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<td>2.2 Standard Categories and their Scope</td>
<td>● Added disclaimer that certification is voluntary and does not replace any legal or regulatory requirements</td>
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<td>3.3 Determining Absence of Banned List Chemicals</td>
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<td>● Clarified that the percentage assessed is calculated on the basis of homogeneous materials as present in the finished product</td>
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<td>● Qualified the additional requirement that exists for BN materials</td>
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<td>● Specified that water weight is to be excluded in calculating the percent weight of materials counting as assessed</td>
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<td>3.9 VOC Emission Testing</td>
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<td>● Clarified that 4-Phenylcyclohexene must be included in emissions testing for carpets</td>
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<td>4.1 Material Reutilization Score</td>
<td>● Clarified use of the terms ‘biodegradable’ and ‘compostable’ and how they relate to the Material Reutilization Score (MR score)</td>
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<td>● Clarified how to calculate the MR score for single material products</td>
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<td>● Formalized special considerations needed in computing the MR score for products containing water and paints</td>
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<td>6.5 Process Chemicals in</td>
<td>● Refined definition of process chemicals</td>
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<td>● Clarified that GREY process chemicals are permissible at the Silver level</td>
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<td>if the GREY single chemical risk score is due to missing toxicological data rather than missing formulation information.</td>
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<td>6.6 Supply Chain Water Issues</td>
<td>• Clarified that a positive impact strategy is required regardless of whether any issues are identified during the supply chain water issues characterization.</td>
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<td>7.2 Management Procedures</td>
<td>• Clarified when applicants are exempt from providing management procedures for high or very high risks found in the streamlined self-audit</td>
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| 7.4 Material or Issue Specific Audit | • Specified that water weight is to be excluded in calculating the percent weight of materials contributing to fulfilling this requirement  
• Added ISCC PLUS to the list of approved programs. |
1 OVERVIEW OF THE GUIDANCE DOCUMENT

1.1 PURPOSE AND CONTENT

The purpose of this document is to serve as supplemental guidance to the Cradle to Cradle Certified Product Standard, Version 3.0 (the ‘Standard’) released in November 2012. This supplemental guidance provides clarification and further interpretation of the original intent of a number of the requirements in Version 3.0 the Standard document. It also includes information regarding process and the Standard requirements that are currently used in product assessments but were inadvertently omitted from the original Standard document. Information in this document supersedes any conflicting information that may be present in the original Standard document.

1.2 SUPPORTING DOCUMENTS

The following documents are to be used in conjunction with this supplemental guidance document:

- Cradle to Cradle Certified™ Product Standard, Version 3.0
- Cradle to Cradle Certified™ Material Health Assessment Methodology, Version 3.0.
- Supplemental Guidance for the Cradle to Cradle CertifiedTM Material Health Assessment Methodology, Version 3.0
- Any additional supporting documents and guidance posted on the C2CPII website

Visit the Cradle to Cradle Products Innovation Institute website to download the standard documents and obtain the most current information regarding the product standard (http://www.c2ccertified.org/product_certification/c2ccertified_product_standard).

1.3 DOCUMENT ORGANIZATION

Beginning with Section 2 of this document, supplemental guidance is organized following the sections of the original Standard document. Where necessary, general guidance pertaining to each category of the Standard has also been added at the beginning of each major section if it does not relate directly to a specific subsection.
2 OVERVIEW OF THE STANDARD

Certification Cycle and Recertification Requirement

Each product certification is valid for two years under Version 3.0 of the Standard. Certificate holders must renew each certification prior to its expiration date to maintain their Cradle to Cradle Certified product status. As part of the recertification process, certification holders must work with an accredited assessor to submit an updated assessment summary report, which reports their good faith efforts towards continually improving their product across all five program attributes.

2.1 PRODUCT SCOPE

Product Packaging

Packaging material may be certified as a separate product or may be considered part of a product and thus included in the product certification. However, though it is encouraged, the packaging material is not required to be included in the product assessment. If the packaging material was included in the assessment, the achievement level assigned to the packaging is provided on the product’s certificate and in the entry in the Product Registry (http://c2ccertified.org/products/registry). If the certificate and the entry in the Product Registry do not address packaging, then the packaging is not included in the certification. Note that when packaging materials are included in the assessment, only the requirements in the Material Health and Material Reutilization are addressed.

Though not required to be included in the product assessment, materials in the product’s primary packaging are subject to the same banned list requirements as the materials in the product and thus may not contain chemicals on the banned lists (see definition of ‘primary packaging’ below). Signed declarations stating that banned list chemicals have not been intentionally added at concentrations >0.1% (>1000 ppm) must be obtained for each homogeneous material used in the primary packaging, including inks, adhesives, and any materials used to label the package. Banned list declarations may be obtained from the supplier, the product manufacturer, or the assessor (see Section 3.3 of this document for more information). For primary packaging made from recycled materials, analytical testing for banned list chemicals may be required if all of the material ingredients cannot be defined with current information.

Primary packaging is defined as the material that first envelops the product, holds it, and is in direct contact with the product contents. In Version 3.0 of the Cradle to Cradle Certified Product Standard, only the primary packaging for products that cannot be purchased without it are subject to the banned list declaration requirement. Examples of these products include personal and home care products (e.g., shampoo, liquid hand soap, cleaning solutions, paint).

Companies Involved in Weapons Manufacture

Section 2.1 describes the scope of certification and defines products that do and do not qualify for Cradle to Cradle product certification. In the list of criteria that may disqualify a product from certification, the bullet “Applicant involved in [...] weapon production or connection” could be
interpreted to exclude all products from companies involved in weapons manufacture. Instead, the intent is for only weapons themselves to be excluded from certification.

**Exclusion of fuel-type products**

Fuels and other products intended for combustion during use are excluded from the scope of certification. The reason for this exclusion is that the standard was not developed with this type of products in mind and is thus not set up to suitably address relevant combustion specific issues such as emission of harmful combustion products and greenhouse gases during use.

### 2.2 STANDARD CATEGORIES AND THEIR SCOPE

This Standard is voluntary. It is not intended to replace any legal or regulatory requirements that may be applicable to user operations. No requirements in any of the categories should be interpreted as such.

### 2.3 CERTIFICATION LEVELS

**Basic Level is a Provisional Certification**

At the Basic level, a product is just starting out on the path to certification. A company must conduct a basic inventory of materials used to make the product, energy use, water stewardship, and social fairness issues affecting their industry and production region. The Basic level of certification has been 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, the Version 3.0 Basic level certification is a ‘provisional’ certification. A product may be certified only once at this level, and must re-certify at a higher level once the two year certification has expired or be de-listed from the program. In addition, products certified at the Basic level under Version 3.0 may not use the certification mark on their product, but may refer to it in web and print marketing materials.

**Publication of Product Scorecard**

Publication of the product scorecard on the Certified Products Registry or in a company’s marketing materials is encouraged, but not required. Manufacturers can opt-in to have their scorecard published on the Certified Product Registry along with their overall level of certification.

### 2.4 SUMMARY OF STANDARD REQUIREMENTS

No further clarifications.

### 2.5 CONTINUOUS IMPROVEMENT AND OPTIMIZATION

No further clarifications.
2.6 CERTIFICATION MARKS

No further clarifications.

3 MATERIAL HEALTH

3.1 GENERIC MATERIAL TYPE AND INPUTS SUBJECT TO REVIEW

Bill of Materials Template
An applicant must work with their accredited assessment body to obtain the appropriate template for the Bill of Materials.

3.2 IDENTIFYING APPROPRIATE METABOLISM(S)

No further clarifications.

3.3 DETERMINING ABSENCE OF BANNED LIST CHEMICALS

Application of Banned List Thresholds
The introduction to the Banned Lists in the Appendix should state that the concentration of the banned chemical within each homogeneous material, and not the concentration of each banned chemical within the overall product, is the basis for this review. This is consistent with Section 3.3 of the Standard.

Banned List Declarations
For each homogeneous material subject to review in the product, signed declarations stating that Banned List chemicals have not been intentionally added at concentrations >0.1% (>1000 ppm) must be obtained. The Standard states that a signed declaration is required from each material supplier; however, product manufacturers or the assessor may also sign these declarations if they have detailed knowledge of the material’s ingredients.

Banned list declarations are also required for each homogeneous material used in the product’s primary packaging, including inks, adhesives, and any materials used to label the package (see Section 2.1 of this document for more information).

