material as partially assessed based on assessed chemicals subject to review in the material. In this case, the percentage assessed for the material is equal to the percentage by weight of all abc-x-assessed chemicals within the homogeneous material, or
    c. Count the homogeneous material as partially assessed based on assessed input materials in the homogeneous material. The term "input materials" refers to individual homogeneous materials that are combined to form a single homogeneous material present in the product being evaluated. In this case, the percentage assessed for the homogeneous material is equal to the percentage by weight of all ABC-X/abc-x-assessed input materials within the homogeneous material.
2. For products consisting of a single homogeneous material, the percentage assessed must be calculated as per 1b or 1c above (1a is not allowed).
3. Because fully defined chemical composition is required at the Bronze level for products that are released directly into the biosphere as part of their intended use (see Section 4.3 Material and Chemical Inventory), the percentage assessed for these products must be calculated as per 1b above (1a and 1c are not allowed).
4. For products composed of two or more homogeneous materials, the percentage assessed is calculated as the weighted average of the percentages assessed for each homogeneous material subject to review in the product.

4.5 Using Optimized Materials

Intended Outcome(s)

The product is made from chemicals and materials that have been intentionally selected based on their preferred safety attributes.

- At the Silver level, the product does not contain chemicals or substances above the thresholds applicable to the Silver level in the Cradle to Cradle Certified® Restricted Substances reference document.
- At the Gold level, chemicals and materials intentionally added to the product are assessed as compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology. Exposure to hazardous chemicals during final manufacture, use, and end-of-use of the product is unlikely or expected to be negligible.
- At the Platinum level, an increased percentage of the product is made from chemicals and materials that are assessed as preferable for human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology. Additionally, process chemicals are assessed as compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology.

Applicable Achievement Level(s)

Silver, Gold, and Platinum

Requirement(s)

Silver level: Use materials in the product that do not contain chemicals or substances above the thresholds applicable to the Silver level in the Cradle to Cradle Certified® Restricted Substances reference document.

Restricted substances at the Silver level include:

- substances classified or listed as carcinogenic, mutagenic, or reproductive toxicants (CMRs), unless exposure to those substances during the product's final manufacturing, use, and end-of-use is unlikely or expected to be negligible,
- chemicals and substances listed as persistent, bioaccumulative, and toxic (PBTs) or very persistent and very bioaccumulative (vPvBs) substances, and
- chemicals and substances that cause an equivalent level of concern or exposure to them is unlikely or expected to be negligible.

Gold level: Use materials that are assessed as compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology, including only A/a-, B/b-, and C/c-assessed materials and chemicals in the product.

Platinum level: Use materials and process chemicals that are assessed as preferable for human and environmental health according to the Cradle to Cradle Certified Material Health Assessment

Methodology, including > 25% A/a- and B/b-assessed materials and chemicals in the product (see "Determining Percentage Assessed" in Section 4.4), and only A/a-, B/b-, and C/c-assessed process chemistry.

Note: In addition to the chemical restrictions in this section, products seeking certification are also subject to the applicable chemical restrictions in Sections 4.1 and 4.2.

Determining Percentage A/a and B/b-assessed for Platinum level

The percentage of the product that is assessed A/a or B/b must be determined as follows:

1. For each homogeneous material subject to review in a product, the applicant must either:
   a. Count the entire material as assessed A/a or B/b, by weight, if the material has received an A or B assessment rating, or
   b. Count the material as partially assessed based on the percentage by weight of all a- or b-assessed chemicals within the product.
2. For products consisting of a single homogeneous material, the percentage that is assessed A/a and B/b must be calculated as per 1b above (1a is not allowed).
3. For products composed of two or more homogeneous materials subject to review, the percentage that is assessed A/a and B/b is calculated as the weighted average of the percentages assessed for each homogeneous material subject to review in the product.

4.6 Volatile Organic Compound (VOC) Emissions

Intended Outcome(s)

Indoor air quality is protected.

Applicable Achievement Level(s)

Silver and Gold

Requirement(s)

Silver level: Products designed for permanent indoor use comply with leading standards that demonstrate low VOC emissions.

Gold level: Products designed for permanent indoor use comply with leading standards that demonstrate very low to no VOC emissions.

Products designed for permanent indoor use are products that are installed or placed into a building and remain there (e.g., this includes furniture, but not cleaning products).

To demonstrate fulfilment of this requirement, an applicant must show compliance of the product with the requirements of at least one regional set of best practices for qualifying low VOC emission products.

Best practices are defined by the current versions of the leading green building certification systems or standards in a given region (such as BREEAM, DGNB, or LEED). See the Cradle to Cradle Certified® Volatile Organic Compound Emissions Testing reference document for a list of recognized standards for the Silver and Gold levels.

Test Report and Laboratory Accreditation Requirements

For the Silver and Gold levels, the following conditions must also be met:

1. Test report or certificate must refer to a test completed/performed no more than two years prior to the date of application, and
2. The analytical laboratory conducting the test must be ISO/IEC 17025 accredited and the accreditation scope must include the applied test method, either explicitly or implicitly within the scope of a flexible ISO/IEC 17025 accreditation for VOC product emission testing.

Exemption

Products made entirely from the following material types are exempt from VOC emissions testing and may be assumed to have low to no VOC emissions:

1. Materials classified as inherently non-emitting sources per the LEED v4 Building Design and Construction EQ Credit Low-Emitting Materials (stone, ceramics, powder-coated metals, plated metals or anodized metals, glass, concrete, clay brick, and unfinished/untreated solid wood) if they do not include integral organic-based surface coatings, binders, or sealants, and
2. Plaster and stucco that have < 1% organic additives.

Note: Unfinished/untreated wood (i.e., wood without organic-based surface coatings, binders, or sealants) can emit VOC and therefore it is not technically non-emitting. However, it is still exempt from this requirement in keeping with LEED v4 Building Design and Construction EQ Credit Low-Emitting Materials.

4.7 Volatile Organic Compound (VOC) Content

Intended Outcome(s)

Outdoor air quality and the health of product installers and users are protected.

Applicable Achievement Level(s)

Silver and Gold

Requirement(s)

Silver level: For liquid, viscous, or aerosol construction and building products, limit volatile organic compound (VOC) content to low levels as established by leading standards.

Gold level: For liquid, viscous, or aerosol consumer products, limit volatile organic compound (VOC) content to low levels as established by leading standards.

To demonstrate fulfilment of this requirement, an applicant must show compliance of the product with the requirements of at least one regional set of best practices for qualifying low VOC content products. Best practices are defined by the current versions of the leading green building certification systems or standards in a given region (such as BREEAM, DGNB, or LEED). See the Cradle to Cradle Certified® Volatile Organic Compound Content Limits reference document for a list of recognized standards and test methods.

The following conditions must also be met:

1. Test reports or certificate (if applicable) must refer to a test performed within two years prior to the date of application, and
2. The analytical laboratory conducting the test (if applicable) must be ISO/IEC 17025 accredited and the accreditation scope must include the applied test method, either explicitly or implicitly within the scope of a flexible ISO/IEC 17025 accreditation for VOC product testing.

Exemptions

Products that are not covered by any of the standards or regulations listed in the Cradle to Cradle Certified® Volatile Organic Compound Content Limits reference document are exempt from this requirement.

Water-based consumer products are exempt from this requirement if the only organic substances with vapor pressure ≥ 0.1 mm Hg at 20°C that are subject to review are ethanol, isopropanol, or fragrances and legally mandated denaturants (e.g., 2-butanone for ethanol products).

4.8 Optimizing Chemistry in the Supply Chain

Intended Outcome(s)

The use and emissions of hazardous chemicals in the product's supply chain are reduced or eliminated over time.

Applicable Achievement Level(s)

Platinum

Requirement(s)

Address hazardous chemicals in the product supply chain.

Hazardous chemicals in the product supply chain must be addressed by meeting one of the following:

1. 25% or more of the product's input materials or chemicals have a C2C Certified Material Health Certificate at the Gold or Platinum level or 15% or more are Cradle to Cradle Certified at the Gold or Platinum level or equivalent (percentage is calculated following the approach described for "Determining Percentage Assessed" in Section 4.4 but summing certified materials and/or chemicals rather than assessed materials and/or chemicals).

2. A cradle to cradle human and environmental health impact hotspot analysis has been performed based on life cycle assessment per ISO 14040 or equivalent, and each of the hotspots identified through this analysis is addressed by a strategy/plan to reduce hazardous chemical use and/or emissions in the supply chain of the product. Progress toward achieving reductions must be demonstrated at each recertification. The life cycle assessment must be verified by a qualified third party. The strategy/plan must include steps to positively impact (i.e., eliminate or reduce use or emissions of hazardous chemicals) each of the supply chain hotspots identified through the life cycle assessment.

5 // Product Circularity Requirements

Category Intent

Products are intentionally designed for their next use and are actively cycled in their intended cycling pathway(s).

Requirements Summary

To achieve a desired level within the category, the requirements at all lower levels must also be met.

Requirement	Bronze	Silver	Gold	Platinum
5.1: Intended cycling pathway(s) for the product and its materials are defined.	●	●	●	●
5.2: Potential cycling partners have been identified.	●	●	●	●
5.3: Select product and material types contain cycled and/or renewable content. Alternative: Limitations that prevent achievement of this requirement are publicly reported.	●	●	●	●
5.4: ≥ 50% of materials by weight are compatible with the intended cycling pathway(s) (e.g., recyclable, compostable, or biodegradable).	●	●	●	●
5.2: Partnerships for cycling (recovery and processing) of the product have been initiated. If the product is intended for cycling via municipal systems, materials are compatible with those systems.		●	●	●
5.3: Percentage of cycled and/or renewable content, by weight, is equal to or higher than industry averages and/or is consistent with common practice. Alternative: Limitations that prevent achievement of this requirement are publicly reported.		●	●	●
5.4: ≥ 70% of materials by weight are compatible with the intended cycling pathway(s) (e.g., recyclable, compostable, or biodegradable).		●	●	●
5.2: Partnerships for cycling (recovery and processing) of the product according to all intended cycling pathways have been initiated.			●	●
5.3: Percentage of cycled and/or renewable content, by weight, is consistent with values achieved by industry leaders for the product type. Alternative: Limitations that			●	●

prevent achievement of this requirement are publicly reported.				
5.4: ≥ 90% of materials by weight are compatible with the intended cycling pathway(s) (e.g., recyclable, compostable, or biodegradable) and support high-value cycling. This means that the materials are of high quality and are likely to retain their value for subsequent use. 5.6: If relevant, parts containing these materials are designed for easy disassembly.			●	●
5.5: A circular opportunity or innovation that increases product circularity has been implemented.			●	●
5.7: The product is actively cycled (recovered and processed) and/or a program is implemented to increase the cycling rate or quality of the product's materials after use. (Both are required for short-use phase products and for products required to be cycled per leading regulations; one is required for long-use phase products.) For select single-use plastic products, a minimum cycling rate of 50% is achieved.			●	●
5.3: Percentage of cycled and/or renewable content, by weight, has reached the technically feasible maximum.				●
5.4: ≥ 99% of materials by weight are compatible with the intended cycling pathway(s) (e.g., recyclable, compostable, or biodegradable). 5.6: If relevant, parts containing these materials are designed for easy disassembly.				●
5.7: The product is actively cycled in an amount consistent with the product's use phase (the shorter the use phase, the higher the minimum percentage required) and a program is implemented to increase the cycling rate or quality of the product's materials after use.				●
5.7: Cycling rates and quality are monitored over time, and an increase in cumulative cycling rate or quality is demonstrated.				●

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the

Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

5.1 Defining the Product's Technical and/or Biological Cycles

Intended Outcome(s)

The applicant has designated all homogeneous materials subject to review in the product as either biological or technical and has identified appropriate cycling pathways for those materials once the product has reached the end of its current use cycle.

Applicable Achievement Level(s)

Bronze

Requirement(s)

Bronze level: Designate all homogeneous materials subject to review in the product as being intended for technical and/or biological cycles and define the intended cycling pathway(s) for each material. For materials designated for technical cycles, recycling must be one intended cycling pathway.

The following homogeneous materials must be designated for the biological cycle:

1. Materials designed to be released directly to the biosphere as part of their intended use or cycling pathway (e.g., liquid cleaning products, soaps, perfume, toilet paper),
2. Biological or biologically derived materials commonly released to the biosphere, and
3. Coatings, finishes, or liquids applied to materials intended for biological cycles.

For intermediate and wet-applied products, the Bronze level requirements must be applied in the context of at least one relevant finished product or applied substrate example application, respectively.

5.2 Preparing for Active Cycling

Intended Outcome(s)

The applicant has taken demonstrable steps toward addressing any barriers to material recovery and processing in order to actively cycle those materials for their next use.

Applicable Achievement Level(s)

Bronze, Silver and Gold

Requirement(s)

Bronze level: Identify potential partners that can recover and process the product.

Silver level: Initiate partnerships for recovery and processing of the product according to its intended cycling pathway(s). If there is more than one intended pathway for individual materials, partnerships may focus on one of those pathways (e.g., reuse, repair, refurbish, remanufacture, or recycling for the

technical cycle). If the product is intended for cycling via municipal systems, use materials that are compatible with those systems.

Gold level: Initiate a partnership for recovery and processing of the product according to all intended cycling pathway(s).

For the Bronze level, the applicant company has identified potential partners or internal resources for product recovery and processing in accordance with the intended cycling pathway(s) in countries and/or states that cumulatively cover a region accounting for 60% or more of product sales . Products intended to be cycled via municipal systems or addressed by regional/national product stewardship laws are exempt from this requirement.

For the Silver level, one or more of the following is required for at least one intended pathway in countries and/or states that cumulatively cover a region accounting for 60% or more of product end sales:

1. The applicant company or retail partner has initiated partnership(s) or dedicated internal resources for product recovery and processing. (Initiation of a partnership is defined as the applicant company having an active agreement or contract(s) with entities involved in the recovery and processing of the product for another use cycle.)
2. A product stewardship law or program for the particular product type is in place (e.g., California Carpet Stewardship Law).
3. If intended for cycling via municipal systems, materials are a type that is commonly recycled or composted via curbside pickup and the material is accepted by municipal recycling programs in the region(s) where the product is sold.

For the Gold level, the Silver level requirements must be applied to all additional intended pathways (if any).

Exemptions

Products with a use phase greater than one year that have been on the market for less than their average use phase are exempt from the Silver level requirement at initial certification.

Intermediate products and liquid formulations are exempt from all requirements in Section 5.2.

5.3 Increasing Demand: Incorporating Cycled and/or Renewable Content

Intended Outcome(s)

Demand for circularly sourced materials is increased as a result of the increased use of cycled or renewable materials in the product, helping to close the loop and advance the circular economy. Negative impacts of virgin material use are also minimized.

Applicable Achievement Level(s)

Bronze, Silver, Gold, and Platinum

Requirement(s)

Bronze level: For select commonly cycled product and material types, incorporate the required percentage of cycled and/or renewable content into the product using an approved method. Alternatively, publicly disclose an explanation of the limitation(s) preventing achievement of the required minimums.

Silver level: Incorporate a percentage of cycled and/or renewable content into the product equal to or greater than industry averages and/or consistent with common practice. Alternatively, publicly disclose an explanation of the limitation(s) preventing achievement of the required percentage(s).

Gold level: Incorporate a percentage of cycled and/or renewable content into the product that is consistent with industry leaders for the product type. For single-use products and single-use packaging, incorporate either post-consumer cycled or renewable content depending on material type. Alternatively, publicly disclose an explanation of the limitation(s) preventing achievement of the required percentage(s).

