Circular Living Standards

Circular Living Standards: Refillable Certified



Version 1.0

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WRAP

Preamble

The circular economy is a systems approach that tackles the root causes of global challenges such as climate change, biodiversity loss, and pollution, while creating opportunities for better growth. This includes a greater emphasis on business models such as resale, refill, reuse, rental, and repair that facilitate prolonged use and re-use of products. The circular economy facilitates the transition from a take-make-waste linear economy to one that is underpinned by three principles, all driven by design: eliminate waste and pollution, circulate products and materials, and regenerate nature. The circular economy promotes maintaining, sharing, reusing, repairing, refurbishing, remanufacturing, and finally recycling existing materials and products so they can be kept in use at their highest value for as long as possible.

Not all refillable product systems in the marketplace reduce environmental impact; for some, the impact avoided through refill does not fully outweigh the impact of the product's production and use. The purpose of this standard is to recognize refillable product systems that yield environmental benefits through being refilled a sufficient number of times. By purchasing refill units (termed "auxiliary unit" in this standard) for a refillable system a sufficient number of times, a consumer can avoid much of the impact associated with the raw material production, manufacture, transportation and disposal of multiple single-use products. Durability criteria in this standard address whether a product is capable of delivering impact reduction; products must be able to perform past their required number of reuses in order to deliver avoided impact. This is represented in the standard by the Minimum Uses for Impact (MUFI) – the number of auxiliary units required to avoid 15-30% of the emissions associated with a single-use equivalent. Circularity is also closely tied to consumer behavior. In most cases, the environmental outcomes of circular products depend on how customers actually use and interact with them. For this reason, it is not sufficient for a product to just be designed for reuse or refill—it must be reused or refilled in practice. Consumer use requirements in this standard address whether a product is used enough times in practice to deliver impact reduction; products must be refilled at or above the calculated MUFI to achieve the intended environmental benefit.

To assess the environmental benefits of refillable product systems, a sample of refillable products was first compared against their linear-economy counterparts—single-use products— using a screening life cycle assessment (LCA). This comparison provided a quantitative picture of where, how, and under what conditions refillable systems can avoid impact across several categories. The LCA informed the development of this standard, which also sets requirements to ensure certified products deliver these benefits in practice. In addition, this standard introduces requirements for the collection of circularity data.

Manufacturers are required to report on a set of indicators that capture the extent to which products incorporate reused, recycled, or renewable inputs, and the degree to which they are designed for further reuse, recycling, or safe return to the biosphere at the end of a product's life.

1. General

1.1. Purpose

The purpose of this standard is to recognize the environmental benefits of refillable consumer product systems that have had their design and use validated to deliver reductions in environmental impact. The standard establishes a set of criteria related to the design and evaluation of the containers, developed and reviewed through a multi-stakeholder process involving industry and NGO representatives. The standard also establishes a clear scope for eligible refillable product systems, excluding certain product/container types, materials, and sizes where refillable product systems may not reduce environmental impacts when compared to single-use alternatives, would introduce safety or product integrity issues, and/or have not been assessed.

1.2. Scope

This Standard applies to consumer product refill systems that facilitate the refill of a durable keeper container using an auxiliary unit. Eligible refill systems must offer both the keeper container and one or more corresponding auxiliary units, and must be designed to be refilled by the consumer at home as described in Section 4.3 of this standard.

The keeper container and auxiliary unit in a refillable product system must be designed to use the same content type (e.g. liquid, gel, etc). Auxiliary units containing a concentrated product formulation that requires the consumer to add water or another substance prior to transfer into the keeper container are not eligible under this version of the Standard.

This Standard is currently restricted to the following types and subtypes of products, with the keeper container type restrictions noted.