Definition of ‘Intentionally Added’ Substance
An ‘intentionally added’ substance is a substance that has been added to the material for a specific purpose. A substance is considered to be intentionally added to a material if a manufacturer chooses
to use a material coming from a source that is likely to contain the substance. ‘Intentionally added’ also means ‘known to contain’.

Exceptions to 1000ppm Thresholds

The introductory text to the Appendix incorrectly states that the threshold of 1000 ppm in each material applies to all chemicals on the list. As noted there are exceptions to this concentration threshold, which include PTFE and metals in biological nutrients. Exceptions for metals are listed in the ‘Comments’ column (also see the section ‘Banned List Soil Concentration Thresholds for Metals’ in Section 3.3 of this document for further details). Qualifications for PTFE use are described in the sections below (‘PTFE Ban if Present as a Primary Component’ and ‘PTFE Ban Where Exposure Likely to Occur’).

Chemicals Present Below the Threshold

If a banned list chemical is present in a material at a concentration ≥0.01% (or 100ppm, the threshold for chemicals subject to review), but less than the threshold concentration banning it from use in the material, it must also be reported on the bill of materials and may result in an X-assessment for the material. Additionally, if a banned list chemical is a chemical type that must be reported if present at any concentration in the material (see Section 3.4), it must also be reported on the bill of materials.

PTFE Ban if Present as a ‘Primary Component’

The Standard states that PTFE is banned in technical nutrients if it is the ‘primary component’ of the product or material and banned in biological nutrients above the 1000 ppm threshold (also stated in the Appendix). The intent of this requirement is to prevent products that are composed primarily of fluorinated polymers from obtaining certification, such as products that are themselves homogeneous materials (e.g., soil/stain treatments). Products containing PTFE in materials that are technological nutrients are not banned unless direct exposure to humans or the environment is likely to occur during use of the product (see next sub-section below). Thus the Standard should instead state that PTFE is banned in technical nutrients if it is the primary component of the product (i.e., ‘or material’ is deleted), and exposure is likely to occur. PTFE is considered a ‘primary component’ when it represents more than 50% of the product by weight.

PTFE Ban Where Exposure Likely to Occur

The Standard states that PTFE is banned for use in materials where exposure to humans or the environment is highly likely to occur and provides examples of these types of the materials. The intent of this requirement is to ban the use of PTFE in materials where direct exposure to humans or the environment is likely to occur during use of the product. Examples of these materials include paints, coatings, and finishes that are used on the surface of products such as toys or other children’s products, cookware, and jewelry.

Use of Fasteners

The Standard states that RoHS directive testing reports may be submitted to ensure conformance with the Banned List for metals (mercury, chromium VI) and some flame retardants (RoHS does not cover TBBPA or TDCP), and that RoHS compliance statements fully cover the Basic level requirements
for these contaminants. RoHS compliance requires that chemicals on the RoHS list are <1000ppm in the homogeneous material.

Fasteners are covered under the RoHS directive and thus RoHS directive testing reports may be submitted to ensure conformance with the Banned List. Note, however, that finishes on fasteners are considered a separate material and are subject to review when present at any concentration when the part the finish is relevant to is itself present at ≥ 0.01% in the product (see above sub-section regarding materials that must be reported when present at any concentration).

**Banned List Soil Concentration Thresholds for Metals**

The Standard states that the threshold for metals in biological nutrients is ‘restricted to maximum background concentration in soils.’ Given (1) the background concentration of a metal in soil is unrelated to its safety, and (2) background concentrations in soils vary widely throughout the world, applicants should instead refer to the thresholds shown in the table below. These values are used regardless of where the product or homogeneous materials constituting the product are manufactured or sold. Note that the value for chromium (Cr) applies to total concentration, not only to those of Cr (VI).

<table>
<thead>
<tr>
<th>Metal</th>
<th>Maximum concentration in homogeneous BN materials (ppm)</th>
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<tbody>
<tr>
<td>Cadmium (Cd)</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>90</td>
</tr>
<tr>
<td>Chromium (Cr)</td>
<td>100</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>1</td>
</tr>
<tr>
<td>Arsenic (As)</td>
<td>10</td>
</tr>
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</table>

With the exception of the lead (Pb) threshold, these are the lowest soil screening values (SVs) among those of eleven European countries whose SVs are compared in *Armiento et al. (2011)*. The Pb threshold is based on the legal threshold for paint in the United States (90 ppm), which is lower than the lowest SV for the metal.

**Recycled Content Testing Intervals**

Testing of recycled content to ensure absence of banned substances is required when complete data cannot be obtained. At a minimum, testing is required at the time of the initial certification and again at each subsequent re-application.

An exception to this requirement is for materials containing recycled content for which a C or better material assessment is desirable (so that they may contribute to the percentage assessed to Gold certified products). In these cases, testing is required on a semi-annual basis (every six months). The Standard states that these semi-annual test results are to be provided at the time of re-application;
however, the intent is the test results are provided to the assessor immediately after testing is completed. If any test shows problematic chemicals present above the required thresholds, the material will no longer be assessed as C or better. This will affect the overall certification level immediately (i.e., demotion from Gold). For this reason it is recommended that only consistent and relatively clean material streams be used, especially in the case of Gold certified products. Note that testing is usually not required for steel, aluminum, and other metals.

3.4 COLLECTION OF MATERIAL INGREDIENT DATA

Chemicals Subject to Review

Chemicals subject to review are those present at concentrations ≥ 0.01% (≥ 100 ppm) in a homogeneous material subject to review, and those subject to review at any concentration (see below). The identification of the chemicals subject to review in each material is based on signed declarations and expert judgment of the assessor to identify those chemicals that may have been omitted from the bill of materials (see Section 3.3). Chemicals subject to review are limited to intentionally added inputs (see Section 3.3). Analytical testing is not required for chemical identification.

Chemicals That Must Be Reported When Present at Any Concentration

The following chemicals are subject to review when present at any concentration in a material:

- Lead, mercury, hexavalent chromium, cadmium, pigments, dyes and other colorants, phthalates, halogenated organics, and scarce elements (i.e., rare earth elements, indium, gold, etc.).
- Process chemicals: metal plating agents (e.g., hexavalent chromium, cadmium), textile auxiliaries, blowing agents, and paper bleaching agents.

Note these chemicals are assessed for material health in the same way as other chemicals in the material that are subject to review.

Materials That Must Be Reported When Present at Any Concentration

The Standard states that all homogeneous materials present at ≥ 0.01% (≥ 100 ppm) are subject to review, with the following exceptions: finishes (coatings, plating, paints), blowing agents, textile auxiliaries, paper bleaching agents, and plating chemistry are subject to review at any concentration level when the part these are relevant to is itself present at ≥ 0.01% in the product. Note that blowing agents are typically individually chemicals used in a material, and as such would be a chemical subject to review when present at any concentration in a material (see sub-section above), rather than a material subject to review at any concentration in the product. Also note that finishes, textile auxiliaries, paper bleaching agents, and plating chemicals are typically formulations composed of more than one chemical and may therefore be considered materials subject to review in addition to chemicals subject to review.

Process Chemicals
A process chemical is defined as any substance that comes into direct contact with the product or any of its material constituents during any of 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.

The Standard states that certain process chemicals are subject to review when present at any concentration in the product’s materials (i.e., metal plating agents, textile auxiliaries, blowing agents, and paper bleaching agents). The requirement should state that these process chemicals, if used in the manufacturing of any of the materials in the product, are subject to review even if they are not expected or known to be present in the finished product. The intent of this requirement is to include the process chemicals that may have the most profound impact on the environment in the assessment because they are likely to be present at some residual concentration in the finished product.

Regarding the assessment of process chemicals, the requirement is that only the single chemical risk score (as a, b, c, or x) be reported for each chemical identified. The single chemical risk score considers the chemical’s hazards and exposure via any relevant exposure scenarios determined by the assessor. Note that the assessment must be conducted using the final reacted form of the parent chemical resulting in exposure. For example, if the exposure is via effluent, the assessment must be conducted on the primary hydrolyzed or reacted form of the parent chemical that would appear in the effluent. A separate document, Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0, describes how the single chemical risk score is determined.

Note that the Platinum level requirement in Material Health is that all process chemicals are assessed and none are assessed with an ‘x’ rating. In other words, at the Platinum level, all process chemicals used to manufacture the product’s materials are subject to review. For the Bronze, Silver, and Gold levels, the only process chemicals subject to review are metal plating agents, textile auxiliaries, blowing agents, and paper bleaching agents.