Platinum level: Incorporate the maximal technically feasible percentage of cycled and/or renewable content into the product. For all product types, incorporate either post-consumer cycled or responsibly sourced renewable content depending on the material type.

For the Bronze through Platinum certification levels, the required percentages of cycled and/or renewable content are listed by homogeneous material and/or application type in the Cradle to Cradle Certified® Required Percentages of Cycled and Renewable Content by Product and Material Type reference document. The intent of the required percentages is to reflect industry averages at Silver, industry leaders at Gold and the maximum technically feasible percentages at Platinum when sufficient data is available. In general, the percentages increase with achievement level, but for products and materials where it is challenging to use cycled materials, the percentage may be zero at one or more levels.

The required percentages must be met at the homogeneous material level or the product level as noted below and in the "Instructions for Use" tab in the Cradle to Cradle Certified® Required Percentages of Cycled and Renewable Content by Product and Material Type reference document.

When meeting the required percentages at the homogeneous material level, the following are required for multi-material products (i.e., products containing more than one homogeneous material):

1. For the Bronze and Silver levels, at least 90% of the homogeneous materials by weight that are subject to review (as defined for Material Health in Section 4.3) must meet the required percentages of cycled or renewable content.
2. For the Gold and Platinum levels, at least 95% of the homogeneous materials by weight that are subject to review must meet the required percentages of cycled or renewable content.

When meeting the required percentages at the product level, the percentages provided may be met in a variety of ways, as long as the finished product overall achieves the required percentage of cycled or

renewable content by weight. In these cases, there are no minimum percentages required for individual materials in the product.

Approved methods

The required percentages may be achieved based on minimum content, average content, rolling average content, and/or via a credit method (i.e., mass balance) approach. Note: Credit method (i.e., mass balance, also referred to as mass balance allocation method) is as defined by ISO 22095.

For the Bronze, Silver, Gold, and Platinum levels:

1. For cycled content to count toward the required percentages, the amount of cycled content must be verified based on chain of custody documentation.

   If applying the credit method (i.e., mass balance) approach, the method must not count fuel as recycled, and for relevant material types (e.g., single-use plastic), must apply methods aligned with the European Commission's implementation decision(s) applicable to mass balance accounting (i.e., (EU) 2023/2683 and any future related updates).

2. For biologically derived plastics and liquid formulations to count as renewable, the amount of biobased content must be determined based on:
   a. Established standards that quantify bio-based content using radiocarbon dating, or
   b. Chain of custody documentation.

3. For biological and biologically derived materials associated with extensive evidence of ecosystem destruction due to land conversion and/or poor management practices (e.g., palm oil, wood, peat) to count as renewable, the material must be certified to a C2CPII-recognized responsible sourcing standard, or an alternative equivalent to certification must be in place, that requires:
   a. Compliance with all applicable laws and regulations of the country in which farming or harvesting operations occur.
   b. Operations that respect land rights and land use rights and are unlikely to cause displacement of food production.
   c. Planning, monitoring, management, and continuous impact assessment for the farming and/or harvesting of material.
   d. Maintenance, conservation, or enhancement of biodiversity in the forest/vegetation or other ecosystem.
   e. Maintenance or enhancement of the productive function of the forest/vegetation or other ecosystem area and efficient use of harvested materials (e.g., rate of harvest does not exceed rate of regrowth in the long term).
   f. Maintenance or enhancement of the health and vitality of the forest/vegetation or other ecosystem and its protective systems (soil and water).

For the Gold level: For cycled content to count toward the required percentages for single-use products and single-use packaging, at least some of the cycled content must be post-consumer (with specific

percentages required for certain material and product types per the Cradle to Cradle Certified® Required Percentages of Cycled and Renewable Content by Product and Material Type reference document).

For the Platinum level:

1. For any type of biological material to count as renewable, the material must be certified to a C2CPII-recognized responsible sourcing standard, or an alternative equivalent to certification must be in place (see #3 above for required responsible sourcing program elements applicable at the Bronze level and above).
2. For cycled content to count toward the required percentages (for all products), at least some of the cycled content must be post-consumer (with specific percentages required for certain material and product types per the Cradle to Cradle Certified® Required Percentages of Cycled and Renewable Content by Product and Material Type reference document).

Alternative to Meeting Required Percentages of Cycled and/or Renewable Content: Feasibility Analysis

For the Bronze, Silver, and Gold levels: A feasibility analysis may be applied as an alternative to meeting the required percentages of cycled and/or renewable content in any case where it is not feasible for a product to meet the required percentages, including post-consumer recycled and responsibly sourced content as relevant. This alternative is intended to recognize technical and/or industry wide limitations and give credit to an applicant's efforts on these issues. This alternative may be used for one or more materials in a product and at any achievement level except for Platinum.

The following are required:

1. An explanation of the limitation(s) preventing the incorporation of the target amount of cycled or renewable content (including post-consumer or responsibly sourced as relevant) and how, based on these limitation(s), the amount of cycled or renewable content currently used represents the maximum that is currently feasible.
2. The explanation must be reported publicly.
3. A plan for addressing the identified limitation(s) and increasing the amount of cycled and/or renewable content (including post-consumer or responsibly sourced as relevant) over time must be developed. The plan must include discrete objectives and an associated timeline.
4. For recertification:
    a. The applicant must demonstrate progress toward achieving the objectives.
    b. A description of progress made must be reported publicly.

For single-use plastic products and plastic packaging products (certified as separate products), excluding packaging that is part of a refill/reuse system (e.g., detergent refill pouch), the following two limitations preventing the incorporation of the target amount of cycled or renewable content are accepted:

1. The product or package is used in food contact applications and regulations applicable to the region(s) where the product is sold do not permit the use of recycled content.
2. Product or packaging performance specifications cannot be achieved when using the required percentages of cycled or renewable content.

For all other product types, including plastic packaging that is part of a reuse/refill system, other types of limitations (e.g., cost and availability) are accepted.

5.4 Material Compatibility for Technical and/or Biological Cycles

Intended Outcome(s)

Product materials with the highest capacity for biological and/or technical cycling have been intentionally selected, increasing the likelihood that such materials will retain their value and move through subsequent cycles of use.

Applicable Achievement Level(s)

Bronze, Silver, Gold, and Platinum

Requirements

Bronze level: For 50% of the product by weight, incorporate materials that are compatible with the intended cycling pathway(s).

Silver level: For 70% of the product by weight, incorporate materials that are compatible with the intended cycling pathway(s).

Gold level: For 90% of the product by weight, incorporate materials that are compatible with the intended cycling pathway(s). Materials must have high-value technical or biological cycling potential for at least one intended cycling pathway.

Platinum level: For 99% of the product by weight, incorporate materials that are compatible with the intended cycling pathway(s).

For a material to count toward the percentage of materials compatible with the intended cycling pathway(s) the following conditions must be met:

1. Homogeneous materials that need to be separated in order to be cycled must be separable by the entity implementing the intended cycling pathway with given instructions and no additional special knowledge.
2. For products that are installed prior to use (e.g., in a building, a vehicle, or fixed within a sidewalk), it must be possible to extract the product from the installed location.
3. For products and materials intended for technical municipal cycling (e.g., municipal recycling systems or systems set-up through product stewardship laws), the product and/or material must be compatible for municipal cycling systems (e.g., painted plastics and plastic laminated paper are not currently compatible for municipal recycling).
4. For solid materials intended for the biological cycle, one of the following conditions must be met:
    a. The material must biodegrade in the intended cycling pathway(s) within the time period and to the extent specified by a C2CPII-recognized compostability or biodegradability standard test.
    b. For paper and biological materials with ≥ 99% unmodified organic material:

i. The material, at its maximum thickness and/or density, must disintegrate in the intended cycling pathway(s) within the time period and to the extent specified by a C2CPII-recognized compostability or biodegradability standard test, and
ii. If the intended cycling pathways include composting, a soil sample that is exposed to the material, after disintegration tests have been performed, must pass an ecotoxicity test demonstrating that the exposed soil sample is conducive to plant growth (OECD 208 or equivalent).

c. For plastic materials, biologically derived materials, and biological materials with < 99% unmodified organic material (including paper that is < 99% cellulose), all of the following conditions must be met:
i. The material must biodegrade in the intended cycling pathway(s) within the time period and to the extent specified by a C2CPII-recognized compostability or biodegradability standard test.
ii. For any individual organic additives (e.g., pigments, inks, colorants, scents, secondary polymers, glues) present at a concentration of ≥ 1%, the additive must biodegrade in the intended cycling pathway(s) within a specific time period and to the extent specified by:
1. A C2CPII-recognized biodegradability standard test, or
2. The available scientific literature and/or research studies.
iii. The material, at its maximum thickness and/or density, must disintegrate in the intended cycling pathway(s) within the time period and to the extent specified by a C2CPII-recognized compostability or biodegradability standard test, and
iv. A soil sample that is exposed to the material, after disintegration tests have been performed, must pass an ecotoxicity test demonstrating that the exposed soil sample is conducive to plant growth (OECD 208 or equivalent).

d. For geological materials intended to be released to the environment via the intended cycling pathways, all of the following must be met:
i. The material, including any additives, must not cause acute or long-term ecotoxic effects in the environment as demonstrated by C2CPII-recognized standard tests, and
ii. Physical, chemical, and leaching parameters per leading regulations (if any) must be met.

5. For materials with unavoidable release to the environment during product use (e.g., tires, shoe soles, brake pads, apparel textile fibers), the fraction of material that on average is likely to be released to the environment from the total product over its lifetime may not be counted as compatible with the intended cycling pathway, unless it is biodegradable in the likely environment where release occurs.
6. For wet-applied products that are intended to be applied to materials with likely biological cycling pathways (e.g., paints intended to be applied to wood), one of the following conditions must be met:
a. The wet-applied product must not typically comprise > 1% by weight of the base material(s) to which it is likely to be applied and the wet-applied product, in combination with the one likely base material, must meet the requirements for solid materials intended for biological cycling (per #4b), or

b. The wet-applied product, in combination with one likely base material, must meet the requirements for solid materials intended for biological cycling (per #4c).

7. For wet-applied products that are intended to be applied to materials with likely technical cycling pathways, one of the following conditions must be met:
   a. If the wet-applied material is an ink for printed products, it must pass the qualifications for de-inkability stated in INGEDE Method 11.
   b. If the wet-applied material is an adhesive for printed products, it must pass the qualifications for adhesive separation stated in INGEDE Method 12.
   c. Evidence must be provided that the wet-applied material will not adversely affect the reprocessing value of the material to which it has been applied.
8. For products that are liquid formulations (excluding wet-applied products), individual substances within the formulation, or the formulation as a whole may be evaluated when determining the percentage compatible for the biological cycle.
   a. When evaluating based on individual substance(s), the following conditions apply:
      i. For organic chemicals and surfactants to count toward the percentage compatible, the substance must biodegrade in the intended cycling pathway(s) within the time period and extent specified by a C2CPII-recognized biodegradability standard test. In addition:
         1. Organic chemicals with a log K_{OC} < 4.5 must meet the OECD definition for ultimate biodegradability (aerobic), and
         2. Organic chemicals with a log K_{OC} ≥ 1.5 must meet the OECD definition of anaerobic biodegradability.
      ii. For inorganic chemicals, benign minerals may be counted toward the percentage compatible.
      iii. Water weight is excluded from the calculation.
   b. When evaluating the formulation as a whole, if one of the following requirements have been met the product counts as 100% compatible for the biological cycle:
      i. The formulation has demonstrated ready biodegradability in both anaerobic and aerobic conditions as demonstrated by a C2CPII-recognized biodegradability standard test. (The formulation may also contain benign mineral nutrients.)
      ii. For consumable consumer products (e.g., shampoo, detergents), the material must biodegrade in the intended cycling pathway(s) within the time period and to the extent specified by a C2CPII-recognized biodegradability standard test.

For the Gold and Platinum levels: The use of materials with high-value cycling potential (i.e., high-quality material as defined in #1-2 below) for at least one intended cycling pathway is required.

1. For a material to count toward the required percentage (e.g., 90% at Gold) of materials compatible with the intended cycling pathway(s), the following conditions must be met:
   a. Materials intended for technical cycles and solid materials intended for biological cycles must meet one of the following:
      i. Must not contain additives or features that are likely to result in low-value (i.e., low-quality) reprocessed material,

ii. Must be able to substitute for virgin material without loss of essential product function or material durability, or
iii. Have at least two subsequent intended cycling pathways.

b. Solid materials intended for biological cycles must be certified by a C2CPII-recognized biodegradability or compostability program, or an equivalent alternative to certification must be in place.

2. Select liquid formulations (e.g., soaps, cleaning products, lubricants) must meet minimum percent ready biodegradability and/or anaerobic biodegradability requirements; testing may be required.
3. For plastic beverage containers, plastic caps and lids must remain attached to the container during the product's intended use.

Analytical laboratories conducting required tests must be accredited or certified for the specific analysis per ISO 17025, DIN CERTCO approved, or equivalent.

5.5 Circular Design Opportunities and Innovation

Intended Outcome(s)

The product is designed in a way that creates more end-of-use cycling opportunities.

Applicable Achievement Level(s)

Gold

Requirement(s)

Gold level: Implement a circular design opportunity or innovation.

For the Gold level, circular design opportunities and innovations receiving credit are those that are commonly known and/or can be demonstrated to contribute to one or more of the following:

1. Increased end-of-use cycling.
2. Greater engagement with users for end-of-use cycling.
3. Prolonged use of the product.
4. Decreased need to extract and produce virgin materials.

For intermediate and wet-applied products, the applicant company must communicate how to implement the circular design opportunity to finished product manufacturer(s) or the customers of the wet-applied material, respectively.

5.6 Product Designed for Disassembly

Intended Outcome(s)

The product may be easily disassembled into discrete materials compatible for its intended cycling pathway(s) making it more likely that a large percentage of the materials in the product will be cycled.

Applicable Achievement Level(s)

Gold and Platinum

Requirement(s)

Gold level: For products with multiple materials requiring separation for cycling in the intended pathway, and for 90% of materials by weight, intentionally design the product for ease of disassembly.

Platinum level: For products with multiple materials requiring separation for cycling in the intended pathway, and for 99% of materials by weight, intentionally design the product for ease of disassembly.

For the Gold and Platinum levels, the following design and communications elements define "ease of disassembly" and are required as applicable for ≥ 90% (for Gold) and ≥ 99% (for Platinum) of materials by weight:

1. The product includes at least one design feature that improves the ease of disassembly compared to a commonly or previously used alternative product.
2. Processes that result in the loss of specific materials in the product in order to recover other materials (e.g., burning plastics to recover metals) must be avoided.
3. If disassembly operations are conducted by an entity other than the applicant company, comprehensive disassembly instructions must be publicly available and accessible to the party(ies) involved in disassembly.
4. If disassembly operations are conducted by the general public, components must be separable using common tools (e.g., hammer, screwdriver, pliers) with minimal technical experience and instruction.
5. For products with ≥ 30 homogeneous materials and/or if disassembly is performed by an entity other than the product user, the disassembly process:
    a. Must be at least semi-automated (e.g., for electronics), or
    b. Can occur in a reliably consistent manner with clear instructions (e.g., via a Standard Operating Procedure, or another standardized process for training those who are disassembling the product).

For the Platinum level, the design and communications elements above are required as applicable for ≥ 99% of materials by weight.

Exemption

Liquid products, intermediate products, and products that do not require separation for the intended cycling pathway, including multi-material products that are cycled either intact or into a new hybrid material, are exempt from the requirements in this section.

