BILFINGER TEBODIN

WHEN CAN YOU CALL PACKAGING CIRCULAR?

Packaging is beautiful and functional: it is what draws us in when we see a product. It gives us information about how the product inside works, contains a barcode that allows you to quickly learn the price, or is an integral part of the product, such as a bottle that holds laundry detergent. Whatever the purpose of the packaging, the intention is never to create a problem, such as litter. By working with the right criteria, packaging can be made circular. Can you actually measure how circular packaging is?

The Cradle to Cradle (C2C) multi-attribute standard provides concrete tools and assessment methods for developing circular products: safe materials, continuous recovery and reuse of materials, clean water, renewable energy, and social justice.

SAFE MATERIALS

Everything starts with the composition of the product. The choice of materials largely determines the impact that a product has on its environment. Primary packaging even has a special position in this respect, as it is part of the final product, such as the detergent bottle or a liquid soap pouch. That is why a C2C assessment always starts with the Bill Of Materials (BOM a.k.a. the composition). It is not only about the generic materials, but also the specific material designation or CAS no[1]. For example: a package consists of black-printed yellow polypropylene (PP).
In the BOM, this should be described as:

- Polypropylene
- black pigment
- yellow pigment

A specialized material health assessor analyzes the chemical composition of the materials to a level of 100 parts per million (ppm). The following is an assessment according to the ABC-X method (see over) and, in the case of the Silver (or higher) certification, for the absence of CMR substances (carcinogenic, mutagenic, reprotoxic[2]). The aim of the assessment is to ensure that, throughout the "lifetime" of the bottle, there is no damage to the environment or harm to humans. The product must be able to be processed and used in a safe and healthy way by the manufacturer, user, and the recycling worker.

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RECOVERY AND REUSE OF MATERIALS

An assessment is based on two important elements in the recovery and reuse of materials. The strategy and implementation of the system to recover packaging and the use of recycled materials.

RECYCLED MATERIALS MUST ALSO BE SAFE

When packaging is made up of recycled materials, the assessor must use additional criteria for their evaluation. The recycled material must not contain any pollutants that could have a negative effect on people or the environment. There are two common methods for testing this. The recycled materials are tested in a lab to see if the source of the materials should be specified. During the lab test, measurements are taken to see if there are any undesirable materials such as CMRs. The other method is a defined source of the recycled materials. An example is recycled Cradle to Cradle packaging, but in practice this is still rare. For example, an existing well-defined source could be 100% transparent PET bottles.

WEPA Nederland B.V.'s Cradle to Cradle certified hygiene paper.

Merijn Everaarts, Founder and CEO at Dopper with Cradle to Cradle certificate.

STRATEGY FOR PACKAGING RETURN SYSTEMS

Within C2C, returning the packaging is not a primary objective, but the optimal use of raw materials is. The assessment criteria focus on the recyclability of materials with the main focus on "design for disassembly". There are materials that belong to a biological cycle, such as all paper-based packaging and materials that belong to a technical cycle, such as plastic packaging. Ideally, these two cycles should be kept separate from each other. In these instances, it is not only the main material, but also the dyes, resins, etc., that are evaluated this way. The assessor gives a final score based on this.

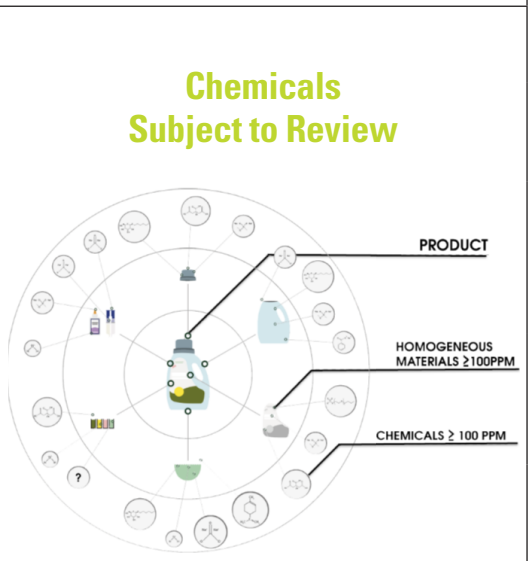
CIRCULAR PACKAGING:

In addition to all the above material criteria, C2C has to meet three criteria that focus on the production process. The themes of clean water, renewable energy, and social justice play a key role here. These three themes are less well known as part of the C2C certification, but each weighs just as heavily in the final assessment of whether the product meets the requirements. In short, the water must be drinking-water quality, the energy must come from 100% renewable sources, and the process must contribute to the values of the people working in the packaging chain.

You do not walk the Cradle to Cradle path alone. As an assessor, we have supported several companies in achieving C2C certification, such as Dopper and WEPA.

ABC-X method The method assesses homogeneous materials on the basis of the chemicals from which they are composed and the effects that these have from the C2C perspective.

A	The homogeneous material is ideal for the chosen product.
B	The homogeneous material largely meets the C2C objectives for the product.
C	The homogeneous material has moderately problematic properties. However, the material is still acceptable for use.
X	Very problematic properties. In order to optimize the product, the material or the chemical component in the material must be scaled down.
Grey	This material cannot be fully evaluated due to a lack of toxicological information on one or more chemical components.
Banned	Prohibited for use in certified products.



Both are very active in making their packaging chain more sustainable. The necessary collaboration with suppliers and consumers makes it possible to optimize the C2C chain. Cradle to Cradle represents working towards a positive impact.

[1] A CAS number is a unique numerical identifier for chemical elements, components, polymers, and alloys. CAS stands for chemical abstracts service
[2] RIVM (Netherlands National Institute for Public Health and the Environment): Carcinogenic, mutagenic (inducing changes in hereditary properties), or reprotoxic (harmful to reproduction or offspring)

Want to know more about Cradle to Cradle?

Feel free to contact Diana Seijs, Senior Consultant Sustainability at Bilfinger Tebodin. Bilfinger Tebodin is an Accredited Assessment Body for the Cradle to Cradle® Certified Product Standard.

Diana Seijs is an accredited Cradle to Cradle Assessor and has been working on C2C projects for 11 years.

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