**Common Follow Up Questions**

The applicant is required to provide the information to answer the ‘common follow up questions relevant to conducting assessments once data have been provided’ listed in the Standard, with one exception. Identification of the PAH concentrations in soft and hard black polymers containing carbon black is not necessary unless the assessor determines that exposure is likely due to its use in the material.
For polymers, the residual monomer concentrations must be reported in cases where the monomers are ‘x’ assessed or on the Banned Lists (e.g., PFOA and PFOS concentrations must be reported for materials containing PTFE). Analytical testing to determine the monomer concentration in the material is required if the monomer concentration cannot be obtained from existing information.

**Rare Elements**

‘Rare earth elements’ are referenced among the ingredients that must be reported regardless of their concentration in a material. This does not specifically refer to ‘rare earth elements’ as defined by the International Union of Pure and Applied Chemistry (IUPAC), but is meant to include all elements which are in short supply geologically (i.e., scarce) and of high economic value (e.g., gold and indium). These should be referred to as ‘scarce elements’ in the Standard.

### 3.4.1 EXTERNALLY MANAGED COMPONENTS (EMCS)

As one of the conditions for defining a sub-assembly as an EMC, the Standard states that the supplier of the EMC has signed a declaration that chemicals in the EMC will not negatively impact humans or the natural environment during the intended and unintended but highly likely use of the product for which the EMC is a component. It also states that this guarantee may be provided via a Cradle to Cradle certification (Gold level or higher) of the EMC or other appropriate evidence. Note also that the EMC must undergo emissions testing and there must be a guarantee for take back and appropriate nutrient management process in place.

The intent of this ‘no negative impact’ requirement is for the supplier to indicate, to the best of their knowledge, that the sub-assembly is a sealed component that is manufactured in a way that prohibits the migration of chemicals and materials from the component. If, during use of the product for which the EMC is a component, a user is exposed to any part or chemical within the component, or if any part or chemical within the component is released to the environment, the component is not considered an EMC and will be assessed and inventoried like the other materials in the product.

It is recognized that it is not possible to know with absolute certainty that chemicals and materials in the EMC will not negatively impact humans or the natural environment during all the possible use and re-use scenarios. The overall intent is to allow for the use of product components that do not need to be assessed the same way as the rest of a product because they are managed as a whole by the supplier or a third party. The EMC concept was invented by the founders of the Cradle to Cradle® framework to encourage manufacturers to design complex components that are completely managed after their use phase. Examples of potential EMCS are a pneumatic cylinder in an office chair, the motherboard in a computer, the electric motor inside an automated window shade product, and a solar panel.

### 3.4.2 RECYCLED CONTENT

**Criteria for X-assessed Materials Made From Recycled Content**

See Section 3.5.2 in this document for clarifications to these criteria.

**Threshold Concentrations of Metals and Halogens**
The information listed in items 5a and 5b have been removed to clarify that risk assessments for lead, mercury, cadmium, chromium, and halogens in recycled material are conducted using the same methodology that is used for other materials in the product and are subject to the same banned list concentration thresholds.

**Testing for Lead in Cast Aluminum**

The Standard requires the collection of chemical ingredient data from the applicant or applicant’s supplier if the product contains recycled content. For recycled metals, the standard composition of alloys can often be obtained from publicly available databases or mill certificates listing the composition of the alloy. However, the concentration of lead in cast aluminum (A380 and related materials) is not always included in databases or mill certificates and the lead levels can be high in these materials. Analytical testing for lead is required in cases where available alloy composition data for the recycled cast aluminum does not report the lead concentration.

### 3.5 CHEMICAL HAZARD PROFILING & MATERIAL ASSESSMENTS

**Material Health Assessment Methodology**

A separate document, Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0, has been developed to provide clarification and addition information on the chemical hazard profiling and material assessment protocol initially outlined in the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0 released in November 2012. All Standard documents and supplemental guidance are available for download on the Cradle to Cradle Products Innovation Institute website (http://www.c2ccertified.org/).

#### 3.5.1 EXTERNALLY MANAGED COMPONENTS (EMCS)

No further clarifications.

#### 3.5.2 RECYCLED CONTENT

**Threshold Concentrations for Banned List Chemicals**

The information listed in items 1 and 2 corresponding to metals and organohalogens, respectively, have been removed to clarify that risk assessments for these chemicals in recycled material are conducted using the same methodology that is used for other materials in the product and are subject to the same banned list concentration thresholds.

**Criteria for X-assessed Materials Made From Recycled Content**

The criteria for an X assessment of a material made from recycled content should read:

- Post-consumer or post-industrial recycled content shown to contain problematic chemistry
- Heavy Metals
- Lead: >100 ppm (if exposure plausible)
- Mercury, Cadmium, or Chromium VI 100-1000 ppm each (Note that arsenic must also be tested if the assessor suspects concentrations of 100-1000 ppm in the recycled material)
- Organohalogens
  - Organohalogens >100 ppm each

Post-industrial recycled content was added to clarify that it is considered in addition to post-consumer recycled content. However, for post-industrial recycled content, the formulation information can typically be obtained directly from the manufacturer.

The criterion for lead was changed from ‘100-1000 ppm’ to ‘>100 ppm’ to clarify that when lead is present in a material at a concentration >1000 ppm it still receives an X assessment rating. In the original Standard document, lead was mistakenly grouped with mercury, cadmium and chromium VI, which are metals on the technical nutrient banned list. If mercury, cadmium or chromium VI is present in a material at a concentration ≥ 1000 ppm, that material receives a ‘Banned’ rating and cannot be used in a Cradle to Cradle Certified product.

The phrase ‘if exposure plausible’ was added to clarify that lead present at concentrations >100 ppm in the material will receive an X rating if a plausible route of exposure is identified during the assessment. The risk assessments for lead and other chemicals in recycled materials are conducted using the same methodology that is used for other materials in the product (see Material Health Assessment Methodology guidance).

**Recycled Content Types Most Likely To Be Highly Defined**

Among the different types of recycled content, those that are most often rated A, B, C using the Standard’s material assessment methodology are post-industrial single source, post-industrial multiple source, and post-consumer defined stream (e.g., contain a single type of plastic); however, the rating depends on the specific source scenario.

Mixed content with variable inputs from an undefined stream most often receives an X or GREY assessment rating.

### 3.6 DETERMINING PERCENTAGE ASSESSED

**Definition of ‘Assessed Material’**

Regarding the criteria for a homogeneous material subject to review to be counted as “assessed”, the Standard states that all of the following must be true:

a. The material does not contain any chemicals on the Banned List.

*Clarification: The material does not contain any chemicals on the Banned List above the allowable thresholds (See Section 3.3 of this document and the Appendix in the Standard document).*
b. Chemicals present in concentrations ≥ 0.01% (100 ppm) have been gathered for materials assessed as A, B, or C. Chemical ingredient data may be incomplete in cases where it becomes clear during the assessment process that a material will be assessed as X.

Clarification: For materials assessed as A, B, or C, all chemicals subject to review have been identified and none of those chemicals were assigned an ‘x’ or ‘grey’ single chemical risk rating. This refers to chemical substances as present in the homogeneous materials of the finished product. For example, if the manufacturer mixes a base resin with a color masterbatch during production, the resin and masterbatch together are a single homogeneous material for the purpose of the assessment and this is where the 100 ppm threshold is applied. If any substance subject to review in this homogeneous material receives a single chemical risk rating of ‘x’, the entire homogeneous material will be x-assessed, regardless of whether the substance was an ingredient of the base resin or the masterbatch. See Section 3.4 in this document and the Standard document for more information on chemicals subject to review in each material.

c. The concentrations of the following chemical ingredients in the material have been collected, regardless of their concentration in the material:
   i. Lead, mercury, hexavalent chromium, cadmium, pigments, dyes and other colorants, phthalates, halogenated organics, and scarce elements (i.e., rare earth elements, indium, gold, etc).
   ii. Process chemicals: metal plating agents (i.e., hexavalent chromium), textile auxiliaries, blowing agents, and paper bleaching agents.

d. Analytical testing has been completed and thresholds have been met where relevant for EMCs and materials containing recycled content.

e. The material has received an A, B, C, or X assessment, or it is defined as an EMC.

Note that the ‘percentage assessed’ required for each certification level corresponds to the percentage of materials, not the chemicals, assessed by weight in the product. This is because:

- Only chemicals ≥100ppm in the material (plus exceptions noted above), and not all chemicals in the material, are subject to review. It is possible that a small percentage of the material contains chemicals that have not been identified and assessed.
- X-assessed materials may have one or more ingredients that have not been identified. The identification process may have been discontinued once a problematic ingredient was identified in the material.