5.7 Active Cycling

Intended Outcome(s)

The product's materials are actively being recovered and processed for their next use via the intended cycles and/or the product manufacturer is demonstrably invested in a program that will lead to higher product and material cycling rates and/or a higher quality of materials available for cycling.

Applicable Achievement Level(s)

Gold and Platinum

Requirement(s)

Gold level: For select single-use plastic products and single-use plastic packaging (when certified as a separate product), actively cycle ≥ 50% of the product's materials and implement a program to increase the cycling rate or quality of the product for its next use.

For other short-use phase products, and for any product that is required to be cycled per leading regulations (e.g., electronics, apparel), actively cycle at least some (> 0%) of the product's materials and implement a program to increase the cycling rate or quality of the product for its next use.

For long-use phase products, actively cycle at least some (> 0%) of the product's materials or implement a program to increase the cycling rate or quality of the product for its next use.

Note: Per the Definitions (Section 12), a short-use phase product is a product with a use phase time that is typically less than four years.

Platinum level: For long-use phase products, actively cycle the product's materials and implement a program to increase the cycling rate or quality of the product for its next use.

Monitor cycling rates and quality over time and demonstrate an increase in either cumulative cycling rate or quality.

Actively cycle a minimum percentage of the product's materials based on the duration of the product's use phase.

Active cycling includes both recovery and processing of the product's materials for their next use.

Requirements for a material or product to be considered high quality or have high-value cycling potential are provided in Section 5.4 for the Gold level.

The 'select' single-use plastic products and single-use plastic packaging required to achieve ≥ 50% active cycling at the Gold level are eligible product and packaging types that are subject to extended producer responsibility regulations and/or regulatory measures intended to reduce use. Exception: If the plastic material within the product is made from responsibly sourced renewable material and it is demonstrated to readily biodegrade in all relevant environmental compartments where there is potential for release and disposition (e.g., soil, freshwater including wetlands, marine water including surface and deep water conditions), the active cycling rate for other short-use phase products may be applied (> 0%).

For the Platinum level:

1. If demonstrating an increase in cumulative cycling rate, the increase must be via one or more intended cycling pathway(s).
2. The minimum required percentage of actively cycled product is a function of the product's use phase duration or the average use phase duration for the product type (the shorter the use phase, the higher the minimum percentage required). This minimum required percentage is calculated as follows:

$$\frac{100}{2+L}$$

where L is the product use phase time (in years) or the average use phase time for the product type (in years). If using the use phase time for the product, lifetime warranties may not be used for its derivation.

Exemptions

Long-use phase products that have been on the market for a time period less than the product's average use phase are exempt from the Platinum level requirement.

Intermediate products and liquid formulations are exempt from all requirements in this section.

6 // Clean Air & Climate Protection Requirements

Category Intent

Product manufacturing results in a positive impact on air quality, the renewable energy supply, and the balance of climate-changing greenhouse gases.

Requirements Summary

To achieve a desired level within the category, the requirements at all lower levels must also be met.

Requirement	Bronze	Silver	Gold	Platinum
6.1: Final manufacturing facilities comply with air emissions regulations or guidelines—i.e., permits, international guidelines, or industry best practice.	●	●	●	●
6.2: Annual electricity use and greenhouse gas emissions associated with the final manufacturing stage of the product have been quantified.	●	●	●	●
6.3: 5% target(s)* for procuring or producing renewable electricity and/or addressing greenhouse gas emissions have been achieved. Applicable to final manufacturing stage electricity and emissions only.	●	●	●	●
6.2: For construction products and building materials used to construct primary building elements, the embodied emissions associated with the product from cradle-to-gate or through end-of-use have been quantified, a third-party critical review is conducted, and an Environmental Product Declaration (EPD) produced.		●	●	●
6.3: 20% target(s)* for procuring or producing renewable electricity and/or addressing greenhouse gas emissions have been achieved. Applicable to final manufacturing stage electricity and emissions only. Alternative: 25% of the embodied emissions associated with the product from cradle-to-gate or through end-of-use are offset or otherwise addressed (e.g., through projects with suppliers, product redesign, savings during the use phase). Note: This is required at the Gold level in all cases.		●	●	●

6.2: For all other product types, the embodied emissions associated with the product from cradle-to-gate or through end-of-use have been quantified and third-party verification or an internal review is conducted.			●	●
6.3: 50% target(s)* for procuring or producing renewable electricity and/or addressing greenhouse gas emissions have been achieved. Applicable to final manufacturing stage electricity and emissions only. 50% of the renewable electricity (25% of total electricity used) is either produced on site or procured through long-term power purchase agreements (PPAs) or PPAs signed pre-financing. Alternative: Renewable electricity procurement matches 100% of electricity used at final manufacturing facilities.			●	●
6.4: Blowing agents used in the manufacture of the product's foam materials (any foam > 1% of product by weight) have low to no global warming potential and no ozone depletion potential.			●	●
6.5: 25% of the embodied emissions associated with the product from cradle-to-gate or through end-of-use are offset or otherwise addressed (e.g., through projects with suppliers, product redesign, savings during the use phase).			●	●
6.2: For all other product types, a third-party critical review of the quantification of embodied greenhouse gas emissions associated with the product from resource extraction through end of use is conducted, and an Environmental Product Declaration (EPD) produced.				●
6.3: Fully electrify, use renewable electricity for total energy demand, and eliminate on-site greenhouse gas emissions: > 100% of electricity is renewably sourced. The electricity is produced on site or procured through long-term power purchase agreements (PPAs) or PPAs signed pre-financing. Eligible sources of bioenergy receiving full credit (e.g., wastewater methane) may be				●

used. Applicable to final manufacturing stage electricity and emissions only.				
6.5: 100% of the embodied emissions associated with the product from cradle-to-gate or through end-of-use are offset or otherwise addressed (e.g., through projects with suppliers, product redesign, savings during the use phase).				●

*Depending on the achievement level, the "targets" may apply to renewable electricity procurement or onsite production and use, performance improvements (emissions intensity reductions), absolute emissions reductions, use of eligible bioenergy sources, purchase of carbon offsets, and/or financial donations or investments.

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

6.1 Air Emissions Compliance

Intended Outcome(s)

The final manufacturing stage facilities where the product is manufactured are in compliance with regulatory and/or industry best practice air emissions limitations.

Applicable Achievement Level(s)

Bronze

Requirement(s)

Final manufacturing stage facilities comply with air emissions regulations or guidelines.

Facilities must comply with the corresponding regional regulatory (if any), international, or industry best practice air emissions guidelines.

Compliance with all applicable laws and regulations, including compliance with regional regulatory air emissions limitations, is required as a baseline. For final manufacturing stage facilities meeting this requirement based on regulatory compliance, the parameters addressed in the permit must also be consistent with leading regulations, international guidelines, or industry best practice. Leading regulations are defined as those that include a functioning mechanism through which ambient air quality-based limits are set (i.e., assessment of the existing ambient air quality is used to inform and set the permitted limits with the goal of maintaining high quality standards).

6.2 Quantifying Electricity Use and Greenhouse Gas Emissions

Intended Outcome(s)

Electricity use and greenhouse gas emissions associated with final manufacturing and the product's embodied greenhouse gas emissions have been quantified and verified, creating a baseline against which reductions can be measured, and helping to identify areas for improvement.

Applicable Achievement Level(s)

Bronze, Silver, Gold, and Platinum

Requirement(s)

Bronze level: Quantify annual electricity use and greenhouse gas emissions associated with the final manufacturing stage of the product.

Silver level: For construction products and building materials used to construct primary building elements (i.e., products for which life cycle assessment is common practice), quantify the embodied greenhouse gas emissions associated with the product from resource extraction through final manufacturing or end-of-use, and produce an Environmental Product Declaration (EPD) that has been critically reviewed by a third-party.

Gold level: For other product types, quantify the embodied greenhouse gas emissions associated with the product from resource extraction through final manufacturing or end-of-use and, if self-reported, conduct an internal review.

Platinum level: For all product types, conduct a third-party critical review of the quantification of embodied greenhouse gas emissions associated with the product from resource extraction through end-of-use and produce an Environmental Product Declaration (EPD).

For the Bronze level:

1. Report electricity in terms of kWh or equivalent and the resulting greenhouse gas emissions in terms of CO_2e.
2. Report greenhouse gas emissions from all other sources (e.g., direct emissions from burning fuels, including biofuels) in terms of CO_2e.

The methods employed must follow a recognized greenhouse gas accounting methodology (i.e., the Greenhouse Gas Protocol or others listed by CDP).

For the Silver, Gold, and Platinum levels, the methods employed to quantify embodied emissions must follow ISO 14040 and ISO 14044 (Environmental management – Life cycle assessment –Principles and framework; and Environmental management – Life cycle assessment – Requirements and guidelines) or other standards or guidance based on ISO 14040 and ISO 14044 (e.g., the Greenhouse Gas Protocol Product Life Cycle and Accounting Standard). If available, product category rules must be followed.

Environmental Product Declarations (EPDs) must conform to ISO 14025 and EN 15804 or ISO 21930.

Primary building elements are defined as:

1. The structural frame, including beams, columns, and slabs,
2. External walls, cladding, and insulation,
3. Floors and ceilings,
4. External walls,
5. Internal walls,
6. Windows,
7. Roofs, and
8. Foundations and substructures.

For product types where a third-party critical review is not required at the Gold level (i.e., all products except construction products and building materials), if embodied emissions were quantified by a qualified third party, an internal review is not required. If embodied emissions were quantified by the applicant company (i.e., self-reported), third-party verification may be requested by C2CPII should the application audit surface concerns about whether the data are complete or accurate.

6.3 Using Renewable Electricity and Addressing Greenhouse Gas Emissions in Final Manufacturing

Intended Outcome(s)

Depending on achievement level and methods used, applicants are:

- Employing efficiency and conservation measures to reduce energy use and greenhouse gas emissions,
- Signaling demand for renewable energy,
- Supporting carbon credit projects that go beyond business as usual,
- Avoiding the use of fuels that may contribute to reduced food security, conversion of forested and other natural areas to cropland, and/or cause a near-term increase in atmospheric carbon dioxide,
- Producing renewable electricity in excess and releasing it to the grid for all to use, and/or
- Positively impacting the balance of climate-changing greenhouse gases attributable to the final manufacturing stage of the product (i.e., more are offset than are generated).

Applicable Achievement Level(s)

Bronze, Silver, Gold, and Platinum

Requirements

Bronze level: For the final manufacturing stage of the product, procure or produce renewable electricity and/or address greenhouse gas emissions, achieving 5% target(s)* for electricity and other greenhouse gas emissions sources.

Silver level: For the final manufacturing stage of the product, procure or produce renewable electricity and/or address greenhouse gas emissions, achieving 20% target(s)* for electricity and other greenhouse gas emissions sources. Alternatively, meet the embodied emissions target (25%) required for all products at the Gold level.

Gold level: For the final manufacturing stage of the product, procure or produce renewable electricity and/or address greenhouse gas emissions, achieving 50% target(s)* for electricity and other greenhouse gas emissions sources.

Platinum level: For the final manufacturing stage of the product, procure or produce renewable electricity and/or address greenhouse gas emissions, achieving > 100% target(s)* for electricity and other greenhouse gas emissions sources.

*The target(s) may be met via a variety of methods. Depending on the achievement level, these include renewable electricity procurement, on-site renewable electricity production and use, performance improvements (i.e., greenhouse gas intensity reduction), absolute emissions reductions, use of eligible bioenergy sources, purchase of carbon offsets, and/or financial donations and investments. See the Renewable Electricity and Greenhouse Gas Emissions Targets section below for more information.

Renewable Electricity and Greenhouse Gas Emissions Targets

There are separate targets applicable to (1) electricity, including purchased electricity and on-site renewable electricity, and (2) greenhouse gas emissions from other scope 1 and 2 sources. One or more of the methods listed below may be applied toward achieving the targets. For example, if the renewable electricity target for a given achievement level has been partially met, then one or more of the other listed methods may be used to achieve the remainder of the target. See the supplementary sub-sections below for additional requirements pertaining to the accepted methods. The targets below apply to the final manufacturing stage of the product unless otherwise noted.

For the Bronze level:

1. For electricity (including purchased electricity resulting in scope 2 emissions and on-site renewable electricity):
    a. Procure or produce renewable electricity to match 5% of the electricity used (Note: Renewable electricity that is part of a utility's default offer receives credit only if there is no voluntary renewable electricity market in the applicable market region),
    b. Provide financial support to a climate-relevant public policy initiative (must be valued at 2x the cost of purchasing renewable electricity attribute certificates or other voluntary purchase matching 5% of the electricity used),
    c. Purchase carbon offsets to compensate for 5% of the resulting greenhouse gas emissions (Exception: This is not an option in locations where the nuclear power share is > 10% and there is also an established renewable electricity market and related attribute tracking system),
    d. Improve performance by 5% (i.e., reduce electricity use intensity and/or the associated greenhouse gas emissions intensity by 5%), or
    e. Certify to the ENERGY STAR buildings and plants program or equivalent.

2. For all other greenhouse gas emissions sources (including all scope 1/direct and other scope 2/ indirect emissions):
    a. Use eligible sources of bioenergy, achieving the bioenergy credit for 5% of total greenhouse gas emissions,
    b. Purchase carbon offsets to compensate for 5% of the resulting greenhouse gas emissions,
    c. Invest in on-site emissions reductions projects (must be of an equivalent value to carbon offsets compensating for 5% of emissions),
    d. Improve performance by 5% (i.e., reduce greenhouse gas emissions intensity by 5%), or
    e. Certify to the ENERGY STAR buildings and plants program or equivalent.

For the Silver level:

1. For electricity (including purchased electricity resulting in scope 2 emissions and on-site renewable electricity):
    a. Procure or produce renewable electricity to match 20% of the electricity used (Note: Renewable electricity that is part of a utility's default offer receives credit only if there is no voluntary renewable electricity market in the applicable market region),
    b. Purchase carbon offsets to compensate for 20% of the resulting greenhouse gas emissions. (Exception: This is not an option in locations where the nuclear share is > 10% and there is also an established renewable electricity market and related attribute tracking system),
    c. Provide financial support (valued at 2x the cost of renewable electricity attribute certificates or other voluntary purchase option matching 20% of the electricity used) to a climate-relevant public policy initiative,
    d. Improve performance by 20% (i.e., reduce electricity use intensity and/or greenhouse gas emissions intensity by 20%) or certify to the ENERGY STAR buildings and plants program or equivalent. In addition, reduce absolute emissions per science-based targets, or
    e. Improve performance by up to 10% or certify to the ENERGY STAR buildings and plants program or equivalent. In addition, meet the remainder of the 20% target via the other accepted method(s).
2. For all other greenhouse gas emissions sources (including all scope 1/direct and other scope 2/indirect emissions):
    a. Use eligible sources of bioenergy, achieving the bioenergy credit for 20% of total greenhouse gas emissions,
    b. Purchase carbon offsets to compensate for 20% of greenhouse gas emissions,
    c. Invest in on-site emissions reductions projects, for example, purchase more energy efficient equipment (must be of an equivalent value to carbon offsets compensating for 20% of emissions),
    d. Improve performance by 20% (i.e., reduce greenhouse gas emissions intensity by 20%) or certify to the ENERGY STAR buildings and plants program or equivalent. In addition, reduce absolute emissions per science-based targets, or

e. Improve performance by up to 10% or certify to the ENERGY STAR buildings and plants program or equivalent. In addition, meet the remainder of the 20% target via the other accepted method(s).