Product type	Product subtype	Keeper Container type
Cleaning agent	Dish soap	Spray bottle
	Floor cleaner	Spray bottle
	Glass cleaner	Spray bottle
Skin cleanser	Hand soap	Pump bottle
	Hand soap	Jar
	Body wash	Pump bottle
	Body wash	Jar
	Facial cleanser	Pump bottle
	Facial cleanser	Jar
Skin moisturizer	Hand lotion	Pump bottle
	Hand lotion	Jar
	Body lotion	Pump bottle
	Body lotion	Jar
	Facial Moisturizer	Pump bottle
	Facial Moisturizer	Jar
Deodorant	Solid stick	Propel/repel/elevator dispenser
	Roll-on liquid	Roller ball applicator bottle
	Spray-on	Spray bottle

Makeup	Foundation	Compact
	Pressed powder	Compact
	Blush, bronzer, highlighter	Compact
	Eyeshadow	Compact
	Concealer	Compact

1.3. Scope Expansion

The scope expressed in 1.2 may be expanded by the scheme owner to include additional product types or form factors. Expansion must be supported by a life cycle assessment (LCA) and validated by consumer behavior data that meets the procedures and criteria managed by the scheme owner. Such consumer behavior data must demonstrate that the refillable product system is typically refilled a number of times that meets the Minimum Uses for Impact (MUFI) (see Section 10). All submitted data and research will be subject to critical review and approval by the scheme owner.

2. Normative References

2.1. Regulatory References

2.1.1. European Union

2.1.1.1. Regulation (EC) No 1223/2009 - *Regulation on Cosmetic Products.*[1]

2.1.1.2. Commission Decision 2023/1445 - *Ecolabel Criteria for Personal Care Products and Reusable Containers.*[2]

2.1.2. United States

2.1.2.1. U.S. FDA 21 CFR Part 701 - *Regulations on Labeling of Cosmetics.*[3]

2.1.2.2. U.S. EPA Safer Choice Standard (2022) - *Requirements for Cleaners and Detergents with Reduced Environmental Impact.*[4]

2.1.3. Canada

2.1.3.1. Canadian Environmental Protection Act (CEPA) 1999 - *Guidelines for Personal Care and Cleaning Products.*[5]

2.2. Non-Regulatory References

2.2.1. [RESERVE FOR LINK TO STANDARD OWNER ASSESSED MATERIAL LIBRARY]

2.2.2. ISO Circularity Standards

2.2.2.1. ISO 59004:2023 - *Circular Economy – Framework and Principles for Implementation.*[6]

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[1] EUROPEAN UNION. *Regulation (EC) No 1223/2009 – Regulation on Cosmetic Products.* [online]. 2009. [Accessed 23 January 2025]. Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009R1223

[2] EUROPEAN UNION. *Commission Decision 2023/1445 – Ecolabel Criteria for Personal Care Products.* [online]. 2023. [Accessed 23 January 2025]. Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023D1445

[3] U.S. FOOD AND DRUG ADMINISTRATION. *21 CFR Part 701 – Labeling of Cosmetics.* [online]. 2022. [Accessed 23 January 2025]. Available from: https://www.ecfr.gov/current/title-21

[4] U.S. ENVIRONMENTAL PROTECTION AGENCY. *Safer Choice Standard.* [online]. 2022. [Accessed 23 January 2025]. Available from: https://www.epa.gov/saferchoice

[5] GOVERNMENT OF CANADA. *Canadian Environmental Protection Act (CEPA) 1999.* [online]. 1999. [Accessed 23 January 2025]. Available from: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act.html

[6] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. *ISO 59004:2023 – Circular Economy: Framework and Principles for Implementation.* [online]. 2023. [Accessed 23 January 2025]. Available from: https://www.iso.org/standard/82888.html

2.2.2.2. ISO 59010:2022 - *Circular Economy – Guidelines on Business Models and Value Chains.*[7]

2.2.2.3. ISO 59020:2023 - *Circular Economy – Measuring Circularity Framework.*[8]

2.2.3. ISO Standards

2.2.3.1. ISO Standard 14040:2006 "Environmental management — Life cycle assessment — Principles and framework," International Organization for Standardization[9]

2.2.3.2. ISO Standard 14044:2006 "Environmental management — Life cycle assessment — Requirements and guidelines," International Organization for Standardization[10]

2.2.3.3. ISO 22716:2007 - *Cosmetics – Good Manufacturing Practices (GMP) – Guidelines on Good Manufacturing Practices.*[11]

2.2.3.4. ISO 18606:2013 - *Packaging and the Environment – Organic Recycling.*[12]

2.2.3.5. ISO 17516:2014 "Cosmetics — Microbiology — Microbiological limits," International Organization for Standardization.[13]