Note also that in cases where the finished product is a single homogeneous material or a single-material product (see section 4.1), the percentages for each assessed chemical substance by weight are used in determining the percentage of the product assessed.

‘GREY’ Materials

A material may be identified as ‘GREY’ if the supplier refuses to provide the complete formulation, or expert judgment by the assessor concludes a substance has been omitted from the material formulation. A material may also be identified as ‘GREY’ if certain hazard data are not available for one
or more chemicals in the material (for more information on the chemical risk assessment process see the Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0).

Note that in some instances the Standard refers to ‘GREY assessed’ chemicals or materials. However, the intent is that because there is not enough information to render an assessment, chemicals or materials assigned a ‘GREY’ rating do not count toward the ‘percentage assessed’ (For further details see the criteria above in the sub-section ‘Definition of ‘Assessed Material’ and the Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0). Once the missing information is obtained, a ‘GREY’ material may become an A, B, C, or X assessed material and count toward the ‘percentage assessed’.

**Percentage Assessed Threshold for Biological Nutrients**

The Standard requires that a certain percentage of the product by weight is assessed to achieve each level of certification (e.g., for Bronze level, products must be at least 75% assessed by weight). An additional requirement exists for BN materials that are released directly to the biosphere during use. The original standard stated that products that are ‘entirely BN in nature (e.g., cosmetics, personal care, soaps, detergents, etc.)’ need to be 100% assessed at the Bronze level or above. However, this requirement is intended to apply to individual homogeneous BN materials released directly into the biosphere as a part of their intended use (e.g., cosmetics, personal care, soaps, detergents, paint, etc.). BN materials that are intended to be recycled at least once or become part of a managed waste processing stream (i.e. industrial composting) may remain partially unassessed as long as the total percentage by weight assessed for the product meets or exceeds the required threshold for the relevant level of certification (75% for Bronze, 95% for Silver).

BN materials that are released directly into the biosphere may still receive a Grey rating at the Bronze or Silver level (and thus not count towards the percentage assessed) if the Grey rating is due solely to missing toxicity information rather than incomplete formulation information.

Thus, the additional requirement regarding the percentage assessed threshold for Biological Nutrients can be more simply stated in the following manner:

At the Bronze level or above, complete formulation information needs to have been collected by the assessor for 100% of BN materials that may be directly released into the biosphere as a part of their intended use (e.g., cosmetics, personal care, soaps, detergents, paint, etc.).

**Absence of CMRs in X Assessed Materials at the Silver Level**

The Silver level requirement is that a product does not contain chemicals known or suspected to be carcinogenic, mutagenic, or reproductive toxins (CMRs) after the A, B, C, X assessment has been carried out (see Section 3.8 of this document for clarification). Thus in order for a material to count towards the percentage assessed at the Silver level, one of the following is required to ensure CMRs are not present in those materials:

- All of the chemicals subject to review in the material have been identified (i.e., no GREY ingredients) and none received a single chemical risk score of ‘x’ as a result of being a CMR, or
• In cases where an X-assessed material may have one or more ingredients that have not been identified (i.e., GREY ingredients, see sub-section ‘Definition of Assessed Material’ above), the material supplier or other party with knowledge of the chemical composition of the material has signed a declaration stating that CMRs are not present in the material.

3.7 MATERIAL OPTIMIZATION STRATEGY

GREY Assessed Substances

In this section the Standard states that GREY assessed items will eventually be assumed to be X unless missing data can be collected. This statement is true under version 2.1.1 of the Standard but is not correct for version 3.0. In version 3.0, GREY assessed items will remain GREY until data are obtained that changes their assessment to A, B, C, or X. Chemicals or materials that were initially GREY because of missing data but became X under version 2.1.1 will revert to being GREY under version 3.0 unless data are obtained that changes their assessment to A, B, C, or X.

Optimization Progress Required

See Section 8 in this document (Continuous Improvement and Optimization) for clarification regarding the optimization progress required prior to each successive re-application for certification.

3.8 DETERMINING ABSENCE OF CMR SUBSTANCES

The Standard requirement states that a product does not contain chemicals known or suspected to be carcinogenic, mutagenic, or reproductive toxins (CMRs) after the A, B, C, X assessment has been carried out. The Standard also states that the chemical hazard profiles are used to generate A, B, C, or X assessments and verify that chemicals included in the product are not carcinogenic, mutagenic, or reproductive toxins (CMRs).

This requirement shall be interpreted to mean that the 95% or more of the materials in the product that have been assessed as A, B, C, or X do not contain known or suspected CMRs in a form that will result in exposure to humans or the environment during the product scenarios evaluated. Because the A, B, C, X material health assessment methodology incorporates both hazard and exposure considerations, the presence of a known or suspected CMR in a material may result in a C-assessed material, and thus be allowed for use in a Silver certified product, if the assessor determined that exposure to that CMR is not plausible. If the assessor determined that exposure to the CMR may occur as a result of its use in the material, the material receives an X-assessment and is not permitted for use in a Silver certified product. Further details of the material health assessment methodology are available in a separate guidance document (Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0).

Note that all chemicals, including CMRs, are treated equally in the material health assessment methodology. Only the chemicals that are present at concentrations ≥100 ppm in each homogeneous material are subject to review, and only the homogeneous materials that are present at concentrations ≥100 ppm in a product are subject to review. Thus it is possible that CMRs are present
in a certified product if they are below the concentration subject to review or are present in a material that is not subject to review. However, if a CMR is in a material or is one of the chemical types that are subject to review at any concentration in the product, it is subject to review (see Section 3.4 in this document for a complete list).

The sub-section ‘Absence of CMRs in X Assessed Materials at the Silver Level’ in Section 3.6 of this document lists the requirements for ensuring CMRs are not present in the 95% or more of the materials assessed at the Silver level.

### 3.9 VOLATILE ORGANIC CHEMICAL (VOC) EMISSIONS TESTING

**Definition of ‘Indoor Use’ Products**

‘Indoor use’ products are those with intended or likely unintended use scenarios in interior spaces (i.e., inside a building). Due to the short duration of exposure, consumable indoor products fully designed as biological nutrients (e.g., detergents, personal care products, toilet paper) are not subject to the VOC emissions testing requirement. Furthermore, VOC tests are not required for products that are sold exclusively as material inputs for other products (rather than being sold to the general public).

**Emission Testing Thresholds**

The text below replaces the text regarding emission testing thresholds in the original Standard document.

The product must pass all of the following emissions testing concentration thresholds:

1. VOCs that are considered known carcinogens, endocrine disruptors, mutagens, reproductive toxins, or teratogens are below detection limits (detection limits must be < 9.0 μg/m3 for formaldehyde and < 2µg/m3 for all other chemicals).
2. TVOC must be < 0.5 mg/m3.
3. Individual VOCs must be < (0.01) x [the lower of the TLV or MAK value].

These thresholds were designed to reflect those required in the California Department of Public Health's Standard Method v1.1-2010.

**Emission Testing Methods**

In addition to the other methods listed in the original Standard document, use of the ISO 16000 series testing for VOCs is also acceptable.

**Target VOCs for Testing**

The VOCs with established Chronic Reference Exposure Levels (CRELs) listed in the California Department of Public Health’s (CDPH) Standard Method v1.1-2010 must be included in emissions testing. CREL values are continuously updated by the California Office of Environmental Health Hazard Assessment (see http://oehha.ca.gov/air/allrels.html). If the assessor has reason to believe
other problematic substances may be present in the product (e.g., radioactive substances in granite), these may also be required for testing. Although 4-Phenylcyclohexene is not listed in the CDPH Standard Method v1.1-2010 as of the time of this writing, it must also be included in emissions testing of any carpet or flooring product seeking to fulfill this requirement.

**Compliance with LEED v4**

To obtain the point for Environmental Quality (EQ) credit 2 in LEED v4, use of the testing protocol and thresholds included in CDPH Standard Method v1.1-2010 are required. The thresholds listed above under ‘Emission Testing Thresholds’ comply with the CDPH Standard methods, and thus products that meet these thresholds are also eligible for the EQ credit 2 point.