Alternative to #1 and #2: Achieve the embodied emissions target required at the Gold level (see Section 6.8 Addressing Embodied Greenhouse Gas Emissions for further detail).

For the Gold level:

1. For electricity (including purchased electricity resulting in scope 2 emissions and on-site renewable electricity):
   a. Procure or produce renewable electricity to match 50% of the electricity used, producing at least half of the 50% (i.e., 25% of the total electricity used) on site and/or procuring half through pre-finance or long-term power purchase agreements (PPAs). (Note: Renewable electricity that is part of a utility's default offer receives credit for the other 25% only if there is no voluntary renewable electricity market in the applicable market region),
   b. Procure renewable electricity to match 100% of the electricity used at all final manufacturing stage facilities (Note: This is a facility level requirement rather than a final manufacturing stage requirement),
   c. Purchase carbon offsets to compensate for 50% of the resulting greenhouse gas emissions (Exception: This is not an option in regions with established renewable electricity markets and related attribute tracking systems),
   d. Provide financial support (valued at 2x the cost of renewable electricity attribute certificates or other voluntary purchase option matching 25% of the electricity used) to a climate-relevant public policy initiative and meet the remainder of the 50% target (25%) via the other accepted method(s) (Note: This option may not be used as an alternative to achieving the on-site or PPA requirements), or
   e. Improve performance by up to 12.5% (i.e., reduce electricity use intensity and/or the associated greenhouse gas emissions intensity by 12.5%). and meet the remainder of the 50% target via the other accepted method(s).
2. For all other greenhouse gas emissions sources (including all scope 1/direct and other scope 2/indirect emissions):
   a. Use eligible sources of bioenergy, achieving the bioenergy credit for 50% of total greenhouse gas emissions,
   b. Purchase carbon offsets to compensate for 50% of greenhouse gas emissions,
   c. Invest in on-site emissions reductions projects, for example, purchase more energy efficient equipment (must be of an equivalent value to carbon offsets compensating for 50% of emissions), or
   d. Improve performance by up to 12.5% (i.e., reduce greenhouse gas emissions intensity by 12.5%) and meet the remainder of the 50% target via other accepted method(s).

For the Platinum level:

1. Procure or produce > 100% of the electricity used, producing the electricity on site and/or procuring through pre-finance or long-term power purchase agreements, and
2. Use eligible sources of bioenergy that receive full credit (e.g., biogas) for other on-site energy demands (if any). Note: Other energy sources (e.g., hydrogen) will be considered on a case-by-case basis).

Note: The Platinum level goal is to fully electrify, use renewable electricity for total energy demand, and to have eliminated emissions from non-energy sources (if any). However, if the physical infrastructure and/or the political situation do not allow for this, exceptions may be made on a case-by-case basis.

Meeting the Renewable Electricity Targets

For the Bronze and Silver levels and for half (i.e., 50%) of the Gold level target (or for 100% of the Gold target if using the 100% renewable electricity procurement alternative per the sub-section titled Renewable Electricity and Greenhouse Gas Emissions Targets above):

1. Renewable electricity may be:
   a. Produced on site,
   b. Procured from a utility or other provider (e.g., through a utility's optional green power offering, or through direct power purchase agreements), and/or
   c. Procured via unbundled renewable energy attribute certificates (e.g., Renewable Energy Certificates (RECs) or Guarantees of Origin (GOs)). Note: "Unbundled" refers to renewable energy attributes that are sold separately from the renewable electricity itself.
2. The electricity must be from one or more of the following sources:
   a. Solar,
   b. Wind,
   c. Geothermal,
   d. Non-impoundment hydropower, or hydropower certified to a C2CPII-recognized sustainable (hydro) electricity standard or equivalent, or
   e. Eligible biofuels (see Accounting for Bioenergy and Applying the Bioenergy Credit section below).

   Other renewable sources (e.g., wave and tidal energy) will be evaluated on a case-by-case basis.
3. Renewable electricity (as defined in #2a-e) that is part of a utility's default offer, or the default grid mix may receive credit toward achieving the renewable electricity targets only if there is no voluntary renewable electricity market in the applicable market region. (Note: An alternative option, including for cases where there is a voluntary renewable electricity market, is to convert the amount of purchased electricity to greenhouse gas emissions and to meet the offset target instead —which does give credit for using renewable electricity present on the grid through that electricity's effect on the emissions rate. See section titled Meeting the Carbon Offset Targets below for further information).
4. Double counting of renewable energy attributes must not occur.

a. Renewable energy attribute certificates must be retained by the applicant or canceled on the applicant's behalf in all cases.
b. If procuring unbundled renewable energy attribute certificates outside of a regulated tracking system that controls for double counting, a qualified third party must verify that double counting has not occurred.

5. The generation or consumption of the renewable electricity may not be used to meet any regulatory requirements. Note: In regions with a cap and trade program and where a legal framework and process exists for reducing the cap to support emissions reductions claims associated with voluntary renewable electricity purchases, participation in the process to reduce the cap is required (e.g., for voluntary renewable energy attribute certificates generated in U.S. states with a cap and trade program and voluntary renewable energy set aside accounts, an appropriate amount of allowances must also be retired).

For the remaining half (i.e., 50%) of the Gold target (unless using the 100% renewable electricity procurement alternative per the sub-section above titled Renewable Electricity and Offset Targets) and for the Platinum level target:

1. The renewable electricity must be:
   a. Produced and consumed on site to the extent feasible, and/or
   b. Procured through power purchase agreements signed pre-financing, or long-term (≥ 10 years) power purchase agreements. Note: Virtual power purchase agreements are accepted. Other procurement options meeting the intent of the requirement will be considered on a case-by-case basis.
2. The electricity must be from one or more of the following sources:
   a. Solar,
   b. Wind,
   c. Geothermal,
   d. Non-impoundment hydropower, or hydropower certified to a C2CPII-recognized sustainable (hydro) electricity standard or equivalent, or
   e. Eligible biofuels (see Accounting for Bioenergy and Applying the Bioenergy Credit section below).

   Other renewable sources (e.g., wave and tidal energy) will be evaluated on a case-by-case basis.
3. Power purchase agreements must support renewable electricity generation that occurs:
   a. In the same grid region as the applicant's facility(ies), or
   b. In a grid region with higher emissions rates than the region where the applicant's facility(ies) are located.
4. Double counting of renewable energy attributes and/or use for regulatory compliance must not occur (per #4 and #5 of the preceding section).

Meeting the Carbon Offset Targets

Carbon offsets may be used to address both direct and indirect greenhouse gas emissions. For example, this includes emissions produced on site from burning fuels and emissions resulting from the generation of purchased electricity or steam off site.

Exceptions:

For Bronze and Silver levels, carbon offsets may not be used to address emissions attributable to purchased electricity in countries where there is an established renewable electricity market and related attribute tracking system and where the nuclear power share is > 10%.

For the Gold level, carbon offsets may not be used to address emissions attributable to purchased electricity in countries where there is an established renewable electricity market and related attribute tracking system.

To claim and apply carbon offsets toward the offset target(s), the following conditions must be met:

1. Offsets must be sourced from projects certified to a C2CPII-recognized offset project certification program that aims to ensure that:
   a. The associated greenhouse gas reductions or removals are additional, accurately estimated, permanent, and not double counted.
   b. Offset projects operate in compliance with local laws.
2. The offsets must be purchased voluntarily (and not for compliance purposes).
3. If using carbon offsets to address emissions attributable to the use of purchased electricity (i.e., scope 2 emissions): Emissions attributable to the purchased electricity must be calculated using residual emissions factors if available, or grid average emissions factors if not.

Accounting for Bioenergy and Achieving the Bioenergy Credit

If bioenergy is produced on site (including use of biofuels), the greenhouse gas emissions attributable to the bioenergy must be added to the total CO_2e subject to the offset targets.

If the bioenergy is produced from eligible fuels, the bioenergy credit may also be subtracted from the amount of offsets required to reach a given target. The bioenergy credit = (the carbon dioxide combustion emissions of the eligible biofuel) x (the bioenergy credit multiplier for the eligible fuel source type). In addition to receiving the bioenergy emissions credit for the use of eligible biofuels, electric bioenergy produced on site from these fuels may also be counted toward the renewable electricity target.

Eligible fuels are solid, liquid, or gaseous forms of fuel sourced from organic and renewable materials that would otherwise be categorized as waste as defined by the most recent version of the Green-e® Renewable Energy Standard for Canada and the United States. As an alternative to quantifying and limiting the amount of contamination in woody waste used for bioenergy production as required by Green-e® (which limits contaminants such as paints in woody waste on a btu basis), if producing bioenergy from contaminated woody waste material, facilities must meet air emissions limitations and manage incinerator waste per leading regulations (see Section 6.1 for the definition of leading regulations in the context of air emissions).

The bioenergy credit multipliers by eligible fuel source type are as follows (see the Definitions section for a description of the approach used to define these multipliers):

1. Agricultural crop residue that is unmerchantable as food and other similar rapidly renewable waste material: 0.63
2. Animal and other organic waste (e.g., food scraps), landfill gas, and wastewater methane: 1
3. Woody waste: 0.57

To receive the bioenergy credit, the applicant must retain all rights to the environmental attributes associated with the bioenergy. Emissions reductions attributes may not be sold, registered, or claimed by others.

Bioenergy must be produced on site and any biofuels must be used directly to receive the bioenergy credit with the following exception: For the Bronze and Silver levels, "green-gas" certificates may be employed to compensate for natural gas obtained through the standard gas grid. New (≤ 15 years) biogas installations within the same market region must be supported. Carbon offsets supporting bioenergy installations receive credit as described above in the section titled Meeting the Carbon Offset Targets.

Achieving the Performance Improvement Credit

For the Bronze through Gold levels, the renewable electricity and/or greenhouse gas emissions targets may be reduced when performance improvement(s) resulting from energy conservation and efficiency projects have been demonstrated and verified by a qualified third party. The performance improvement credit may be applied to (1) purchased electricity in terms of kWh or equivalent and direct emissions separately, or (2) combined scope 1 and 2 emissions. In general, the renewable electricity and offset targets may be reduced by one percentage point for each percent of normalized performance improvement achieved, within the following limits:

1. For Bronze level: The 5% renewable electricity and/or greenhouse gas emissions targets may be reduced by up to five percentage points (100% of the targets). If performance improvement(s) of 5% has been achieved, renewable electricity, carbon offsets, and/or other methods of achieving the targets are not required. Alternative: The facility is certified to the ENERGY STAR buildings and plants program or equivalent.
2. For Silver level: The 20% renewable electricity and/or greenhouse gas emissions targets may be reduced by up to 10 percentage points (50% of the targets). If the maximum performance improvement credit of 10% has been achieved, or the facility is certified to the ENERGY STAR building and plants program or equivalent, only 10% of electricity must be renewably sourced and only 10% of greenhouse gas emissions must be offset or addressed via the other allowable methods. Alternative: If, for the applicant company, absolute emissions reductions are achieved in line with the Science Based Targets Initiative's (SBTi) well below 2°C or 1.5°C scenarios, the 20% renewable electricity and/or offset targets may be reduced by up to 20 percentage points (100% of the targets). Targets must be verified by SBTi and absolute reductions in line with the targets must be realized over the prior certification period. In this case, if performance improvement(s) of 20%

or more has been achieved, or the facility is certified to the ENERGY STAR building and plants program or equivalent, renewable electricity, carbon offsets and/or other methods of achieving the targets are not required.

3. For Gold level: The 50% renewable electricity and/or greenhouse gas emissions targets may be reduced by up to 12.5 percentage points (25% of the targets). If the maximum performance improvement credit of 12.5% has been achieved, only 37.5% of electricity must be renewably sourced and only 37.5% of greenhouse gas emissions must be offset or addressed via the other allowable methods.
4. The performance improvement credit may not be used toward fulfillment of the Platinum level targets.

The performance improvement credit may be applied when all of the following conditions are met:

1. Performance improvement is achieved at a facility that is part of the product's final manufacturing stage.
2. The product is allocated a share of overall facility energy use and emissions proportional to its share in the facility's overall production. (This is required prior to determining the amount of carbon offsets and/or renewable electricity necessary to meet the remainder of the target(s)).
3. Performance improvements are determined using a baseline year of no more than 10 years prior to certification or recertification (as applicable).
4. Performance improvements from baseline to reporting year must be determined and normalized per an approved method and verified by a qualified third party with expertise in energy performance measurement and verification.
    a. The International Performance Measurement and Verification Protocol (IPMVP), Method C (i.e., the whole facility method), or similar methods based on ISO 50015 and ISO 50047, are accepted.
5. The verifier must report performance improvement(s) in the appropriate quantities depending on how the remainder of the targets will be met as follows:
    a. Performance improvement must be reported separately for electricity and all other greenhouse gas emissions sources (required if meeting renewable electricity and greenhouse gas emissions targets separately); or,
    b. Total performance improvement for all energy sources combined must be converted to and reported as percentage of CO_2e savings achieved (i.e., avoided emissions).
6. The reporting year for the performance improvement verification report must be within one year of the certification issue date. Verification must be repeated upon each recertification.
7. The applicant must retain all rights to the environmental attributes associated with the performance improvement.

6.4 Using Blowing Agents with Low or No Global Warming Potential

Intended Outcome(s)

Blowing agents used in the product's manufacturing and supply chain do not contribute to climate change or depletion of the ozone layer.

Applicable Achievement Level(s)

Gold

Requirement(s)

For blowing agents used to manufacture foam materials, use blowing agents with low to no global warming potential (GWP) and no ozone depletion potential (ODP).

Blowing agents with a RED or GREY hazard rating in the Climatic Relevance endpoint (as defined by the C2CPII Material Health Assessment Methodology) must not be used. This is required regardless of whether the blowing agent remains within the final product and regardless of whether the blowing agent is used during the final manufacturing stage or in the supply chain.

Exemption

Blowing agents used to manufacture foam materials if the foam material makes up < 1% of the product by weight.

6.5 Addressing Embodied Greenhouse Gas Emissions

Intended Outcome(s)

Offsetting or reducing embodied GHG emissions has demonstrably decreased the proportion of climate changing greenhouse gases attributable to manufacturing of the product.

Applicable Achievement Level(s)

Gold and Platinum

Requirement(s)

Gold level: Offset or otherwise address 25% of embodied greenhouse gas emissions attributable to the product from resource extraction through final manufacturing or through end of use.

Platinum level: Offset or otherwise address 100% of embodied greenhouse gas emissions attributable to the product from resource extraction through final manufacturing or through end of use.

At a minimum, a cradle-to-gate scope including emissions attributable to the final manufacturing stage must be employed.

Embodied greenhouse gas emissions may be addressed through a variety of methods, including but not limited to, the purchase of carbon offsets, projects with suppliers, product redesign, and savings during the use phase.

Reduction in embodied greenhouse gas emissions per functional unit receives credit when compared to a baseline of no more than 10 years prior to certification or recertification (as applicable).

Above average performance (lower embodied emissions per functional unit) receives credit when compared to an industry-wide third-party verified benchmark, if available. An industry-wide generic Environmental Product Declaration (EPD) published in the past five years may be used as the benchmark.

Alternatively, government benchmarks (or similar) or the performance of a sample of similar products may be used for comparison.

If EPD(s) are not available, a comparison based on life cycle assessment is accepted. The comparison may be to a similar existing product manufactured by the same company, or to a benchmark life cycle assessment for the same product demonstrating impact prior to improvement.

Qualified third-party verification of the percentage addressed is required if meeting the targets through methods other than offset purchase.