2.2.4. Personal Care Product Council (PCPC)

2.2.4.1. *Ingredient Dictionary and Compliance Guidelines* (2022).[14]

2.2.5. Sustainable Cleaning Products Alliance (SCPA)

2.2.5.1. *Guidelines for Sustainable Design of Cleaning Product Packaging* (2021).[15]

2.2.6. Recycling and Compostability Standards

2.2.6.1. ASTM D6868-21 - *Standard Specification for Labeling of Plastics and Paper Designed to be Aerobically Composted.*[16]

2.2.7. Durability Testing References

2.2.7.1. ASTM INTERNATIONAL. ASTM D5276-19 — Standard Test Method for Drop Test of Loaded Containers by Free Fall.[17]

2.2.7.2. INTERNATIONAL SAFE TRANSIT ASSOCIATION (ISTA). ISTA 1A — Non-Simulation Integrity Performance Test Procedure.[18]

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[7] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. *ISO 59010:2022 – Circular Economy: Guidelines on Business Models and Value Chains.* [online]. 2022. [Accessed 23 January 2025]. Available from: https://www.iso.org/standard/82887.html

[8] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. *ISO 59020:2023 – Circular Economy: Measuring Circularity Framework.* [online]. 2023. [Accessed 23 January 2025]. Available from: https://www.iso.org/standard/82886.html

[9] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. ISO 14040:2006 . [online]. 2006. [Accessed 2 December 2024]. Available from: https://www.iso.org/standard/37456.html

[10] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. ISO 14044:2006 "Environmental management — Life cycle assessment — Requirements and guidelines." [online]. 2006. [Accessed 2 December 2024]. Available from: https://www.iso.org/standard/38498.html

[11] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. *ISO 22716:2007 – Cosmetics – Good Manufacturing Practices (GMP).* [online]. 2007. [Accessed 23 January 2025]. Available from: https://www.iso.org/standard/36437.html

[12] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. *ISO 18606:2013 – Packaging and the Environment: Organic Recycling.* [online]. 2013. [Accessed 23 January 2025]. Available from: https://www.iso.org/standard/56414.html

[13] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. ISO 17516:2023 – Cosmetics — Microbiology — Microbiological limits. [online]. 2023. [Accessed 18 February 2026]. Available from: https://www.iso.org/standard/59938.html

[14] PERSONAL CARE PRODUCT COUNCIL. *Ingredient Dictionary and Compliance Guidelines.* [online]. 2022. [Accessed 23 January 2025]. Available from: https://www.personalcarecouncil.org

[15] SUSTAINABLE CLEANING PRODUCTS ALLIANCE. *Guidelines for Sustainable Design of Cleaning Product Packaging.* [online]. 2021. [Accessed 23 January 2025].

[16] ASTM INTERNATIONAL. *ASTM D6868-21 – Specification for Labeling of Plastics and Paper Designed to be Aerobically Composted.* [online]. 2021. [Accessed 23 January 2025]. Available from: https://www.astm.org

[17] ASTM INTERNATIONAL. ASTM D5276-19: Standard Test Method for Drop Test of Loaded Containers by Free Fall. [online]. [Accessed 18 February 2026]. Available from: https://www.astm.org/d5276-19.html

[18] INTERNATIONAL SAFE TRANSIT ASSOCIATION (ISTA). ISTA 1A: Non-Simulation Integrity Performance Test Procedure. [online]. [Accessed 18 February 2026]. Available from: https://ista.org/test_procedures.php

2.2.7.3. INTERNATIONAL SAFE TRANSIT ASSOCIATION (ISTA). ISTA 2A — Partial Simulation Performance Test Procedure.[19]

2.2.7.4. ASTM INTERNATIONAL. ASTM D6633-18 — Standard Practice for Basic Functional Stability of a Mechanical Pump Dispenser.[20]

2.2.7.5. ASTM INTERNATIONAL. ASTM D2063-16(2022) — Standard Test Methods for Measurement of Torque Retention for Packages with Continuous Thread Closures.[21]

2.2.7.6. ASTM INTERNATIONAL. ASTM F88/F88M-23 — Standard Test Method for Seal Strength of Flexible Barrier Materials.[22]

2.2.7.7. ASTM INTERNATIONAL. ASTM F2054-23 — Standard Test Method for Burst Testing of Flexible Package Seals Using Internal Air Pressurization Within Restraining Plates.[23]

2.2.7.8. ASTM INTERNATIONAL. ASTM D395-18(2023) — Standard Test Methods for Rubber Property—Compression Set.[24]

3. Definitions

3.1. Product Type Definitions

3.1.1. **Cleaning Agent**: A type of consumer product intended for aiding in the cleaning of surfaces in the home.