### 3.10 PROCESS CHEMICALS

The Standard requirement states that all process chemicals are assessed and none are assessed with an X rating. Instead, the requirement is that only the single chemical risk rating (as a, b, c, or x) be reported for each chemical identified. The single chemical risk rating considers the chemical’s hazards and exposure via any relevant exposure scenarios determined by the assessor. Note that the assessment must be conducted using the final reacted form of the parent chemical resulting in exposure. For example, if the exposure is via effluent, the assessment must be conducted on the primary hydrolyzed or reacted form of the parent chemical that would appear in the effluent. A separate document, Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0, describes how the single chemical risk score is determined.

A process chemical is defined as any substance that comes into direct contact with the product or any of its material constituents during any of 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. 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.
4 MATERIAL REUTILIZATION

4.1 MATERIAL REUTILIZATION SCORE

Use of the terms ‘biodegradable’ and ‘compostable’

The terms biodegradable and compostable are used interchangeably in the v3.0 Standard. Biodegradability is a broader term that includes compostability, but is not very meaningful without additional definitions around the conditions under which biodegradation takes place. Generally, the evaluation for Material Reutilization Score calculations is based on the percentage of materials or substances in the product that are biodegradable under the conditions of the intended end-of-use scenario. Compostability is biodegradability under the conditions of a composting scenario so it should be applied to materials that are intended for composting. Other materials are intended for alternate end-of-use scenarios (e.g., detergents are intended for disposal through the waste water and are thus evaluated based on the biodegradability in a waste water environment). Section 4.1 and the Material Reutilization Score formula should refer to biodegradable materials instead of compostable materials, since compostability is a type of biodegradability.

Material Reutilization (MR) Score for Single Material Products

Section 4.1 of the Cradle to Cradle Certified Product Standard Version 3.0 discusses the derivation of the Material Reutilization Score (MR score) as part of a product’s assessment for certification. The MR score is based on the percentages by weight of the final product that can be respectively considered recyclable, compostable, recycled material, or rapidly renewable material. While the percentage of recycled content and rapidly renewable content is based on the percentage by weight of these respective contents in the final product, the percentage of recyclable materials and compostable materials is generally based on the percentage of homogeneous materials that have received an A, B, or C final material assessment rating. However, similar to the exception made for the determination of the percentage assessed in section 3.6, if the finished product is itself a single homogeneous material, then the cumulative percentage of each individual a, b, or c rated product ingredient is used in determining the percentage of the product that is recyclable or compostable.

For this purpose, a product is considered a single-material product if it is composed of:

- a single homogeneous material, or
- a single homogeneous material that is at least 95% of the final product by weight and 5% or less of other materials that are either a coating, finish, print, paint, ink, other surface treatment, film, or interlayer.

For any part of the single material product to count as recyclable or compostable in the material reutilization score, the following must both be true:

- a process must exist somewhere in the world, at least at the pilot scale, to recycle or compost the material, and
any coating, finish, paint, ink, other surface treatment, film, or interlayer does not interfere with this process (i.e., it is either separable from the primary material or can be recycled/composted via the same process without inhibiting the process).

If the above two conditions are not met, the single material product will be considered 0% recyclable/compostable and the material will not be able to obtain a Material Reutilization level of Bronze or higher.

Note regarding the percentage of the product that is considered assessed for Material Health: In cases where the single material product is defined as a single homogeneous material that is at least 95% of the final product by weight and 5% or less of other ingredients, the percentage of the product assessed is equal to the sum of the percentages of ingredients assessed in each homogeneous material in the product.

**Inclusion of Recyclable and Compostable Materials**

Definitions of ‘recyclable’ and ‘compostable’ are provided in Section 4.1 of the original Standard document. The following additional considerations also apply:

- The entire material needs be recyclable or compostable in order to be counted as ‘recyclable’ or ‘compostable’ in the material reutilization score.
- For a material to be counted as recyclable in the MR score, it needs to be possible to recycle it somewhere in the world, at least at the pilot scale. It does not matter whether the product is likely to be recycled in this way based on current infrastructure and/or the regions in which the product is distributed. The MR score is a metric to evaluate inherent product design and suitability for cycling in the intended end-of-use scenario the applicant aspires to, independent of current feasibility and implementation. The plan to realize the intended end-of-use scenario is due at the Gold level, and implementation needs to be demonstrated for the Platinum level.

**Separable Materials**

As stated in the Standard, a material must be separable from other materials in the product in order for that material to count as 'recyclable' in the reutilization score. The material must be separable under normal recycling conditions, commonly separated in practice by the consumer in order for recycling to occur (e.g., just because it's possible to strip a coating from a material does not mean that the user would commonly do this in practice in order to recycle the material), and/or separated by the manufacturer or contracted third party as part of an active product recovery/take back program. The Standard document should have also stated that a material must also be separable from other materials in the product in order for that material to count as 'compostable' in the reutilization score. It should also be noted that the separability requirement applies only in cases where separation would be necessary in order for recycling or composting to occur.

**Rapidly Renewable Content and FSC Certification**

Rapidly renewable content is defined in the Standard as any material or product content that is grown and harvested repeatedly in a managed agricultural system in cycles of less than 10 years. For the
purpose of calculating the MR score, FSC certified wood and wood products may also be counted as ‘rapidly renewable’, even if they are grown and harvested in cycles of more than 10 years.

**Use of X-Assessed Materials**

As stated in the Standard, X-assessed materials do not count as recyclable material in the reutilization score. However, if the problematic substance responsible for the X-assessment is removed from the material as part of a well-documented nutrient strategy and process, an exception may be made and the material may count as recyclable.

The Standard document should have stated that X-assessed materials do not count as compostable materials in the reutilization score. However, if the component of the material that is responsible for the X-assessment is biodegraded or removed and does not negatively impact the composting organisms during the composting process, it may be counted as ‘compostable’ in the reutilization score (e.g., formaldehyde in a binder used in plywood).

**Use of GREY Materials**

The Standard document should state that compostable or recyclable materials with a GREY rating do not count towards the material reutilization score, but materials with a GREY rating that are renewably sourced or are recycled content may count towards the score.

**Waste to Energy**

Renewably sourced materials that are incinerated to produce energy (‘waste to energy’) may be counted as ‘recyclable’ (e.g., polyethylene made from sugar cane) or ‘compostable’ (e.g., wood) in the material reutilization score if the assessor determines that incineration of the material does not lead to problematic by-products (i.e., scrubber technology has been demonstrated to efficiently remove the problematic by-products).

**Special Considerations for Calculating the MR Score for Products Containing Water**

With the exception of paints (see next section), water weight must be excluded from the product weight when calculating the MR score. This means that water does not count as recyclable, biodegradable/compostable, rapidly renewable, or as recycled input, but that it also doesn’t contribute to the denominator when determining the weight fractions of other chemical substances and inputs that do count as recyclable, biodegradable/compostable, rapidly renewable, or as recycled input.

**Special Considerations for Calculating the MR Score for Paint Products**

**How to Calculate Percent Cyclable**

General purpose and wall paints must be regarded as Biological Nutrients, and are thus assessed based on their safety when released into the biosphere (by erosion, washing, leaching, burning, or similar processes) and their biodegradability. Because paint is a formulated, single-material product, the percent biodegradable is not based on the percent of homogeneous materials that were A, B, or C assessed (as for multiple material products), since the paint itself is a homogeneous material. Instead, the ‘% biodegradable content’ for the MR score is based on the individual product ingredients and must be calculated in the following manner:
1. Sum the percent weight of all ingredients that received a single chemical risk rating of a, b, or c (not x or GREY) AND are biodegradable in their pure form, as per the relevant OECD tests and definitions.

2. Add the percent weight of water in the product and the percent weight of benign minerals commonly found in surface soils and sediments. Benign minerals are defined as those having a single chemical risk rating of a, b, or c (not x or GREY). Minerals commonly found in soils or sediments are limited to Al-, Ca-, Fe-, Mg-, Mn-, Na-, K-, or Zn-containing silicates, oxides, carbonates, or phosphates that can be commercially derived without chemical alteration from surface soil or sediments (no more than 2 m below the land surface or sea level). If the applicant feels that a non-Al-, Ca-, Fe-, Mg-, Mn-, Na-, K-, or Zn-containing silicate, oxide, carbonate, or phosphate should be counted as a benign soil/sediment mineral, they must submit a request to amend this guidance to the C2CPII.

3. The resulting percentage is used as the % cyclable (‘recyclable/compostable’) content to compute the MR score.

How to Calculate % Rapidly Renewable/Recycled Content
To derive the ‘% rapidly renewable content’ of the product, water weight is excluded (e.g., if the paint is 15% rapidly renewable inputs by weight and 20% water by weight, the % rapidly renewable content used to derive the MR score would be 15% / (100%-20%) = 18.75%).