7 // Water & Soil Stewardship Requirements

Category Intent

Water and soil are treated as precious and shared resources. Watersheds and soil ecosystems are protected, and clean water and healthy soils are available to people and all other organisms.

Requirements Summary

To achieve a desired level within the category, the requirements at all lower levels must also be met.

Requirement	Bronze	Silver	Gold	Platinum
7.1: Final manufacturing facilities comply with water quality regulations or guidelines (i.e., permits, international guidelines, or industry best practice).	●	●	●	●
7.2: Water use at final manufacturing stage facilities is quantified.	●	●	●	●
7.4: Product-relevant chemicals entering effluent or sludge are in compliance with leading chemical regulations. (Required for final manufacturing stage.)	●	●	●	●
7.3: At least one conservation technology or best practice has been implemented at facilities expected to have the greatest water- or soil-related impacts. (Required for final manufacturing facilities with high-volume processes in stressed locations and facilities with pollutant-intense processes.)		●	●	●
7.4: Product-relevant process chemicals entering effluent and sludge are defined and assessed.		●	●	●
7.4: Product-relevant effluent and sludge does not contain recognized PBTs, vPvBs, CMRs, or substances causing an equivalent level of concern, or exposure via effluent and sludge is unlikely or expected to be negligible. (Required for final manufacturing stage.)		●	●	●
7.1: Off-site, independently operated effluent treatment facilities (if any), comply with effluent quality guidelines or regulations. Alternatively, a strategy/plan to address the issue has been developed. For recertification at the Gold level, all off-site, independently operated effluent treatment facilities (if any), comply with effluent quality guidelines or			●	●

regulations. Alternatively, manufacturing facilities comply with effluent quality guidelines for direct discharge or otherwise address the issue.				
7.3: • Conservation technologies and best practices have been implemented at facilities expected to have the greatest water- and/or soil-related impacts. (Required for all final manufacturing facilities with high-volume or pollutant-intense processes and/or in stressed locations.) • Actions have been taken to conserve water and/or soil in the supply chain, including the use of certified materials, working as part of multi-stakeholder group(s), and/or working directly with suppliers to implement water and soil stewardship requirements and address the processes of concern. (Required for ≥ 25% of the product by weight or by cost.)			●	●
7.4: Product-relevant chemicals in effluent and sludge are assessed and optimized (i.e., none are x-assessed or grey-rated). (Required for the final manufacturing stage.)			●	●
7.4: Product-relevant chemicals in effluent and sludge are assessed and optimized (i.e., none are x-assessed or grey-rated). (Required for leather, metal finishing, pulp/paper and textiles if present at ≥ 25% of the product by weight or by cost.)				●
7.5: For final manufacturing stage facilities: • A comprehensive effluent and sludge quality management system has been established, and • Effluent and sludge produced as a result of all manufacturing processes used at the facility are optimized.				●

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

7.1 Effluent Quality Compliance

Intended Outcome(s)

Final manufacturing stage facilities are in compliance with regulatory and/or industry best practice effluent limitations.

Applicable Achievement Level(s)

Bronze and Gold

Requirement(s)

Bronze level: For the final manufacturing stage, treat effluent (either on- or off-site) prior to discharge to the environment and adhere to effluent quality regulations or guidelines.

Gold level: For final manufacturing stage facilities in high-risk locations discharging process effluent to off-site, independently operated effluent treatment facilities, demonstrate that the treatment facility treats effluent prior to discharge to the environment and adheres to effluent quality guidelines or regulations. Alternatively, if off-site treatment facilities are out of compliance, create a strategy/plan to address the issue.

Gold level recertification: For off-site, independently operated effluent treatment facilities in high-risk locations, implement the Gold level strategy/plan (as applicable) to address any issues with off-site treatment facility compliance.

Facilities discharging effluent directly to surface or groundwater must comply with the corresponding regional regulatory (if any), international, or industry best practice effluent quality guidelines for direct discharge. Note: Facilities discharging via a sewer system that does not route to an effluent treatment facility with at least secondary treatment capabilities or equivalent are discharging directly to surface or groundwater for the purposes of this requirement.

For the Bronze level:

For final manufacturing stage facilities meeting this requirement based on regulatory compliance, the parameters addressed in the permit must also be consistent with leading regulations, international guidelines, or industry best practice. Leading regulations are defined as those that include a functioning mechanism through which water quality-based limits are set.

Final manufacturing stage facilities discharging process effluent to an off-site, independently operated effluent treatment facility (e.g., publicly owned treatment works, central effluent treatment plant, or wastewater treatment plant) with at least secondary treatment must comply with required pretreatment limits, if any.

For the Gold level:

Low-risk locations are defined as locations with leading regulations and effective enforcement. All other locations are considered high-risk.

If the off-site treatment facility is out of compliance, the issue must be addressed by recertification at the Gold level. Methods of addressing the issue may include demonstrating that the manufacturing facility is not contributing to the issue, the manufacturing facility is complying with regional regulatory (if any), international, or industry best practice effluent quality guidelines for direct discharge, moving the manufacturing plant, or demonstrating that the third party has corrected the issue.

Effluent testing

When effluent must be tested for verification purposes, sampling and testing must be conducted according to the methods specified by regulatory permits, the off-site, independently operated effluent treatment facility, and/or other guidelines as relevant. The analytical laboratory conducting the tests must be accredited or certified for the specific analysis per ISO 17025, NELAP, or equivalent.

7.2 Quantifying Water Use

Intended Outcome(s)

Water withdrawals, discharge, and consumption at facilities manufacturing the product(s) are quantified, creating a baseline against which reductions can be measured, and helping to identify areas for improvement.

Applicable Achievement Level(s)

Bronze

Requirement(s)

Quantify annual water withdrawals, discharge, and consumption for all final manufacturing stage facilities.

Data must be collected on the following and the data sources indicated:

1. Withdrawals by source and water type.
2. Discharges by receiving body/destination.
3. Capacity of on-site treatment equipment.
4. Consumption by source.
5. Total amount and percentage of water recycled and reused.

7.3 Water & Soil Conservation

Intended Outcome(s)

Conservation technologies and best practices are increasingly being implemented to reduce water use and/or improve effluent and/or soil quality where there are known issues.

Applicable Achievement Level(s)

Silver and Gold

Requirement(s)

Silver level:

1. Implement at least one conservation technology or best practice at:
   a. All final manufacturing stage facilities with high-volume processes in stressed locations, and
   b. All final manufacturing stage facilities with pollutant-intense processes.

Gold level:

1. Implement conservation technologies or best practices at all final manufacturing stage facilities with high-volume or pollutant-intense processes, and/or in stressed locations, and
2. For materials that make up ≥ 25% of the product by weight or (optionally) by cost, take action to conserve water and/or soil in the supply chain.

For the Silver Level:

1. For all final manufacturing stage facilities with high-volume processes in medium- to high-stress locations, at least one technology or best practice leading to water use reductions must be implemented, and
2. For all final manufacturing stage facilities with pollutant-intense processes, at least one technology or best practice leading to improved effluent quality must be implemented.

Facilities with high-volume processes are defined as facilities that withdraw or purchase ≥ 100,000 m^3 of water per year.

A pollutant intense process is a process with high potential to negatively affect conventional water quality parameters such as biological oxygen demand (BOD), chemical oxygen demand (COD), and total suspended solids (TSS), and/or result in the release of hazardous chemicals with effluent or runoff. A pollutant intense process is defined broadly to include soil erosion and loss, which, in addition to resulting in reduced topsoil quality and availability on land, also contributes to poor surface water quality.

Stress level is defined using the baseline water stress metric as defined per the most recent version of the World Resources Institute (WRI) Aqueduct database. Other methods of identifying stress level may be considered on a case-by-case basis.

For the Gold level:

1. For all final manufacturing stage facilities with high-volume processes in medium- to high-stress locations, technologies or best practices leading to the maximum feasible water use reductions must be implemented, and
2. For all final manufacturing stage facilities with high-volume processes in low-stress locations, at least one technology or best practice leading to water use reductions must be implemented, and

3. For all final manufacturing stage facilities in high-stress locations without high-volume processes, at least one technology or best practice leading to water use reductions must be implemented, and
4. For all final manufacturing stage facilities with pollutant-intense processes, technologies or best practices leading to the maximum feasible improvement in effluent quality must be implemented.
5. For materials that make up ≥ 25% of the product by weight or (optionally) by cost:
    a. For forest and agricultural raw materials (excluding untraceable commodity type agriculturally derived material, e.g., ethanol):
        i. The material must be certified to a C2CPII-recognized standard that addresses the high-volume and pollutant intense processes of concern or an equivalent alternative to certification must be in place.
        ii. Alternatively, for the Gold level (i.e., not an option for the Platinum level), the following are required:
            1. An explanation of the limitation(s) preventing the incorporation of the required percentage(s) of certified material and how, based on these limitation(s), the amount of certified material currently used represents the maximum that is currently feasible.
            2. The explanation must be reported publicly.
            3. A strategy for addressing the identified limitation(s) and increasing the amount of certified material over time must be developed. The strategy must include discrete objectives and an associated timeline.
            4. For recertification:
                (a) The applicant must demonstrate progress toward achieving the objectives.
                (b) A description of progress made must be reported publicly.
    b. For other material types:
        i. A C2CPII-recognized certification or alternative that addresses the processes of concern must be in place (the alternative described in 5.a.ii above may be applied), or
        ii. The applicant must be actively involved with a multi-stakeholder group working to address the processes of concern, or
        iii. The applicant must work directly with material suppliers to implement the Water & Soil Stewardship requirements as follows:
            1. For initial certification at the Gold level:
                (a) For tier 1 supplier facilities producing material(s) associated with high-volume processes and located in medium- to high-stress locations: At least one technology or best practice leading to water use reductions must be implemented.
                (b) For tier 1 supplier facilities producing materials associated with pollutant-intense processes:
                    (i) The Effluent Quality Compliance requirements must be fulfilled (per Section 7.1), and
                    (ii) At least one technology or best practice leading to improved water and/or soil quality must be implemented.
            2. For recertification, progress must be demonstrated on identifying and addressing additional issues in the supply chain, if any.

7.4 Assessing and Optimizing Product-Relevant Chemicals in Effluent and Sludge

Intended Outcome(s)

Chemicals entering receiving waters and soils as a result of product manufacturing have been intentionally selected based on their preferred safety attributes.

- At the Bronze level, in alignment with leading regulations that aim to protect human health and the environment, the release of well-known toxic chemicals is avoided.
- At the Silver level, chemicals classified as carcinogenic, mutagenic, or reproductive toxicants (CMRs) are not used, or, if these substances are present, exposure to them is unlikely or expected to be negligible. In addition, persistent, bioaccumulative, and toxic (PBTs) or very persistent and very bioaccumulative (vPvBs) substances are not used. The product also does not contain substances that cause an equivalent level of concern or exposure to them is unlikely or expected to be negligible.
- At the Gold level, chemicals used are compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology. Exposure to hazardous chemicals via product-relevant effluent and sludge is unlikely or expected to be negligible.
- At the Platinum level, chemicals used at select supplier facilities processing materials of high concern are compatible with human and environmental health.

Applicable Achievement Level(s)

Bronze, Silver, Gold and Platinum

Requirement(s)

Bronze level: All product-relevant chemicals entering effluent or sludge during the final manufacturing stage comply with leading chemical regulations, as defined by the applicable Bronze level regulatory restrictions in the Cradle to Cradle Certified® Restricted Substances reference document. Alternatively, for textile chemical formulations, comply with the Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substances List (MRSL) or equivalent.

Silver level:

- Define and assess product-relevant process chemicals entering effluent or sludge during the final manufacturing stage.
- Ensure that any product-relevant chemicals (including product-relevant process chemicals) released with effluent or sludge during the final manufacturing stage:
  - Are not classified or listed as known or suspected to cause cancer, birth defects, genetic damage, reproductive harm (CMRs), or cause an equivalent level of concern, or, if these substances are released, that exposure is unlikely or expected to be negligible, and
- Are not listed as persistent, bioaccumulative, and toxic (PBTs), very persistent and very bioaccumulative (vPvBs).

Gold level:

- Define and assess all product-relevant chemicals entering effluent or sludge during the final manufacturing stage.
- Ensure that any product-relevant chemicals released with effluent or sludge during the final manufacturing stage are compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology, allowing only a, b, and c assessed chemicals within effluent and sludge.

Platinum level:

- Define and assess all product-relevant chemicals entering effluent or sludge at select supplier facilities.
- Ensure that any product-relevant chemicals released with effluent or sludge at select supplier facilities are compatible with human and environmental health according to the Cradle to Cradle Certified Material Health Assessment Methodology, allowing only a, b, and c assessed chemicals within effluent and sludge.

For the Bronze level:

1. Product-relevant chemicals are defined as intentional product inputs and process chemicals (including single chemicals and chemical mixtures, as well as known contaminants) used to manufacture the product. Note: Process chemicals are further defined in the Definitions section.
2. All product-relevant chemicals that enter or potentially enter the effluent are in scope.
3. If applicable, restriction thresholds apply to the chemical mixtures as received from the supplier.
4. Substances within process chemical mixtures are subject to review at a concentration ≥ 0.1% (≥ 1000 ppm), with the following exceptions:
    a. If a limit below 1000 ppm is indicated for a specific substance by the applicable Bronze level regulatory restrictions in the Cradle to Cradle Certified® Restricted Substances reference document (see Section 4.1), the lower limit applies
    b. If a specific concentration limit (SCL) for any toxicity endpoint of a substance is below 1000 ppm as indicated by the Table of Harmonized Entries in Annex VI to the Classification, Labelling, and Packaging of Substances and Mixtures regulation, the lower limit applies.

For textile chemical formulations, the product may alternatively comply with the most recent version of the Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substances List (MRSL) or equivalent. If meeting these requirements via ZDHC conformance, all limits and subject to review limits (if any), per ZDHC apply.

For the Silver level:

1. For process chemical formulations, all substances present at 1000 ppm (0.1%) or above within the formulation are subject to review. Substances may be grey-rated due to missing toxicity information and otherwise must have received an abc-x rating.
2. Restricted CMRs, PBTs, vPvBs, and substances causing an equivalent level of concern are listed in the Cradle to Cradle Certified® Restricted Substances reference document.

For the Platinum level, the "select" suppliers in scope are:

1. Suppliers at any tier that use pollutant-intense processes associated with leather, metal finishes, pulp and paper, and textiles that are ≥ 25% of the product by weight or by cost. These pollutant-intense processes are defined in Section 7.3.

7.5 Optimizing Effluent and Sludge Quality at the Facility Level

Intended Outcome(s)

Effluent and sludge at final manufacturing facilities are managed with the aim of protecting local water quality and ecosystem health.

Applicable Achievement Level(s)

Platinum

Requirement(s)

For the final manufacturing stage facilities:

- Establish a comprehensive effluent and sludge quality management system, and
- Optimize the effluent and sludge produced as a result of all manufacturing processes used at the facility.

The following are in scope:

1. Effluent and sludge produced as a result of all manufacturing processes at the facility.
2. Non-manufacturing effluent and sludge (e.g., from water used in toilets, kitchen areas) unless treated by an off-site, independently operated effluent treatment facility.
3. All chemicals with potential to enter effluent and sludge including, but not limited to:
   a. Process chemicals,
   b. Intentional product inputs,
   c. Chemicals used to treat and clean cooling systems,
   d. Chemicals used to treat the effluent, and
   e. Custodial/cleaning chemicals used in the manufacturing area.