3.1.2. **Deodorant**: A personal care product applied to the body to prevent odor.

3.1.3. **Makeup**: A cosmetic product designed to provide color, coverage, or finish to the skin, typically the face, in a portable compact format. Skin complexion compacts may contain pressed powder, cream, or hybrid foundation formulations and may include an integrated mirror or applicator. For the purposes of this Standard, “skin complexion compact” refers to refillable base units or cases designed to hold interchangeable product pans or cartridges for repeated use.

3.1.4. **Skin Cleanser**: A skincare product intended for cleansing the skin.

3.1.5. **Skin Moisturizer**: A skincare product designed to hydrate the skin.

3.2. General Definitions

3.2.1. **Assessed Materials Library:** A register of materials characterized by the scheme owner for use in the REST. This Library is normatively referenced by this Standard and identifies assessed materials, their assessment dates, applicable product scope, and any absolute conditions. A material must be listed

[19] INTERNATIONAL SAFE TRANSIT ASSOCIATION (ISTA). ISTA 2A: Partial Simulation Performance Test Procedure. [online]. [Accessed 18 February 2026]. Available from: https://ista.org/test_procedures.php

[20] ASTM INTERNATIONAL. ASTM D6633-18: Standard Practice for Basic Functional Stability of a Mechanical Pump Dispenser. [online]. [Accessed 18 February 2026]. Available from: https://store.astm.org/d6633-18.html

[21] ASTM INTERNATIONAL. ASTM D2063-16(2022): Standard Test Methods for Measurement of Torque Retention for Packages with Continuous Thread Closures. [online]. [Accessed 18 February 2026]. Available from: https://store.astm.org/d2063_d2063m-24.html

[22] ASTM INTERNATIONAL. ASTM F88/F88M-23: Standard Test Method for Seal Strength of Flexible Barrier Materials. [online]. [Accessed 18 February 2026]. Available from: https://www.astm.org/f0088_f0088m-23.html

[23] ASTM INTERNATIONAL. ASTM F2054-23: Standard Test Method for Burst Testing of Flexible Package Seals Using Internal Air Pressurization Within Restraining Plates. [online]. [Accessed 18 February 2026]. Available from: https://store.astm.org/f2054_f2054m-13r24.html

[24] ASTM INTERNATIONAL. ASTM D395-18(2023): Standard Test Methods for Rubber Property—Compression Set. [online]. [Accessed 18 February 2026]. Available from: https://store.astm.org/d0395-18r25.html

in the Assessed Materials Library before it may be included in a product submitted for certification under this Standard.

3.2.2. **Auxiliary Unit**: The single-use component or container that supplies the refilled content to the keeper container.

3.2.3. **Auxiliary Unit Count:** The number of auxiliary unit containers consumed in a refillable product system.

3.2.4. **Bill of Materials (BOM):** A complete list of all materials comprising a keeper container or auxiliary unit, including their respective masses, submitted by the manufacturer to the certification body for input into the REST. The BOM as verified at certification constitutes the certified composition of the product and is the reference point for all post-certification change assessments.

3.2.5. **Breakeven Point**: The minimum number of auxiliary units (rounded up to the nearest integer) required for a refillable product system to have an equivalent environmental impact to its single-use counterpart. This is calculated through life cycle assessment.

3.2.6. **Calculated MUFI:** The calculated MUFI for a given product system is the MUFI computed by the Refillable Eligibility Scanning Tool (REST) based on the product system's bill of materials and product type.