4.2 NUTRIENT MANAGEMENT STRATEGY
No further clarifications.

4.3 NUTRIENT CYCLING
No further clarifications.
5 RENEWABLE ENERGY AND CARBON MANAGEMENT

5.1 QUANTIFYING PURCHASED ENERGY USE AND CARBON EMISSIONS

Energy and Emissions Template

An applicant must work with their accredited assessment body to obtain the appropriate template for quantifying the product-allocated energy use and emissions.

Purchased Electricity/ Purchased Energy

The requirements for the Silver, Gold, and Platinum level are in part based on renewable sourcing or offsets for fixed percentages of the total amount of ‘purchased electricity’ or ‘purchased energy’ used in production. These two terms are used interchangeably in the Standard. In all cases these terms are meant to cover all ‘product-attributable’ (as defined in Chapter 7 of the GHG Protocol -- Product Life Cycle Accounting and Reporting Standard) electric energy that is delivered to the final manufacturing stage facility (or facilities) or produced on-site by any method that does not result in ‘direct on-site emissions’ (including renewable energy generation, which may not be ‘purchased’). Only electric energy, and no other forms of energy are covered in this total. It is to be quantified in units of energy (i.e., MJ or MWh).

Note that the amount of electric energy used and direct on-site emissions produced are mutually exclusive and should not be double counted when determining the amount of energy that must be renewably sourced and emissions that must be offset as part of the requirements in the Standard.

Direct On-Site Emissions

‘Direct on-site emissions’ represent the second quantity for which percentage-based criteria have to be met at the Silver, Gold, and Platinum levels. They are referred to as simply ‘emissions’, ‘on-site emissions’, or ‘direct on-site greenhouse gas emissions’. With the exception of Section 5.4 (Embodied Energy Use), these terms are used interchangeably. These terms are meant to cover all ‘product-attributable’ (as defined in Chapter 7 of the GHG Protocol -- Product Life Cycle Accounting and Reporting Standard[1]) emissions of greenhouse gasses occurring at the final manufacturing stage facilities. This includes any greenhouse gas as per the definition of the Material Health endpoint ‘Climatic Relevance’ (listed in the Intergovernmental Panel for Climate Change (IPCC) Third Assessment Report (Table 6.7) and/or the US EPA’s list of Ozone Depleting Substance substitutes with global warming potential). Direct on-site emissions are to be quantified in metric tons of CO₂ equivalents (tCO₂e).
Note that the amount of electric energy used and direct on-site emissions produced are mutually exclusive and should not be double counted when determining the amount of energy that must be renewably sourced and emissions that must be offset as part of the requirements in the Standard.

**Renewable Energy Credits versus Renewable Energy Certificates**

The terms ‘renewable energy credits’, ‘renewable energy certificates’, and ‘RECs’ are used interchangeably in the Standard and are synonymous.

**Transportation Emissions**

The inclusion of ‘gasoline for company owned vehicles’ in the direct on-site emissions calculation is noted in the Standard. The requirement is that if transport vehicles are used during the final manufacture stage of the product, whether owned by the company or not, the emissions from the fuel used for the vehicles must be included in the total on-site emissions calculation.

**Multiple Final Manufacturing Facilities**

If the final manufacturing stage of a product occurs at more than one facility and there are differences in the electric energy use, direct on-site emissions and/or onsite renewables produced among the facilities, quantification of the amount of energy that must be renewably sourced or offset can be calculated by summing the electric energy use, emissions, and onsite renewables used at all of the sites where the product is manufactured and then allocating each to the product being assessed. This can be based on a method determined to be best by the assessor, in consultation with the applicant. For example, if products are of similar weight across SKUs, a weight allocation is appropriate. The most appropriate method may vary depending on the type of product.

### 5.2 RENEWABLE ENERGY AND CARBON MANAGEMENT STRATEGY

No further clarifications.

### 5.3 USING RENEWABLE ENERGY AND ADDRESSING ON-SITE EMISSIONS

As stated in the Standard, renewable energy used as a part of purchased electric energy can only be claimed for this requirement if “…the applicant is participating in a voluntary green pricing program or the applicant has verified that their utility is delivering renewable energy which may be claimed by the utility customer without being double counted elsewhere in the system.” Specifically, this also includes direct power purchase agreements (PPAs) with renewable energy producers, as long as the purchased energy is derived from a source among those eligible (solar, wind, hydropower, biomass (when not in competition with food supplies), geothermal, and hydrogen fuel cells) and the associated attributes of renewable-based generation are also transferred as part of the purchase agreement and not claimed or counted elsewhere (i.e., sold to a third party in the form of RECs).

**Use of Offsets for Purchased Electricity/ Purchased Energy/ Electric Energy Use**
The Standard states that offsets supporting renewable energy projects may be selected when offsetting purchased electricity. Instead it should state that offsets supporting renewable energy projects must be selected when offsetting purchased electricity.

**Nuclear Share of Electricity by Country**

Table 17 provides the nuclear share of electricity production in 2010 on a country-specific basis and the multiplier used when converting the CO2e emissions from nuclear electricity production to emissions derived from coal from that particular year. (Note, however, that in most cases the conversion of electricity produced from nuclear energy to emissions is not necessary because this purchased energy may be treated like other non-renewable electricity sources and compensated for via the purchase of RECs.) The World Nuclear Association ([http://world-nuclear.org](http://world-nuclear.org)) provides updates of the nuclear share on a continual basis and thus the most recent values available should be used in the conversion calculations. The following website lists the most recent values for the percentage of nuclear shares of electricity generation: [http://world-nuclear.org/info/Facts-and-Figures/Nuclear-generation-by-country/-.UhmZjbx8zwE](http://world-nuclear.org/info/Facts-and-Figures/Nuclear-generation-by-country/-.UhmZjbx8zwE).

A new multiplier needs to be calculated when using a percent nuclear share that is different than the share provided in Table 17 for 2010. The new multiplier is calculated using the equation provided in the Standard.

**Emissions from Renewable Fuels**

Regarding direct on-site emissions caused by the combustion of renewable fuels during product manufacture, Section 5.3 of the Standard states:

“To meet the offset requirement for a particular level, the given percentage of on-site emissions must be compensated for by the purchase of offsets or via use of renewables such as biomass on-site that results in avoided emissions from non-renewable sources.”

This is to be interpreted to mean that the given percentage of on-site emissions must be compensated for by the purchase of offsets, but the purchase of offsets for emissions resulting from the combustion of eligible renewable fuels, such as biomass, is not required.

Eligibility of renewable fuels for this purpose is determined based on the definitions in Section II.A 5 in Appendix D of the Green-e National Standard. Renewable fuels that are not covered by the types (woody waste, agricultural crop residue, animal and other organic waste, certain energy crops, landfill gas and wastewater methane) and definitions in Section II.A 5 in the Green-e National Standard may be eligible, subject to a case-by-case review by C2CPII. The methodology presented to C2CPII must demonstrate that the eligible emissions are derived from the combustion of a fuel that can be considered renewable in accordance with the general definitions provided by Green-e. Additionally, it should be demonstrated that across its entire lifecycle, the qualifying fuel is expected to have a favorable impact on atmospheric greenhouse gas concentrations in terms of CO2 equivalents.

Emissions from renewable fuels must be tracked and reported during the certification process; however, the emissions generated by eligible renewable fuels will not be included in the final quantity of direct on-site emissions for which offsets need to be purchased at the Silver level and above. By
using eligible renewable fuels exclusively, it is thus possible to meet the Silver, Gold, and Platinum requirements without the purchase of offsets, since all direct on-site emissions from non-renewable sources will have been avoided (provided there are no other product attributable greenhouse gas emissions during final manufacture). Similarly, no offsets need to be purchased if the final manufacture of a product does not generate any direct on-site emissions of greenhouse gases.

5.4 EMBODIED ENERGY USE

The title and first paragraph of this section refers to “embodied energy use” and the “embodied energy associated with the product from Cradle to Gate”; however, as stated in the “Intent” subsection and further detailed in the “Methods” sub-section, the intent of this requirement is to understand and begin to address the impacts of the product’s embodied energy, specifically the greenhouse gas emissions throughout its lifecycle. In line with the GHG Protocol -- Product Life Cycle Accounting and Reporting Standard, the aim of this requirement is to quantify the applicant product’s greenhouse gas emissions throughout its lifecycle, with particular focus on the “cradle to gate” phase, which constitutes the minimal required scope of the assessment. As such, the embodied energy itself does not need to be quantified as long as product lifecycle greenhouse gas emissions are. As stated, the units to be used for this requirement are metric tons of CO₂ equivalents (tCO₂e).