Managing Effluent and Sludge Quality

The comprehensive effluent quality management system must:

1. Be informed by an understanding of:
    a. The hazardous substances (defined as substances with RED hazard(s) per the Material Health Assessment Methodology) used intentionally and unintentionally by the facility and the industry. This must be determined based on a comprehensive review of safety data sheets and the relevant literature on chemicals of known and emerging concern, both regulated and non-regulated. Note: This is different from the chemical inventory required for materials and products in the Material Health category.
    b. Local and catchment level water quality issues that are relevant to the facility, surrounding ecosystem, and community, including the quality of source and receiving waters, and the health of receiving ecosystems, determined per the Characterize Local and Product-Relevant Water Issues requirement (Section 7.1) and communication with non-governmental organizations (NGOs) working on local water issues and/or local water authorities.
2. Include comprehensive methods for avoiding the intentional and unintentional use, and subsequent introduction, of hazardous substances to the environment via effluent and sludge. The methods must address all chemicals in scope and may include but are not limited to:
    a. Use of third-party certified and optimized input formulations and materials,
3. Analytical testing of purchased formulations to screen for hazardous contaminants, and
    a. Adherence to industry best practice manufacturing restricted substances lists.
4. Include qualified third-party verification that processes and procedures for on-site treatment facility operation (if any) and water quality management are in place and functioning.
5. Monitor conventional water quality parameters (e.g., pH, total suspended solids, biochemical oxygen demand), and for the release of hazardous substances relevant to the industry and facility. The following are required:
    a. Effluent as it leaves the facility must be tested for all substances of concern identified per the required research (per #1).
    b. Best practices must be used to collect samples.
    c. Testing must be conducted at least two times per year.
    d. Laboratories conducting the tests must be ISO 17025 accredited.

Optimizing Effluent and Sludge Quality

1. For conventional water quality parameters, facility(ies) releasing effluent directly to surface or groundwater (defined in Section 7.2) must comply with the more stringent of the limitations indicated by either their permits or as follows:
    a. pH: 6-9
    b. Biological Oxygen Demand (BOD): 25 mg/L
    c. Total Organic Carbon (TOC): 35mg/L or Chemical Oxygen Demand (COD): 100 mg/L
    d. Total Suspended Solids (TSS): 30 mg/L
    e. Ammonia (as N): 10 mg/L
    f. Total nitrogen: 10 mg/L

g. Total phosphorus: 2.0 mg/L
h. Temperature: < 3 °C increase
i. Color: 7 m-1 (436 nm; yellow) 5 m-1 (525 nm; red) 3 m-1 (620 nm; blue)
j. Oil and grease: 10 mg/L
k. Coliform: 400 bacteria/100 ml

Applicants who would be required to comply with effluent limits more stringent than what indicated by their permits may alternatively publicly disclose an explanation of the conditions and/or trade-offs preventing the facility from meeting the more stringent limits.

These effluent limits are the most stringent of those listed for multi-brand consortia or for the benchmark countries (if not included in multi-brand consortia list) per Zero Discharge of Hazardous Chemicals Programme, Textile Industry Wastewater Discharge Quality Standards Literature Review REV1, 2015, www.roadmaptozero.com/post/zdhc-releases-wastewater-quality-review.

2. Hazardous substances identified per the required research (per the Effluent and Sludge Quality Management section #1) must not be x-assessed in effluent or sludge (per the Material Health Assessment Methodology section on assessment of effluent and sludge).

Receiving water is defined as the ultimate receiving water in the case of off-site, independently operated effluent treatment facilities.

8 // Social Fairness Requirements

Category Intent

Companies are committed to upholding human rights and applying fair and equitable business practices.

Requirements Summary

To achieve a desired level within the category, the requirements at all lower levels must also be met.

Requirement	Bronze	Silver	Gold	Platinum
8.1: For final manufacturing stage facilities, performance on implementing respect for key human rights is measured. Corrective actions for select issues (e.g., child labor, forced labor) are complete. Corrective actions are planned for any other poor performance issues and, at recertification, progress is demonstrated.	●	●	●	●
8.1: Social audit performance data are requested from tier 1 suppliers in high-risk locations. At recertification, progress is made on supply chain data collection and corrective actions, if needed. Corrective actions for select issues (e.g., child labor, forced labor) are complete.		●	●	●
8.1: Materials associated with high risk of child or forced labor or support of conflict are certified to a C2CPII-recognized certification program or an equivalent alternative is in place. If a certification program is not available, a traceability exercise is conducted upon recertification.			●	●
8.2: Responsible sourcing management systems support respect for human rights within the product's supply chain.			●	●
8.3: A grievance mechanism permits final manufacturing facility employees and other stakeholders to obtain redress for negative human rights impacts.			●	●
8.4: The company incorporates stakeholder engagement and feedback into human rights risk management. Stakeholder feedback informs strategy and operations.				●
8.5: The company is collaborating to develop and scale solutions to an intractable social issue within the value chain of the product.				●

8.6: The company fosters a work environment in which social fairness operates as a core value.				●

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

8.1 Monitor and Verify Performance

Intended Outcome(s)

Performance on upholding human rights is monitored and verified at product manufacturing facilities, ensuring that corrective actions are taken when poor performance is identified and increasing the level of assurance that risks to human rights are addressed.

Applicable Achievement Level(s)

Bronze, Silver, and Gold

Requirement(s)

Bronze level: For final manufacturing stage facilities, measure performance on implementing respect for human rights and confirm the completion of corrective actions associated with issues of high concern including child labor, forced labor, corruption/bribery, and immediate threats to life and safety. For any other poor performance issues, plan corrective actions and, at recertification, demonstrate progress on addressing the issues.

Silver level: Request data measuring performance on implementing respect for human rights from all high-risk tier 1 suppliers. At recertification, demonstrate continued efforts to obtain performance data and evidence of tracking corrective actions that may be necessary at tier 1 supplier locations.

Gold level: For components and raw materials associated with high risk of child labor, forced labor, or support of conflict, specify or certify to a C2CPII-recognized certification (if available) or equivalent that verifies high performance on these issues.

For the Bronze level:

1. Performance must be measured on implementing respect for human rights, as articulated in policy commitments, across the following key human rights topics at minimum:
   a. Elimination of discrimination with respect to employment and occupation,
   b. Elimination of harassment and abuse,
   c. Elimination of all forms of forced or compulsory labor, or activities that are known to lead to forced labor (e.g., human trafficking),

d. The abolition of child labor and adequate protections for workers above the legal working age and below age 18,
e. Prevention of excessive working hours,
f. Freedom of association and collective bargaining,
g. Safe and healthy work, including:
    i. Access to water, sanitation, and hygiene (WASH),
    ii. Emergency preparation and response,
    iii. Hazardous materials handling procedures,
    iv. Management systems that address health and safety risks, and
    v. Appropriate building construction, electrical, and fire safety.
h. Provision of the legal minimum wage and all legally mandated benefits,
i. Aspirations for the provision of a living wage that covers the necessities for life as defined in its local context (e.g., food, water, housing, health care, education, clothing, transportation, childcare, discretionary income), and
j. Fair and ethical business practices, including anti-corruption/bribery.

2. Commitment must be via a policy or policies that are formally approved by a duly empowered officer (or board of directors) of the applicant company or facility.
3. Human rights must be defined per the Fundamental Conventions of the International Labor Organization and the International Bill of Human Rights (see Definitions section). Following the United Nations Guiding Principles on Business and Human Rights, where national law and these international human rights standards differ, the higher standard applies; where they are in conflict, the applicant or facility owner (as applicable) must seek to respect internationally recognized human rights to the greatest extent possible.
4. Performance data must be generated and verified by a qualified party.
5. For facilities in high-risk locations, performance data must be generated every 1.5 ± 0.5 years. For low-risk locations, performance data must be generated every three years (i.e., for the initial certification and at each subsequent recertification).
6. If identified, the following issues of high concern must be resolved prior to certification or recertification:
    a. Child labor,
    b. Forced labor,
    c. Corruption/bribery,
    d. Unauthorized subcontracting,
    e. Missing or deficient permits (i.e., business license, building permit, and environmental permit(s) if required by local regulations),
    f. Any immediate threat to life or safety (e.g., poor fire safety, structural safety hazard), and
    g. Denial of access to the facility, workers, or files.
7. Performance may be measured per C2CPII's Section 8.1 Monitor & Verify Performance form, C2CPII-recognized social audit certifications or programs, or equivalent.

For the Silver level:

1. Social audit performance data must be requested from all high-risk tier 1 suppliers providing components and materials that are subject to review (as defined in Material Health Section 4.3).
2. Performance must be measured on implementing respect for human rights across the key human rights topics as listed for Bronze level #1 at minimum. If data are outdated or not available, the applicant or facility owner must arrange for a social audit to be conducted.
3. Audits must be performed by qualified personnel with a social audit credential and no conflicts of interest related to the supplier.
4. Data must be generated within the past 24 months.
5. If identified, the following issues of high concern must be resolved prior to certification or recertification:
    a. Child labor,
    b. Forced labor,
    c. Corruption/bribery,
    d. Unauthorized subcontracting,
    e. Missing or deficient permits (i.e., business license, building permit, and environmental permit(s) if required by local regulations),
    f. Any immediate threat to life or safety (e.g., poor fire safety, structural safety hazard), and
    g. Denial of access to the facility, workers, or files.
6. Corrective actions must be planned or ongoing for any other poor performance issues identified. At recertification, the applicant must demonstrate progress on:
    a. Encouraging suppliers to complete corrective actions,
    b. Tracking whether timelines are adhered to, and
    c. Taking steps to suspend or terminate relationships with suppliers that fail to make progress on remediation.

For the Gold level:

1. High-risk components and raw materials are defined as:
    a. Materials and components from source countries where there is reason to believe that child labor or forced labor is involved, and
    b. Tin, tantalum, tungsten, and gold from conflict-affected and high-risk areas.
2. A C2CPII-recognized certification or an equivalent alternative to certification is required for all high-risk components and raw materials subject to review (as defined for Material Health), if a C2CPII-recognized certification exists and certified material is available.
3. At recertification, if a C2CPII-recognized certification does not exist, or certified material is not available, and the applicant has not been able to institute an alternative, the applicant must:
    a. Undertake a traceability exercise with the goal of tracking the material from the direct supplier through all stages of processing to initial production or extraction,

b. Establish how to mitigate the negative human rights impacts, and
c. Participate in a stakeholder initiative actively working to address the issues.

8.2 Responsible Sourcing Management Systems

Intended Outcome(s)

A responsible sourcing management system is in place, ensuring that necessary corrective actions are taken, actions are effective, and that performance on respecting human rights in the product's supply chain is ultimately improved.

Applicable Achievement Level(s)

Gold

Requirement(s)

Implement a responsible sourcing management system that supports respect for human rights within the product's supply chain.

For the Gold level, the responsible sourcing management system must include the following elements:

1. Designated staff with ethical sourcing responsibilities.
2. Designated oversight function and process.
3. Procedures to communicate to suppliers the company's human rights expectations on key human rights topics (see Section 8.1 #1; e.g., as expressed in a human rights policy for suppliers or supplier code of conduct) and any associated ethical sourcing business processes.
4. Supplier contractual requirements for human rights policy compliance and monitoring (e.g., supplier codes of conduct if defined as a contractual term). Contracts must require suppliers to extend social compliance expectations to their suppliers.
5. Evaluation of new suppliers prior to the awarding of contracts to determine if the supplier can meet requirements.
6. Policies and procedures for the prompt implementation of corrective and preventive actions.
7. Education for sourcing and/or procurement team(s) on responsible sourcing and/or human rights principles.
8. Business procedures for identifying and documenting the cause and resolution of human rights issues and/or impacts in the supply chain that arise as a result of audits/reviews or concerns raised by employees or other third parties.

For recertification at the Gold level, the policy, procedures, practices and/or programs must be reviewed to identify deficiencies and implement changes (if needed) that will lead to improved performance. Remedial activities (if needed) must be underway and seek to identify and address root causes.

8.3 Grievance Mechanisms

Intended Outcome(s)

A mechanism is in place by which employees and other stakeholders may safely report negative effects of business activities and operations and other social fairness concerns to manufacturing facilities in order to obtain redress for those impacts.

Applicable Achievement Level(s)

Gold

Requirement(s)

Provide a grievance mechanism that permits final manufacturing facility employees and other stakeholders to obtain redress for negative human rights impacts.

The applicant company or facility(ies) must have a grievance mechanism(s) for employees of the manufacturing facility and other stakeholders relevant to the facility that:

1. Is supported by a non-retaliation policy.
2. Is capable of addressing the risks to and potential adverse impacts on people.
3. Addresses concerns promptly, using an understandable and transparent process based on local best practices that is readily accessible by any affected stakeholder.
4. Provides feedback to those concerned, without their risking retribution.
5. Includes informing direct employees about the mechanism at the time of hire.
6. Does not impede or preclude access to judicial or administrative remedies that might be available under law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.
7. Includes written records and periodic reviews to identify and make necessary improvements.

For contract manufacturing and other supplier-owned facilities that are part of the final manufacturing stage, the grievance mechanism may be provided by the contract manufacturer or by the applicant.

8.4 Stakeholder Engagement

Intended Outcome(s)

The applicant company proactively identifies actual and potential negative human rights impacts and continuously improves performance.

Applicable Achievement Level(s)

Platinum

Requirement(s)

Incorporate stakeholder engagement and feedback into human rights risk management, using it to shape expectations for continuous improvement.

The applicant must have a robust process for accepting or soliciting, and responding to, stakeholder feedback. Input from stakeholders must be regularly obtained and used to refine human rights risk assessment. The oversight of supplier performance on corrective actions may be recalibrated by information received from stakeholders.

8.5 Collaborating to Solve Social Issues

Intended Outcome(s)

Industry-wide progress is made toward solving social issues that are widely recognized as being difficult and complex.

Applicable Achievement Level(s)

Platinum

Requirement(s)

Collaborate to develop and scale solutions to an intractable social issue within the value chain of the product.

Collaboration must be with a multi-stakeholder program or consortium working on a common goal to comprehensively address a social issue. The applicant must actively participate for the full certification period.

The initiative selected must:

1. Support implementation of the company's social strategy and policies.
2. Aim to drive progress within an industry or across multiple industries.
3. Ensure that ground rules for the partnership allow for adequate voice for all participants.
4. Include ongoing assessment of partnership impact.

8.6 Fostering a Culture of Social Fairness

Intended Outcome(s)

Socially fair business practices in its governance and management approach are applied by the applicant company. This is reflected by a diverse, inclusive, and engaged workforce and through training, remuneration, and payment of a living wage.

Applicable Achievement Level(s)

Platinum

Requirement(s)

Foster a diverse, inclusive, and engaged work environment in which social fairness operates as a core part of recruitment, training, remuneration, performance evaluation, and incentive structures.