3.2.7. **Circularity Assessment:** A process for evaluating the circularity performance of a product, system, or organization based on principles outlined in ISO 59020. It measures the effectiveness of circular economy strategies, such as resource efficiency, waste minimization, and material recirculation, across the lifecycle.

3.2.8. **Consumable Contents:** The product or substance purchased by the end user for its intended functional use, which is contained within and comes into direct contact with the refillable container or auxiliary unit. Contents exclude all containers and manufacturer's packaging.

3.2.9. **Container:** A physical component designed to directly contain, hold, or dispense the contents and that comes into direct contact with the contents during normal use. The word container refers to single-use containers, keeper containers, and auxiliary unit containers only, and excludes all manufacturer's packaging.

3.2.10. **Environmental impact.** An effect on the environment produced by emissions to air, water or land or through use of resources. In this standard, environmental impact is quantified based on greenhouse gas emissions, waste produced, water use and depletion of mineral and metal resources.

3.2.11. **Form Factor:** The physical design and structure of a package, including its shape, size, and functionality, that determines how it is used, refilled, and stored. In the context of the Refillable standard, form factor must support repeated use, facilitate easy and hygienic refilling, and be compatible with the brand's refill system or infrastructure.

3.2.12. **Keeper Container**: The primary container, or base unit, of a refillable product system, designed to be refilled multiple times while maintaining the quality of intended service.

3.2.13. **Life cycle assessment (LCA):** A standardized method to evaluate the environmental impacts of a product or system across its lifecycle, from raw material extraction to end-of-life disposal.

3.2.14. **Manufacturer's Packaging:** Any branded or non-branded packaging component supplied by the manufacturer that encloses, protects, or presents the container and/or contents for sale to the end user, but which does not come into direct contact with the contents during normal use. Manufacturer's packaging may include boxes, sleeves, blister packs, shrink wrap, inserts, or similar materials delivered to the consumer with the product. Manufacturer's packaging explicitly excludes shipping boxes, mailers, pallets, strapping, or other logistics packaging used for distribution or fulfilment. For the purposes of this standard, manufacturer's packaging does not include keeper containers, auxiliary unit containers, or single-use containers.

3.2.15. Minimum uses for impact (MUFI): The minimum number of auxiliary unit counts required for a refillable product system to avoid 15-30% of the environmental impact associated with delivering the same function via a single-use equivalent. This reduction is required for both greenhouse gas emissions and total end of life (EOL) waste, and at least one of either water use or non-renewable resource depletion. The avoided environmental impact (15-30%) is determined by product type and detailed in the LCA report.

3.2.16. MUFI Threshold: The value against which a system-specific MUFI computed by the REST (referred to as the "calculated MUFI") is compared for purposes of certification eligibility. MUFI Thresholds are calculated in the REST for each refillable product system based on the quantity of product dispensed at the MUFI threshold (Q_{MUFI}), the keeper container capacity, and the auxiliary unit capacity. The Q_{MUFI} is established by the scheme owner based on validated consumer use data and may be pre-validated by the scheme owner or require manufacturer validation, as specified in Section 9.

3.2.17. Packaging: Item used for the containment, protection, handling, delivery, storage, transport, and presentation of goods, from raw materials to processed goods, from the producer to the user or consumer. This includes an item that is necessary to contain, support or preserve a product throughout its lifetime, without being an integral part of the product, and which is intended to be used, consumed or disposed of together with the product, or any component or ancillary element to such an item, such as pump, lid or label.

3.2.18. Product: A finished good, including all components necessary for its intended function, that is designed, manufactured, and placed on the market for use by an end user.

3.2.19. Secondary packaging: Packaging designed to contain one or more products together with any protective material where required.

3.2.20. Tertiary packaging: Packaging designed to contain one or more articles or packages, or bulk material, for the purposes of transport, handling, or distribution.

3.2.21. Refill: The act or instance of replenishing the keeper container with product content from an auxiliary unit**.**

3.2.22. Re-Audit: An on-site or remote verification activity conducted by the certification body, in addition to or in advance of the next scheduled annual audit, where the certification body determines that direct verification of conformity is necessary to confirm continued compliance following a notified change or other compliance concern.