5.5 ADDRESSING EMBODIED ENERGY USE WITH OFFSETS OR OTHER PROJECTS

See clarification for Section 5.4 above.

6 WATER STEWARDSHIP

6.1 REGULATORY COMPLIANCE FOR EFFLUENT

Frequency of Compliance Statements

The required documentation to demonstrate regulatory compliance must be submitted with each application for certification. This includes applications for new product certifications as well as recertifications. Note an exception to this requirement is granted if the applicant provided a compliance statement to the assessor within the last 90 days (e.g., with a certification application for a different product manufactured at the same site).

Multiple Final Manufacturing Facilities

If the final manufacturing stage of a product occurs at more than one facility, a regulatory compliance statement for each facility is required for certification. A single manufacturing site not meeting the requirement will result in the requirement not being met for the product applying for certification.
6.2 LOCAL AND BUSINESS-SPECIFIC WATER ISSUES

No further clarifications.

6.3 WATER STEWARDSHIP INTENTIONS

No further clarifications.

6.4 WATER AUDIT

Water Audit Template

An applicant must work with their accredited assessment body to obtain the appropriate template for conducting the water audit.

6.5 CHARACTERIZING AND ASSESSING PRODUCT-RELATED PROCESS CHEMICALS IN EFFLUENT

Application

This requirement applies to the effluent associated with the final manufacturing stage of the product only.

Effluent Subject to Review

The effluent subject to review for this requirement is the effluent water leaving the manufacturing facility. If the facility has its own wastewater treatment system, the effluent subject to review is the effluent post-treatment, prior to any off-site treatment (e.g., by a municipal wastewater treatment facility).

Chemicals Subject to Review

All chemicals expected to be present in the effluent from the manufacturing process must be identified. This includes the primary hydrolyzed or reacted form of the parent chemical that would appear in the effluent.

Process chemicals are defined as in section 3.10. However, this requirement applies only to process chemicals expected to be present in the effluent. If substances that are also part of the finished product are expected to be present in the effluent, these substances also need to be assessed as part of this requirement.

Estimates of Chemical Concentrations in Effluent

The Standard states that for each chemical that enters effluent, the maximum daily value (concentration in effluent and total mass), average daily value (concentration in effluent and total mass) and total mass across the chosen time period must be calculated. These calculations are
encouraged, but are not required for certification. The effluent characterization requirement is intended to be qualitative, and not necessarily quantitative, as a means for encouraging the manufacturer to be aware of the chemicals in their effluent.

**Chemical Assessment**

The Standard states that the hazard of all chemicals that may be present in the effluent must be assessed and that the final A, B, C, or X assessment for each chemical identified must be reported. Instead, the requirement is that only the single chemical risk score (as a, b, c, or x) be reported for each chemical identified. The single chemical risk score considers the chemical’s hazards and exposure to the chemical via the effluent. GREY single chemical risk scores are permissible if the GREY score is due to missing toxicological data rather than missing formulation information. Note that the assessment must be conducted on the primary hydrolyzed or reacted form of the parent chemical that would appear in the effluent. A separate document, Supplemental Guidance to the Material Health Assessment Methodology – Cradle to Cradle Certified Product Standard, Version 3.0, describes how the single chemical risk score is determined.

**Multiple Final Manufacturing Facilities**

If the final manufacturing stage of a product occurs at more than one facility, chemicals in the effluent must be identified and assessed at each facility.

### 6.6 SUPPLY CHAIN WATER ISSUES AND STRATEGY

The requirement states that supply chain-relevant water issues for at least 20% of tier 1 suppliers are characterized and a positive impact strategy is developed (required for facilities with no product-relevant effluent). The requirement is that water issues for at least 20% of the total number of a product’s tier 1 suppliers are characterized and a positive impact strategy is developed. Also note that this requirement applies regardless of whether or not tier 1 suppliers use any process water.

A positive impact strategy is required from the applicant regardless of whether any issues are identified during the supply chain water issues characterization. The strategy may include a plan to fulfill more of the investigation options for the same suppliers and/or a plan to increase the percentage of tier 1 suppliers for which the investigation is conducted over time.

To fulfill the Gold level requirement, progress on this strategy must be demonstrated. If the investigation did not identify any issues, the manufacturer must have already exceeded the minimum requirements for the investigation (e.g., either included a greater number of tier 1 suppliers in the investigation than would have been necessary to reach 20% or have fulfilled more than one of the investigation options).

### 6.7 OPTIMIZING PROCESS-RELATED CHEMICALS IN EFFLUENT

**Definition of ‘Optimized’**

The Standard states that “optimized” in this case is defined as effluent containing process-related chemicals that are A, B, or C assessed. Instead, it should state that “optimized” is defined as effluent
containing process-related chemicals that have a single chemical risk score of a, b, or c. See Section 6.5 of this document for more information.

### 6.8 ADDRESSING SUPPLY CHAIN WATER ISSUES

No further clarifications.

### 6.9 DRINKING WATER QUALITY

#### Estimates of Chemical Concentrations in Effluent

The Standard states that the total amount of all chemicals entering the effluent during the prior year must be quantified, and to use the same method described in Section 6.5. These calculations are encouraged, but are not required for certification. The effluent characterization requirement is intended to be qualitative, and not necessarily quantitative, as a means for encouraging the manufacturer to be aware of the chemicals in their effluent.

#### Chemical Assessment

The Standard states that the hazard of all chemicals that may be present in the effluent must be assessed using the methods described in the Material Health Assessment Methodology document and Section 3.5. In addition it states that all chemicals are to be either A, B, or C assessed in order to fulfill this requirement. Instead, the requirement is that only the single chemical risk score (as a, b, c, or x) be determined for each chemical in the effluent and that all chemicals are to be either a, b, or c assessed. See Section 6.5 of this document for more information.

### 7 SOCIAL FAIRNESS

#### 7.1 STREAMLINED SELF-AUDIT

#### Streamlined Self Audit Template

An applicant must work with their accredited assessment body to obtain the appropriate template for conducting the streamlined self-audit.

#### Information Resources

The Social Hotspots Database (SHDB; [http://socialhotspot.org/](http://socialhotspot.org/)) is highly recommended for fulfilling this requirement because it contains both country and industry sector-specific information for each issue that needs to be addressed. At the time the Standard was drafted, access to the SHDB was available at no cost; however, the SHDB in now a subscription-based service.
Alternative references for exploring the applicability of the risk or opportunity level to specific industry sector(s) may be used. Recommendations include UNICEF, U.S. Department of Labor, List of Goods Produced by Child Labor (U.S. Dept. of Labor, 2009), International Labour Organization (ILO) country reports, World Bank poverty data, UN Human Development reports, U.S. Department of State Human Rights reports, sweatfree.org non-poverty wages the U.S. Bureau of Labor Statistics, AFL-CIO, International Trade Union Confederation country profiles, and the World Health Organization.

**Information Type**

If available, use of industry sector-specific information for the applicant product is preferred over country-specific information. Regardless of the information source used, how the required information was identified for each issue needs to be specified. In the SHDB, the risk themes listed may not correspond directly to the issues listed in the requirement. The applicant must work with their assessor to select the most relevant categories and risk themes for their operations in each region.

**SA8000 and B Corporation Certifications**

A company that has received SA8000 certification or is a certified B Corporation may still need to fulfill the self-audit requirement for Basic level and other social fairness requirements depending on the work conducted to receive the certification. Applicants will need to work with their assessor to determine if additional steps beyond the facility level, third party audit are required for Cradle to Cradle product certification.

### 7.2 MANAGEMENT PROCEDURES TO ADDRESS HIGH RISK ISSUES AND OPPORTUNITIES

High and very high risks identified in the streamlined self-audit generally must be addressed through management procedures. In the ‘Required Documentation’ section, the Standard implies that management procedures are not required if high or very high risks are found in fewer than 1% of the total number of facilities. In this case, it instructs applicants to provide “[a] signed statement indicating that ≤1% of final manufacturing and tier-one facilities combined were found to be located in countries and/or sectors with high or very high risk/opportunity levels, if not required to provide management procedures (as described in the Methods section above).”