The following are required:

1. Hiring and promotion processes must be evaluated and amended, if needed, to promote inclusivity and equal opportunity.
2. Access to training on key social issues (e.g., those included in human rights policies or identified via human rights risk assessment) must be provided to all executives and employees.
3. Awareness training on diversity and inclusion, gender equality, and anti-discrimination must be provided to all staff.
4. Social performance indicators must include ethnicity-, race-, sex- and age-disaggregated data on hiring, compensation, promotion, demotion, training and mentoring for employees of all levels. Exception: If applicable local laws do not permit collection of all or a portion of the required data, the pertinent portion of the requirement is waived.
5. Data must be evaluated for pay equity, including a comparison of the average wages by ethnicity, race, and gender for work of equal value, and the ratio of the compensation of the CEO or equivalent to the median and average wage of a full-time worker. The exception noted in #4 applies.
6. Pay equity data must be published externally and made publicly accessible. An explanation of differences that may be realized or quantified over time must be included. The exception noted in #4 applies.
7. Data on violence in the workplace, including gender-based violence, must be documented where it has occurred.
8. Performance assessments of any executives or employees with designated social responsibilities must include consideration of criteria or metrics derived from human rights policy and strategy.
    a. Social performance results must be considered in compensation packages/incentive plans for top company executives and management with social management or oversight functions (i.e., from C-level executives to business unit and functional heads).
9. Diversity and equal opportunity employment must be included in the organization's social strategy and implementation. The company must:
    a. Conduct an evaluation to understand why differences in representation by ethnicity, race, and gender exist in the boardroom, the workplace, and the first tier of the supply chain.
    b. Develop and implement a plan for remedying any differences that are or may be attributable to unequal opportunity.
10. Investigate, encourage, and promote equal opportunities for women and racial, ethnic, religious, or economically disadvantaged minorities into supervisory and management roles in the workplace, particularly if they are under-represented in such roles.

11. Employees must be paid a living wage. This is defined as being paid sufficiently for a standard workweek (i.e., not including overtime) to afford a decent standard of living for their families, inclusive of: food, water, housing, education, health care, transportation, clothing, and other essential needs including savings for unexpected events and some disposable income.
12. Program(s) must be implemented to regularly engage employees (including other workers on the premises or under the supervision of the company) on the company's social vision and goals, and to identify actions that will help the company to achieve them.

9 // Packaging for Certified Products

The requirements in this section apply to the packaging of a product seeking certification. At a minimum, the packaging for a product seeking certification is subject to the requirements listed in this section.

Alternatively, packaging may be:

1. Certified as a separate product – In this case, the product must meet all standard requirements, the same as other products. Note that standard Sections 2.3 and 5 include requirements specific to single-use plastic packaging when certified as a separate product.
2. Assessed separately from the product in the Material Health and Product Circularity categories only – In this case, the achievement levels for these two categories are assigned to the packaging separately, and are separately stated on the product's certificate and in the Cradle to Cradle Certified Products Registry. If this option is selected, the packaging is not certified in its own right and is not subject to the Clean Air & Climate Protection, Water & Soil Stewardship, or Social Fairness requirements.

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

Intended Outcome(s)

Product packaging meets material health and product circularity requirements at the entry level of certification, ensuring alignment with the Cradle to Cradle principles for these typically non-circular product types.

Applicable Achievement Level(s)

Bronze/Silver and Gold/Platinum

Requirement(s)

For product packaging, design the packaging for cycling, incorporate cycled content, and ensure access to cycling.

Material Health Requirements

For primary packaging, homogeneous materials present at a concentration of ≥ 0.1% (≥ 1000 ppm) are subject to review. In addition, any homogeneous material in the primary packaging that comes into routine and direct human contact during the normal use of the product (excluding inks, adhesives, and labels) is subject to review at any concentration. Homogeneous materials subject to review in packaging must comply with:

1. The applicable Bronze level regulatory restrictions in the Cradle to Cradle Certified® Restricted Substances reference document (Section 4.1), and
2. The Bronze level restrictions on per- and polyfluoroalkyl substances (PFAS) and halogenated polymers (Section 4.2).

Primary packaging materials include materials that physically contain, envelop, or hold the certified product, and typically come into direct contact with the product. Any materials or components that are attached to the materials that physically contain, envelop, or hold the certified product (such as inks, adhesives, labels, nozzles, pumps, and caps) are also considered to be part of the primary packaging. Examples of primary packaging materials include a mascara tube and brush applicator, a twist-up tube for lipsticks or glue sticks, and a paper towel or toilet paper core.

Circularity Requirements

Product packaging materials that are contained in one sales unit as it is offered to the end user or consumer at the point of purchase and not added exclusively for shipping, and any packaging materials that are intended to be used with the product or for the application or dispensing of the product must comply with: One of the following (1, 2, 3, or 4) for products certifying at the Bronze or Silver levels, or two of the following (1, 2, 3., or 4) for products certifying at the Gold or Platinum levels:

1. The sum of post-consumer cycled and renewable content must be ≥ 20% or equal to the percentage of cycled and renewable content required for the Silver level per Section 5.3 Increasing Demand.
2. At least 90% of the packaging materials (by weight) meet one of the following:
    a. Compliance with the Silver level requirements in Sections 5.2 Preparing for Active Cycling and 5.4 Material Compatibility for Technical and/or Biological Cycles, or
    b. Compliance with b. i, ii, and iii below:
        i. The packaging is compatible for municipal cycling systems,
        ii. Plastic materials are:
            1. A type that is commonly recycled or composted via curbside pickup (i.e., PET, HDPE, PP), and
            2. Accepted by municipal cycling programs in the region(s) where the product is sold.
        iii. Materials that are intended for composting are fully compostable per a C2CPII recognized compostability standard consistent with the intended cycling pathway(s).
3. The packaging is reusable/refillable, is part of a refill system (e.g., refill pouches), and/or the packaging has a product-specific take-back program.
4. The applicant has reduced the amount or weight of the packaging materials for the certified product without decreasing the compatibility for cycling (as defined in 'b.' above) or has met the Gold level requirements in Section 5.6 Circular Design Opportunities and Innovation.

Examples of product packaging materials that are contained in one sales unit as it is offered to the end user or consumer at the point of purchase include the box for a smartphone, a tube for cosmetic lotion and the sales unit box it is contained in, a paint can, a plastic clamshell and the cardboard backing for a set of kitchen knives that has not been added exclusively for shipping.

Requirements #1-4 above may be meet using a weighted average compliance score considering options #1-4 as applicable. A total compliance score of 100% is required for Bronze and Silver levels, and 200% for Gold and Platinum. The weighted average approach may be applied to packaging for individual products, or across all packaging withing a product group.

The following materials are not subject to the packaging requirements:

1. Materials used exclusively for shipping the product, such as a box, pallet, or shrink/plastic wrap.
2. Packaging materials for products that are sold exclusively as material inputs for other products (i.e., packaging for intermediate products that are intended to be used at subsequent manufacturing facilities, rather than being sold to the general public or to professional users such as construction workers/builders).

10 // Animal Welfare Requirements

Several animal material types may not be used in certified products (see eligibility restrictions in the Certification Manual). The requirements in this section apply to animal materials and substances derived from animal materials that are eligible for certification. The eligible materials and substances to which the requirements in this section apply are:

1. By-products of meat production and fishing (e.g., leather, sheepskin, down, fish skin—excluding fur), or
2. Material sourced from animals that do not have to be killed or live-plucked in order to harvest the material (e.g., sheep's wool).

For substances derived from by-products (e.g., substances derived from fat, skin, bone): The requirements in this section apply only if these substances are inextricably tied to the product's core functionality (e.g., products made entirely from gelatin, collagen, chondroitin, squid ink, or tallow, and products containing these substances, if tied to core functionality).

Note: These requirements do not apply to material from invertebrates for which clear evidence of sentience does not exist.

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

Intended Outcome(s)

The welfare of the animals is protected during all production phases when material from animals is used in a certified product.

Applicable Achievement Level(s)

Bronze, Silver, and Gold

Requirement(s)

Bronze level: For products containing animal material, commit to protecting animal welfare through company policy. For recertification, demonstrate progress toward implementing the policy, including a mechanism that aims to ensure adherence to the policy.

Silver level: Use a minimum of 50% materials and substances certified to a C2CPII-recognized animal welfare certification program, or equivalent alternative. Alternatively, publicly disclose an explanation of the limitation(s) preventing achievement of the required percentage.

Gold level: Use materials and substances certified to a C2CPII-recognized animal welfare certification program, or equivalent alternative.

For the Bronze level, the applicant must have a policy in place that forbids animal abuse at all facilities where the animals are raised and/or slaughtered (including any facilities in the supply chain), and during transport.

The policy must:

1. Address the Five Freedoms:
    a. Freedom from hunger and thirst
    b. Freedom from discomfort
    c. Freedom from pain, injury, and disease
    d. Freedom to express normal behavior
    e. Freedom from fear and distress
2. Prohibit specific practices of high concern for the animal-derived material type in question (e.g., mulesing of sheep).
3. Include provisions to immediately address cases where it becomes known that animal abuse is occurring (e.g., a provision to immediately cease doing business with affected suppliers until the issue is resolved).

The mechanism for implementing the policy must include:

1. Regular on-site surveillance of all relevant facilities by individuals knowledgeable of animal health and welfare issues to verify implementation of the policy.
2. A method of tracking material from farm to certified product in any case where the farm is not the final manufacturing stage.

For the Silver and Gold levels:

1. The animal welfare certification or alternative must address all required points of the policy (per the Bronze level requirements) and include regular site surveillance of all relevant facilities by third-party auditors knowledgeable of animal health and welfare issues. Regular site surveillance is defined as at least one on-site audit every two years including an allowance for conducting unannounced audits.
2. If using an equivalent alternative to certification, qualified third-party auditors without a conflict of interest (i.e., no other paid services provided to the applicant) must verify equivalency and policy implementation.

Alternative to Meeting Required Percentage of Certified Material: Feasibility Analysis

For the Silver level: A feasibility analysis may be applied as an alternative to meeting the required percentage of certified material in any case where an applicant is unable to meet the requirement. Note: This is not an option at Gold or Platinum levels.

The following are required:

1. An explanation of the limitation(s) preventing the incorporation of the target amount of certified material and how, based on these limitation(s), the amount of certified material currently used represents the maximum that is currently feasible.
2. The explanation must be reported publicly.
3. A strategy/plan for addressing the identified limitation(s) and increasing the amount of certified material over time must be developed. The strategy must include discrete objectives and an associated timeline.
4. For recertification:
    a. The applicant must demonstrate progress toward achieving the objectives.
    b. A description of progress made must be reported publicly.

11 // Private Label Product Requirements

A private label product is a product that is identical in every way to another product that is currently Cradle to Cradle Certified (i.e., the parent product), except for brand name and packaging.

Companies applying for a private label product certification must meet the following requirements:

1. Complete and sign a Private Label Verification Form stating that the product is identical to the certified parent product
2. For the Silver level and above: If necessary for the achievement level in the Product Circularity category met by the parent product, make a connection to the original equipment manufacturer's or parent product company's take-back program(s) or other cycling initiatives in order for the product to be cycled as intended.
3. For the Platinum level: Unless meeting all company-level requirements, disclose in the Cradle to Cradle Certified Products Registry that the private label certification holder has not been assessed to determine conformance with the company-level requirements. It will also be stated on the registry entry that the product manufacturer (i.e., the parent product certification holder) has met the company-level requirements.

All other program requirements will have been met by the parent product company rather than by the private label company.

For further information about private label certifications, see the Policy for Certification of Private Label Products within the Cradle to Cradle Certified® Certification Scheme.

Note: The Cradle to Cradle Certified Version 4.2 Certification Manual contains the detailed information needed to fulfill each of the Version 4.2 standard requirements and is to be used in conjunction with the Version 4.2 standard document. Please see Section 1.4 of this document and the Cradle to Cradle Certified Version 4.2 Certification Manual for more information.

12 // Definitions

Anaerobic digestion – The process by which microorganisms biologically decompose material into carbon dioxide, methane, water, inorganic compounds, and/or biomass in an anaerobic environment (absence of oxygen), within a limited time period.

Applicant company – The company(ies) responsible for being in conformance with the standard requirements (e.g, the company that signs the C2CPII certification agreement) and is listed on the Cradle to Cradle Certified certificate.

Baseline water stress – Measures the ratio of total water withdrawals to available renewable surface and groundwater supplies. Water withdrawals include domestic, industrial, irrigation, and livestock consumptive and non-consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate more competition among users. [Reference: WRI Aqueduct, 2019.]

Benign minerals – Inorganic salts that contain cations and anions that are considered compatible with or beneficial to biological life processes.

Biodegradable material – A material that can undergo near-complete biological decomposition into carbon dioxide, water, inorganic compounds, and biomass in a natural medium (soil, water, or anaerobic environments) within a limited time period, thereby efficiently returning nutrients from the material back to the earth.

Bioenergy credit multiplier – A unitless factor used to calculate the bioenergy credit. The bioenergy credit multiplier is equal to: [1- (adjusted Biogenic Assessment Factor for the eligible fuel)].

Biogenic assessment factor – A unitless factor that represents the net atmospheric biogenic CO_2 contribution associated with using a biogenic feedstock at a stationary source, taking into consideration biogenic landscape and process attributes associated with feedstock production, processing, and use at a stationary source, relative to the amount of biogenic feedstock consumed. This term represents a ratio of the net biogenic carbon cycle effects from all stages of the growth, harvest/collection, processing, and use of a biogenic feedstock relative to the carbon content of biogenic feedstock used at the point of assessment and resulting in stack emissions at a stationary source. [Reference: U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Atmospheric Programs, Climate Change Division. Framework for Assessing Biogenic CO_2 Emissions from Stationary Sources, November 2014.] BAFs modeled using future anticipated baselines developed for fuels most similar to those eligible for credit per the standard were selected. The BAFs were adjusted up by 10% as a conservative approach, or in the case of landfill gas and similar, set to zero rather than giving a credit greater than the carbon dioxide emissions produced.

Biological cycle – The cycle by which materials or parts are released to, and ideally reprocessed in, the environment via composting, biodegradation, or other biological metabolic pathways.

Biologically derived material – A material that is a biological material or that was originally derived from a biological material through one or multiple chemical transformations.

Biological material – A material that is extracted from a plant or animal source without significant chemical processing.

Chemical substance (or "substance") – Matter of constant composition best characterized by the entities (molecules, formula units, atoms) it is composed of. Physical properties such as density, refractive index, electric conductivity, melting point, etc., characterize the chemical substance.

Child labor – Work that deprives children of their childhood, their potential, and their dignity, and that is harmful to physical and mental development. A child is anyone under the age of 18. The minimum working age is 15 years, or statutory school-leaving age, whichever is higher. This age can vary by country. [Key References: United Nations Convention on the Rights of the Child, International Labor Organization (ILO) Convention 138 – Minimum Age, ILO Convention 182 – Worst Forms of Child Labor.]

Collective bargaining – All negotiations which take place between an employer, a group of employers or one or more employers' organizations, on the one hand, and one or more workers' organizations, on the other, for: (a) determining working conditions and terms of employment; and/or (b) regulating relations between employers and workers; and/or (c) regulating relations between employers or their organizations and a workers' organization or workers' organizations. [Key References: International Labor Organization (ILO) Convention 98 – Right to Organize and Collective Bargaining, ILO, ILO C154 - Collective Bargaining Convention.]

Component ("Part") – A single functional grouping of contents. A part is an optional categorization to identify a portion of a product that is used modularly. A part will still be comprised of one or more homogeneous materials.

Compostable material – Characteristic of a product, packaging, or associated component that allows it to biodegrade, generating a relatively homogeneous and stable humus-like substance within a limited time period.

Cycling – The processing of material, parts, or whole products toward a new use cycle via a technical or biological cycling pathway that includes at least one of the following: reuse, remanufacturing, refurbishing, recycling, nutrient extraction/anaerobic digestion, composting, or biodegradation.

Cycled content – Material or parts that have been reclaimed, recycled, salvaged, or otherwise captured from a pre-consumer or post-use phase of a previous cycle.

Cycling pathway – A specific method, system, or other means of processing a material at the end of its use phase. Examples include municipal recycling, home composting, aerobic biodegradation in wastewater (i.e., at municipal treatment plant), take-back and repair/remanufacture by the manufacturer.