3.2.23. Re-Evaluation: An assessment conducted by the certification body, at the same scope as the annual recertification audit and conductible at any point during the certification cycle, to determine whether a certified product system remains in conformity with this Standard following a notified change or other compliance concern.

3.2.24. REST Re-Application: Re-execution of the Refillable Eligibility Scanning Tool against an updated bill of materials, applicable only to the keeper container and auxiliary unit pairings affected by the change, in accordance with the triggers and procedure in Section 4.2.4.

3.2.25. Refillable Eligibility Scanning Tool (REST): The life cycle assessment tool maintained by the scheme owner and used by certification bodies to assess the environmental performance of the containers of a refillable product system. The REST takes the bill of materials of a keeper container and auxiliary unit as inputs and computes a system-specific calculated MUFI. The calculated MUFI is then compared against the MUFI Threshold for the applicable product type set out in Section 10 to determine eligibility. Certification bodies access the REST under license from the scheme owner.

3.2.26. Refillable Product System: A product design framework where the keeper container and auxiliary units function together to allow the product to be replenished and reused multiple times.

3.2.27. Single-use Container: Container which is designed to go through a single service cycle and is disposed after the service period is over.

3.2.28. Total EOL Waste: The total quantity of waste, measured in units of mass, that is disposed of by the consumer at the end of a product's service life.

3.2.29. Q_{MUFI} (Quantity of Product Dispensed at the MUFI Threshold): The quantity of consumable product that is used by the consumer at the MUFI threshold. This number is established by product type, subtype, and form factor based on consumer survey data.

4. Refillable Product Systems Requirements

4.1. Overview

Product systems verified under this standard must meet the requirements contained in this section for the overall system, defined as the combination of the keeper container and the auxiliary unit.

4.2. Refillable Product System Characteristics

4.2.1. General Requirements

Refill systems with multiple keeper container and/or auxiliary unit designs for the same product must apply for certification for each distinct container combination. For the purposes of this Standard, a distinct combination is defined as one that differs from another combination in containers used, material composition, structure, or dimensions.

Where a manufacturer offers multiple keeper container designs and/or multiple auxiliary unit designs that are mutually compatible, a single certification may cover all approved keeper/auxiliary combinations, provided that the REST has been applied to each unique keeper/auxiliary pairing and each pairing returns an eligible determination. The certification body shall record the REST output for each pairing separately and shall document all approved combinations in the certified correspondence mapping required under Section 4.4. A change to any individual keeper container or auxiliary unit design that triggers REST re-application under Section 4.2.4 requires re-application only for the pairings that include the modified component.

4.2.2. Audit Frequency

Certified refillable product systems are subject to annual recertification audits conducted by the certification body. The scope and depth of recertification audits, including the criteria subject to review in each audit cycle, are defined in the scheme owner's certification policies and associated guidance documents.

4.2.3. REST Application

As part of each recertification audit, the certification body shall confirm that the REST output on file remains valid for the product system's current bill of materials. Where the BOM has changed since the prior audit, or where the certification body determines that an updated tool or library version materially affects the prior assessment, REST shall be re-applied and the updated tool and library versions recorded in the certification record.

Manufacturers shall notify the certification body prior to implementing any change that could affect compliance with this Standard, including but not limited to alterations to materials, design, or weight; modifications affecting durability, refill performance, or recyclability; substitution of components, suppliers, or manufacturing processes; and revisions to labeling, refill instructions, or end-of-life guidance. For the purposes of this Standard, a change is material where it could alter any element recorded in the certification record under Section 4.2.5. Upon notification, the certification body shall determine whether re-evaluation,

re-audit, or REST re-application (per Section 4.2.4) is required to maintain certification. Certification may be suspended or withdrawn if continued conformity cannot be demonstrated.

4.2.4. REST Re-Application Triggers

Where a manufacturer notifies the certification body of a change to the material composition of a certified keeper container or auxiliary unit, a re-application of the REST is required before the certification is confirmed to apply to the changed system in the following circumstances:

- Any new material is introduced to the bill of materials that was not present in the most recently certified composition; or
- The mass of any existing material in the bill of materials increases relative to the most recently certified composition.