However, the exemption is not actually based on the total number of facilities, but rather on the value of the inputs they provide. This is correctly stated in the ‘Methods’ section, as follows: ‘Do those facilities identified as having high or very high risk or opportunity provide ≤1% of the value of the product combined? If yes, no further action is required (i.e., the requirement to provide or develop management procedures does not apply).’

### 7.3 FULL SELF-AUDIT

No further clarifications.
7.4 MATERIAL-SPECIFIC OR ISSUE-SPECIFIC AUDIT

Pre-Approved Audit or Certification Programs

An abbreviated list of pre-approved programs is provided in the Standard. A full list of programs and additional information on program selection is provided below.

Input materials or manufacturers of input materials are certified and/or verified compliant (as appropriate) by an external party or parties according to one or more of the following pre-approved programs:

- B Corporation
- Blue Angel (when human rights issues are addressed as part of the Standard such as in RAL-UZ 154 Textile)
- Business Social Compliance Initiative (BSCI) code of conduct
- CarbonNeutral product certification
- Certified Organic (US Department of Agriculture or Quality Assurance International)
- Conflict-free (third-party verified)
- Cotton made in Africa
- Cradle to Cradle Certified
- Electronic Industry Citizenship Coalition (EICC) code of best practice
- Ethical Trading Initiative base code
- Fair for Life
- FairTrade
- Forest Stewardship Council (FSC) Forest Management & Chain of Custody
- Global Organic Textile Standard (GOTS)
- Global Social Compliance Programme Reference Code
- Initiative Clause Sociale (ICS)
- International Council of Toy Industries (ICTI) code of business conduct
- ISCC PLUS
- Leaping Bunny
- NSF/ANSI 336 Sustainability Assessment for Commercial Furnishings Fabric
- Oeko-Tex Standard 1000 or 100plus
- Responsible Source - Scientific Certification Systems (SCS)
- SA8000
- UTZ Certified
- Worldwide Responsible Accredited Production (WRAP)

Pre-approved programs are primarily, with some exceptions, those that are:

1. Focused on fundamental human rights issues, in particular fair labor practices, or on animal rights issues, or
2. Multi-attribute programs that address fair labor practices along with other issues (with social criteria relevant to fundamental human rights, in particular labor practices, required).

Programs that apply only to final consumer products as opposed to potential input materials may fit into the categories above but have not been included (because such programs will not likely be relevant to product input materials and/or suppliers as required for this criterion). In addition, many programs that are primarily focused on product types that are out of scope for the Cradle to Cradle Certified program have not been included (e.g., programs only applying to food).

The eco-label and verification/auditing environment continues to evolve and additional programs may apply as they become available. The Cradle to Cradle Certification Standards Board has developed a procedure for adding additional programs to the pre-approved list above. Please contact the C2CPII for more information (certification@c2ccertified.org).

**SA8000 and B Corporation Certifications**

If a material’s manufacturer is a certified B Corporation or has SA8000 certification, that material may count toward the minimum 25% of materials that need to be certified for this requirement.

**Special Considerations for Calculating the Weight Fraction of Materials with Specific and/or Issue-related Certification/Audit for Products Containing Water**

Water weight may be excluded from the product weight when calculating the weight fraction of materials with specific and/or issue-related certification/audit.

### 7.5 SUPPLY CHAIN SOCIAL ISSUES AND IMPACT STRATEGY

The Standard states: ‘The inventory threshold is left to the applicant to determine and define as part of the boundary and scope decision; however, it is recommended that at a minimum, all inputs representing 1% or more of the product’s total inputs be included if possible. Ideally, all inputs will be included as it is difficult to know until data are gathered whether they will contribute significantly to total emissions or not.’ To clarify, the recommendation is that suppliers of all materials that are 1% or more of the product’s total inputs by weight be investigated for this requirement.

The following sentence was mistakenly included and should not be included in the Standard document: ‘Ideally, all inputs will be included as it is difficult to know until data are gathered whether the issues will contribute significantly to total emissions’. Instead, the intent was to state that ideally all inputs will be included to identify as many social issues associated with the product as possible.

### 7.6 INNOVATIVE SOCIAL PROJECT

The intent of the innovative social project requirement is to develop and implement a company program that positively impacts social issues and implements the Cradle to Cradle principles. The key aspect of this requirement is that the program or project is an integrated part of company strategy.
The criteria provided for the requirement are broad-based to allow for the development of a wide variety of program types. Because there is a wide range in social fairness policies and practices around the world, the definition of ‘innovative’ may vary.

The ‘innovative social project’ can be new to the company, the country, or the world. There may be programs or activities that a company is already engaging in for compliance purposes that would fulfill this requirement; however, basic compliance is not the intent.

7.7 FACILITY LEVEL THIRD PARTY AUDIT

No further clarifications.

8 CONTINUOUS IMPROVEMENT AND OPTIMIZATION

Optimization Requirement

The Standard states the following for the Standard requirement: It is expected that certification holders will make a good faith effort toward optimization in all five categories of the Standard. Program conformance requires that all applicants outline their intention for the eventual phase-out/replacement of problematic substances (i.e., those materials or chemicals with poor ratings) as part of certification.

To be consistent with the requirements listed in Table 20, the Standard requirement description should state that certification holders are required to make a good faith effort toward materials optimization at each recertification period, unless optimization is already complete or is incomplete due to technological constraints. Progress on materials optimization includes both demonstrated progress on eliminating X-assessed materials or x-assessed chemicals in those materials and work toward increasing the percentage of the product assessed as A, B, C, or X at each recertification period.

If materials optimization is already complete or is incomplete due to technological constraints, optimization progress in at least one other Standard category is required in order to maintain certification of the product.

Alternative Compliance for Certification Holders with Multiple Certifications

An alternative compliance pathway exists for companies that have several certified products and where it is extremely challenging to make progress on each individual product at each recertification. The continuous improvement and optimization requirement can be met by demonstrating significant optimization at the corporate level that impacts many products, but perhaps not all certified
products. A clear explanation of the progress that has been made on optimization of other Cradle to Cradle Certified products at recertification is required in such cases.

9 SITE VISIT OF PRODUCTION FACILITY

Purpose of Site Visit

The Standard states that, for Bronze level certification and above, a site visit of the final manufacturing facility or facilities is to be completed to verify the data submitted for assessment. As further described in the methods section, the intent of the site visit is to focus on verifying the manufacturing process, the product materials, and the process chemicals used in the final manufacturing step for the finished product that is being assessed for certification. A site visit is also used by the assessment body to verify the product’s bill of materials and, to the extent possible, serves as quality assurance that the applicant has reported accurate information. It can also be used to increase the percentage of the product that is inventoried and therefore the percentage of the product that is considered assessed (i.e., chemicals identified and evaluated for their material health following the Standard’s material health assessment process). The purpose of the site visit is not to verify the specific details regarding the social fairness criteria at the facility or the supplier facilities.

Frequency of Site Visits

A site visit is required once per product or product group at the time of initial certification. An additional site visit is required if the manufacturing process changes significantly.

Required Documentation

The Standard indicates that ‘Completion of a site visit checklist based on each certification level’s data requirements is required’. However, upon further consideration, it has been determined that a statement confirming that the site visit was conducted by a representative from an accredited assessment body is the only information required.

Multiple Final Manufacturing Facilities

If there is more than one final manufacturing facility and the same manufacturing process is used at all the facilities, then a site visit to only one of the facilities is required.

If there is more than one final manufacturing facility and one or more of the facilities employ additional process steps or use different equipment in the product manufacturing process, then a site visit is required for each facility that represents a different process type.
**10 APPENDIX - BANNED LISTS OF CHEMICALS**

**Applies to Concentration in Materials Not Products**

The introduction to the Banned Lists in the Appendix should state that the concentration of the banned chemical within each homogeneous material, and not the concentration of each banned chemical within the overall product, is the basis for this review. This is consistent with Section 3.3 of the Standard.

**Definition of ‘Intentionally Added’ Substance**

An ‘intentionally added’ substance is a substance that has been added to the material for a specific purpose. A substance is considered to be intentionally added to a material if a manufacturer chooses to use a material coming from a source that is likely to contain the substance. ‘Intentionally added’ also means ‘known to contain’.

**Banned List Soil Concentration Thresholds for Metals**

See Section 3.3 in this document for further details regarding background soil concentration thresholds for the metals.

[1] See Section 7.2 regarding general requirements and Section 7.3.1 regarding the definition of life-cycle stages and attributable processes in the ‘Production’ stage.