Destructive disassembly operations – Disassembly processes that deal with the partial or complete destruction of obstructing components. In these cases, components or irreversible fasteners (e.g., welds) are destroyed using destructive tools such as a hammer, crowbar, or grinder.

Direct discharge – Effluent is discharged to surface or groundwater instead of to an externally owned and operated wastewater/effluent treatment facility.

Discrimination – Unequal treatment, directly or indirectly, on various grounds including race, ethnicity, sex, language, religion, political or other opinion, national or social origin, property, and birth or other

status (such as sexual orientation or health status, for example, having HIV/AIDS). [Key References: Universal Declaration of Human Rights – Article 2, 7, 23; International Labor Organization (IL) Convention 111 – Discrimination; International Convention on the Elimination of All Forms of Racial Discrimination; International Convention on the Elimination of All Forms of Discrimination against Women.]

Diversity – The inclusion of different types of people (such as people of different races or cultures) in a group or organization.

Due diligence – The process through which enterprises can identify, assess, prevent and/or mitigate and account for how they address actual and potential adverse impacts in their own operations, supply chains and business relationships, as recommended in the OECD Due Diligence Guidance for Responsible Business Conduct (https://mneguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf).

Effluent – Wastewater that is discharged from a facility either to a treatment plant or directly to the environment. Stormwater is not considered wastewater/effluent for the purposes of the standard requirements.

Excessive working hours – More than the maximum working hours of eight hours per day, or 48 hours per week. Overtime is the number of hours worked beyond the maximum allowed by week, and international standards limit this to 60 hours per week. Rest days are a continuous period of at least 24 hours each week. National laws can vary from international standards. [Key References: International Labor Organization (ILO) Convention 1 – Hours of Work (Industry); ILO Convention 30 – Hours of Work (Commerce, Offices); ILO Convention 116 – Reduction of Hours of Work; ILO Convention 14 – Weekly Rest. Additional references: ILO C001 - Hours of Work (Industry) Convention, 1919 (No. 1), Art. 6 and ILO R116 - Reduction of Hours of Work Recommendation, 1962 (No. 116), Article 19.]

Fast-moving consumer goods – Non-durable consumer products that are purchased frequently, consumed rapidly, and sold quickly at a relatively low cost. Examples include household goods such as cosmetics, personal care, cleaning products, and office supplies.

Final manufacturing stage – The processes that constitute the final manufacturing stage are defined by industry category in the Cradle to Cradle Certified® Final Manufacturing Stage Process Definitions.

Final manufacturing stage facility – A facility at which final manufacturing stage processes occur. Final manufacturing stage processes are defined in the Cradle to Cradle Certified® Final Manufacturing Stage Process Definitions.

Forced labor – Situations in which persons are coerced to work through the use of violence or intimidation, or by more subtle means such as accumulated debt, retention of identity papers, or threats of denunciation to immigration authorities. [Key References: International Labor Organization (ILO) Convention 29 – Forced Labor and ILO Convention 105 – Abolition of Forced Labor.]

Formulated consumer product – A product whose function is determined primarily by its chemical composition (rather than shape, surface, or physical design). Typically, it is a single homogeneous chemical mixture such as a liquid, gel, paste, cream, powder, tablet, or bar.

Freedom of association – The fundamental human right of peaceful assembly and association, including the right to form and to join (or not join) trade unions and other organizations for the protection of their interests. [Key References: United Nations Declaration on Human Rights, Articles 20 and 23; International Labor Organization (ILO) Convention 87 – Freedom of Association and the Protection of the Right to Organize; ILO Convention 98 – Right to Organize and Collective Bargaining.]

Generic material type – The general class a homogeneous material belongs to. The generic material type is the common term that would be used to describe a material in commerce. Examples of generic material types include: aluminum, polyethylene, steel, cotton, and medium-density fiberboard.

Grievance mechanism – A formal, judicial or non-judicial, complaints process that can be used by individuals, workers, communities and/or civil society organisations that are being negatively affected by certain business activities and operations. A wide variety of grievance mechanisms exist at the project, company, sector, national, regional and intergovernmental levels. Operational level grievance mechanisms meet the core criteria of legitimacy, accessibility, predictability, equitability, compatibility with the OECD Guidelines for Multi-national Enterprises, transparency, and being dialogue-based. Legal processes such as prosecution, litigation and arbitration are common examples of state-based mechanisms that enable remediation. Examples of non-judicial state-based mechanisms are specialist government bodies, consumer protection agencies, regulatory oversight bodies, environmental protection agencies and the National Contact Points to the OECD Guidelines for Multi-national Enterprises. For more information, see Questions 51, 52, 53 and 54 of the OECD Guidance for Responsible Business Conduct [pp. 89- 91] and Section I of the OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector [p. 95].

Harassment and abuse – Includes but is not limited to, violence, corporal punishment, harsh or degrading treatment, sexual or physical harassment, mental, physical, verbal, or sexual abuse. [Key References: Universal Declaration of Human Rights; International Covenant on Civil and Political Rights; Declaration on the Protection of all Persons from Being Subjected to Torture and Other Cruel, Inhumane or Degrading Treatment or Punishment; International Labor Organization (ILO) Convention 190 – Violence and Harassment.]

High-value cycling – The cycling of high-quality materials as defined by the Gold level requirements for "high-value cycling potential" in Section 5.4.

Homogeneous material (or "material") – A material of uniform composition throughout that cannot be mechanically disjointed, in principle, into different materials. Coatings and finishes such as plating, powder coats, enamels, etc., are considered unique homogeneous materials (see Cradle to Cradle Certified Methodology for Defining Homogeneous Materials for details).

Human rights – Rights inherent to all human beings, regardless of race, sex, nationality, ethnicity, language, religion, or any other status. Human rights include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education, and many more. Everyone is entitled to these rights, without discrimination.

Inclusion – The act or practice of including and accommodating people who have historically been excluded.

Industrial Symbiosis –The process by which wastes or by-products of an industry or industrial process become the raw materials for another.

Intended cycling pathway – See "Cycling pathway."

Intermediate product – A product sold exclusively as an input to be used in another product and not sold to the general public. Note: Products intended for professional use (e.g., construction worker use) are not considered intermediate products. A building is not a product. Products sold as inputs to be used in other products that are also sold to the general public are not considered intermediate products.

Key material – A material that is typically manufactured using a pollutant-intense or high-volume water use process (see the Cradle to Cradle Certified® Water & Soil Stewardship – Key Materials reference document).

Living wage – The remuneration received for a standard workweek by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, health care, transportation, clothing, and other essential needs including provision for unexpected events. [Key References: Global Living Wage Coalition, Anker Methodology.]

Long-use phase product – A product with a use phase time that is typically greater than four years.

Material – See "Homogeneous material."

Minimum wage – The compensation to be paid to an employee or worker, based on wage levels of individual countries. Nearly all countries have a national body that determines minimum wages nationally, or for sectors or occupations. In most jurisdictions, overtime must be paid at a premium. Wages and premiums vary by country. [Key References: International Labor Organization (ILO) Convention 26 - Minimum Wage; ILO Convention 131 - Minimum Wage Calculation; ILO Convention 100 – Equal Remuneration.]

Nutrient extraction – Applying biomass conversion processes and equipment to produce low-volume but high-value chemical products.

Performance improvement – In the context of energy conservation and efficiency projects, this term refers to the percentage change in energy consumption from a baseline period to a reporting period. Depending on the methodology employed, one or both of these values will be adjusted (i.e., normalized) to account for differences in production, weather, etc., between the baseline and reporting period. This adjustment allows for a comparison of two consumption amounts that correspond to consistent conditions. Note that performance improvements do not necessarily correspond with or lead to total energy use reductions, particularly if production has greatly increased.

Post-consumer cycled content – Material that has been reprocessed from waste from end-users. End-users can be individuals or entities such as households, or commercial, industrial and institutional facilities in their role as end-users. This includes returns of material from the distribution chain.

Pre-consumer cycled content – Material that has been reprocessed from waste material diverted from the manufacturing process. Excluded is reutilization of material such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated.

Primary packaging materials – The materials that physically contain, envelop, or hold the certified product, and typically come into direct contact with the product. Any materials or components that are attached to the materials that physically contain, envelop, or hold the certified product (such as inks, adhesives, labels, nozzles, pumps, and caps) are also considered to be part of the primary packaging.

Process chemical – Any substance that comes into direct contact with the product or any of its material constituents during any of the processes that constitute the final manufacturing stage of the product. It is used as an intentional part of any of these processes to fulfill a specific function or achieve a specific effect in the product or any of its material constituents. Within this definition, process chemicals are limited to pure chemical substances and chemical substances present in a mixture at a concentration of 1,000 ppm or above. Mixtures include liquids, sprays, gases, aerosols, solids, etc. The concentration threshold applies to process mixtures directly as received by the supplier and prior to any dilution that may take place at the manufacturing site. This definition does not include maintenance agents for machinery, effluent, or wastewater treatment chemicals, chemicals used in steam boilers, or cleaning agents used for the production area, offices, and/or lavatories. Distilled water, tap water, and ambient air in their unaltered state are excluded from the assessment.

Product – A physical item that can be routinely and individually purchased from the applicant by other entities. A product is composed of one or more components, homogeneous materials, and/or chemical substances. A product may function as a component or material in another product. For the purpose of the standard requirements, any item that is sold along with the product, other than the packaging, is considered part of the product. This includes spare parts if it is not possible to purchase the product without these.

Product as a Service – A material or product designed to provide a service to the user without conveying ownership of the materials.

Product use phase time – The typical time of use of a product starting at the point the product is received by the user or customer, and ending at the time the product is cycled (this includes refurbishment, remanufacturing, reuse, and recycling, but not repair).

Rapidly renewable – Material derived from a natural resource (agriculture or animal-derived) that has a maximum 10-year regeneration cycle. Note: This term is used in the Clean Air & Climate Protection category while the term “renewable” is used in the Product Circularity category.

Rare and endangered species – Any species listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices and/or in the International Union for Conservation of Nature (IUCN) Red List as Near Threatened, Vulnerable, Endangered, or Critically Endangered.

Recycled content – proportion of pre-consumer or post-consumer materials, by mass, of recycled material in a product or packaging.

Recycling – The process by which a material, after serving its intended function, is processed into a new material via mechanical or chemical transformation and then added to a new material formulation in a different context.

Refillable – A characteristic of a product or packaging that can be filled with the same or similar product more than once, in its original form and without additional processing except for specified requirements such as cleaning or washing. Programs must exist to facilitate refilling and reuse to support a refillable claim.

Refurbishing – The process of returning a product to good working condition by replacing or repairing major components that are faulty or close to failure, and making cosmetic changes to update the appearance of a product, such as cleaning, changing fabric, painting, or refinishing.

Remanufacturing – The process of disassembly and recovery at the subassembly or component level. Functioning, reusable parts are taken out of a used product and rebuilt into a new one. This process includes quality assurance and potential enhancements or changes to the components.

Renewable content – Material derived from a living, natural resource (agriculture, aquaculture, or animal derived) that can be continually replenished. Material must be legally harvested, as defined by exporting and receiving country. If the material is wood, or another material associated with extensive evidence of ecosystem destruction due to land conversion and/or poor management practices, to count as renewable the material must be certified by a C2CPII-recognized program as responsibly sourced. If the material is a biologically derived plastic or liquid formulation, material only counts as renewable if its bio-based content has been quantified using radiocarbon dating or through chain of custody documentation showing derivation from natural resources.

Responsibly sourced renewable content – Material that is certified by a C2CPII-recognized standard that verifies sustainable, environmentally friendly forest or vegetation management. These recognized standards have criteria that address: 1) Compliance with all applicable laws and regulations of the country in which farming or harvesting operations occur; 2) Operations that respect land rights and land use rights, and are unlikely to cause displacement of food production; 3) Planning, monitoring, management, and continuous impact assessment for the farming and/or harvesting of material; 4) Maintenance, conservation, or enhancement of biodiversity in the forest/vegetation or other ecosystem; 5) Maintenance or enhancement of the productive function of the forest/vegetation or other ecosystem area and efficient use of harvested materials (e.g., rate of harvest does not exceed rate of regrowth in the long term); 6) Maintenance or enhancement of the health and vitality of the forest/vegetation or other ecosystem and its protective systems (soil and water).

Reusable – Characteristic of a product or packaging that has been designed to be used in more than one use cycle for the same purpose for which it was originally conceived.

Risk-based due diligence – Due diligence is based on risks when the nature and extent of due diligence is commensurate to the severity and likelihood of adverse impacts. Companies can prioritize risks by using the parameters of scale, scope and irremediable character. See the OECD Due Diligence Guidance for Responsible Business Conduct for additional information.

Separable – The ability of removing one homogeneous material from another one it is physically attached to.

Science-based targets – Greenhouse gas emissions reduction targets as defined per the Science Based Targets initiative (SBTi). Per SBTi, targets are considered science-based if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement—limiting global warming to 1.5°C above pre-industrial levels. [Reference: sciencebasedtargets.org, accessed 16-November, 2023].

Scope 1 emissions – Emissions from operations that are owned or controlled by the reporting (i.e., applicant) company.

Scope 2 emissions – Indirect emissions from the generation of purchased or acquired electricity, steam, heat, or cooling consumed by the reporting (i.e., applicant) company.

Short-use phase product – A product with a use phase time that is typically less than four years.

Single-use plastic product – Any disposable plastic product, made wholly or partially from plastic, that is designed and conceived to be used only once (i.e., is not reusable or refillable) Note: This definition includes biodegradable plastics. Note: Plastic is defined per Directives (EU) 2019/904 and (EC) No 1907/2006, Article 3 #1 and Article 3 #5 respectively.

Sludge – Solid waste produced by an effluent treatment plant.

Stakeholder(s) – Individuals or groups who are or could be directly or indirectly affected by the actions of an enterprise and its business relationships. An affected stakeholder in the context of the Social Fairness requirements is an individual or group whose human rights have been affected by an enterprise's operations, products, or services.

Stakeholder engagement (meaningful) – Meaningful stakeholder engagement is characterized by two-way communication and depends on the good faith of the participants on both sides. It is also responsive and on-going and includes in many cases engaging with relevant stakeholders before decisions have been made. For more information see the OECD Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector.

Subcontracting – Business arrangement by which one firm (the contractor or "principal"), contracts with another firm (the "subcontractor"), for a given production cycle, one or more aspects of production design, processing, manufacture, construction or maintenance work. See EU SMEs and subcontracting, EU Commission, 2009.

Substance – See "Chemical substance."

Supply chain – A set of organizations linked by flow(s) of products, services, finances, or information from a source to a customer.

Technical cycle – The cycle by which a product's materials or parts are reprocessed for a new product use cycle via recycling, repair, refurbishment, remanufacturing, or reuse.

Tier 1 supplier – For the purposes of Cradle to Cradle certification, this term refers to direct suppliers to the final manufacturing stage of the product. For cases where the applicant company uses contract

manufacturing, tier 1 suppliers are the suppliers of the contract manufacturer. Distributors are considered suppliers.

Value chain – Interlinked value-adding activities that convert inputs into outputs which, in turn, add to the bottom line and help create competitive advantage. A value chain typically consists of inbound distribution or logistics, manufacturing operations, outbound distribution or logistics, marketing and selling, and after-sales service. These activities are supported by purchasing or procurement, research and development, human resource development, and corporate infrastructure [Reference: Businessdictionary.com (Accessed June, 2021) and www.ifm. eng.cam.ac.uk/research/dstools/value-chain-/.]

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Section	Change Summary	Date