Changes to paints, coatings, or dyes are not considered composition changes for this purpose unless they are necessary to account for the 95% of product mass that must be accounted for in the REST or were included in the bill of materials on which the REST was originally calibrated. This provision does not apply where a change to a paint, coating, or dye introduces, or could introduce, a substance prohibited under Section 11 or alters the disclosure profile required under Section 11.3; in such cases, the change shall be treated as a composition change regardless of mass.

Any change to the mechanism type or supplier of a pump, dispenser, closure, hinge, gasket, liner, or seal shall trigger re-evaluation, regardless of whether the bill of materials is otherwise affected.

A REST re-application is not required where no new materials are introduced, the mass of each previously evaluated material is less than or equal to the most recently certified composition, and no other re-application trigger applies. The manufacturer shall document the change and the certification body shall update the certification record accordingly.

Where a REST re-run is required and returns an ineligible determination, the manufacturer must either revert the proposed change, or certification shall be suspended or withdrawn for the product in question.

4.2.5. Certification Record Requirements

For each product system assessed under this Standard, the certification body shall compile and retain a certification record containing the following elements:

- The product type, subtype and container type selected in the REST;
- The submitted bill of materials, including every material, its mass, and its recyclability flag, as entered into the REST;
- The capacity ratio and efficiency ratio as computed by the REST;
- The calculated MUFI, computed by the REST for the submitted bill of materials;
- The pass/fail determination resulting from comparison of the calculated MUFI against the applicable minimum MUFI Threshold;
- The version of the REST used at the time of assessment; and
- The version of the Assessed Materials Library in effect at the time of assessment.

The certification record shall be retained by the certification body for the life of the certification and shall be made available to the scheme owner and any relevant accreditation body upon request. The most recent approved certification record serves as the reference point for all subsequent change assessments and recertification audits. Each approved change assessment or recertification audit shall result in an updated certification record that supersedes the prior record as the operative baseline, while prior records shall be

retained to preserve the certification's audit trail.

4.3. Refill at Home

This Standard applies exclusively to refill-at-home product systems. A refill-at-home system is one in which:

a) the consumer purchases and retains a durable keeper container;
b) the consumer independently acquires auxiliary units through retail or e-commerce channels; and
c) the consumer performs the refill action at home, without requiring any dispensing infrastructure, take-back service, or return logistics operated by the manufacturer or a third party. The consumer is responsible for the keeper container throughout its service life, including cleaning and maintenance between refill cycles.

For the purposes of certification, a product system satisfies the refill-at-home requirement where the manufacturer designs and markets the keeper container and auxiliary unit as an integrated refill system intended for consumer use in the home, and where the auxiliary unit is available for purchase through conventional retail or direct-to-consumer channels without requiring the consumer to attend a specific location or participate in a take-back or return program.

4.4. Keeper Container and Auxiliary Unit Correspondence

Manufacturers shall establish and maintain a clear and documented correspondence between each keeper container and the auxiliary unit(s) designed to refill it. This correspondence must define which auxiliary unit configurations are compatible with each keeper container model and must be maintained as part of the product system documentation submitted for certification.

The documented correspondence shall specify, at minimum:

- The keeper container model or product identifier
- For each keeper container, the corresponding auxiliary unit model(s) intended for use with that container
- For each auxiliary unit, the corresponding keeper container model(s) intended for use with that container.
- The product type and form factor of both components
- The nominal capacity of the keeper container and auxiliary unit
- Any compatibility limitations or conditions necessary to ensure safe and effective refill

Certification bodies shall verify and document this mapping during certification review. The certification record shall clearly identify the approved keeper container and auxiliary unit combinations that constitute the verified refillable product system.

Where changes to the keeper container or auxiliary unit affect compatibility, manufacturers shall update the documented correspondence and notify the certification body in accordance with Section 4.2.3.

4.5. MUFI and Breakeven Point

The Minimum Uses for Impact (MUFI) threshold, as defined in Section 3.2, is the operative threshold for certification under this Standard. The MUFI threshold represents the minimum auxiliary unit count that a refillable product system must complete for its cumulative environmental impact to fall 15-30% below that of the single-use equivalent. Environmental impact for purposes of this Standard is assessed across greenhouse gas emissions, solid waste generation, and either water use or resource depletion. The avoided environmental impact (15-30%) is determined by product type and detailed in the LCA report

The breakeven point is a related but distinct concept. The breakeven point represents the auxiliary unit count at

which a refillable product system's cumulative environmental impact equals that of the single-use equivalent. The MUFI is set beyond the breakeven point to ensure that certified products deliver a meaningful net environmental benefit, not merely impact equivalence.

The calculated MUFI for a given product system is computed by the Refillable Eligibility Scanning Tool (REST) based on the product system's bill of materials and is recorded in the certification record as required under Section 4.2.5. The calculated MUFI is not a fixed value across product types; each certified system has a calculated MUFI specific to its design and material composition.

Two categories of requirements ensure that the calculated MUFI is achieved in practice:

- **Durability requirements** (Section 7) ensure that the keeper container and its components are designed to withstand at least the number of use cycles required to reach the calculated MUFI.
- **Consumer use requirements** (Sections 9 and 10) establish that the product system is used in practice at or above the calculated MUFI, validated through the consumer use data specified in that section.

5. Consumer Information Requirements

5.1. Overview

Refillable product systems certified under this standard shall provide clear, accurate, and accessible consumer information that enables safe and effective refill, supports proper maintenance and end-of-life handling, and communicates the conditions under which the refillable system delivers impact reduction. Consumer instructions must be communicated through one or more of the following methods: on-pack text, printed inserts, on-product labeling, or digital instructions accessed via QR code or shared on an online product detail page. Instructions must be easy to understand, and consistent across packaging, inserts and digital sources. While not required, participants are encouraged to include clear information on product labeling or packaging, along with online product detail pages, to enable consumers to readily understand the minimum number of refills necessary for impact.

5.2. Required Elements

5.2.1. Refill Availability and Identification

The keeper container must include a clear statement that the product is designed to be refilled, on its product label or packaging.

Additional instructions, which may appear on the product label, be made available via a URL or QR code, or appear on an online product description page, must convey that corresponding refills are available, specify the appropriate auxiliary units for the keeper container, and make it unambiguous that the consumer has the option to refill the system.

5.2.2. Breakeven and Durability

Consumers must also be informed of the minimum number of refills needed for the product to deliver the target reduction in environmental impact (MUFI). If applicable, instructions must state the conditions under which the keeper container should no longer be used (e.g., damage, wear, or a maximum number of uses). Such instructions must either appear on the product label directly, or be made available via URL or QR code.

5.2.3. Auxiliary Unit Information

The auxiliary unit must include a clear statement that the product is intended to refill another container. Such statement must either appear on the product label directly, or be made available via a URL or QR code.

5.2.4. End of Life and Disposal Guidance

Instructions for both the keeper container and auxiliary unit must inform the consumer of appropriate methods for the respective component's disposal, including what can be recycled, what must be discarded, and whether any components must be removed prior to recycling. Such instructions must either appear on the product label directly, or be made available via URL or QR code.

5.3. Sell-Through of Existing Packaging

Manufacturers whose products are newly certified under this Standard may continue to sell through existing packaging inventory that does not yet meet all applicable requirements of Section 5.2, provided that:

- Such packaging was produced prior to the date of certification;
- The product and refill system otherwise meet all safety, regulatory, and performance requirements of this Standard; and
- The manufacturer demonstrates a clear plan to bring all packaging into compliance.

All required changes to packaging, labeling, and consumer instructions must be implemented no later than 24 months after the date of certification.

6. Product Safety and Regulatory Requirements

6.1. Product Safety and Regulatory Competency

Each manufacturer of a product verified under this standard must demonstrate sufficient regulatory and product safety expertise to ensure compliance with all applicable requirements in every market of sale. Manufacturers shall:

- Maintain documented processes and expertise to identify, interpret, and comply with health, safety, environmental, and marketing regulations relevant to the product type, including but not limited to food contact materials, hygiene products, medical devices, electronics, and packaging.
- Demonstrate the capacity to assess and manage risks associated with materials, chemical safety, durability, and consumer use.
- Ensure ongoing monitoring of regulatory changes and maintain compliance throughout the product lifecycle.

Verification under this standard requires manufacturers to show competence and accountability in managing regulatory compliance.

6.2. Safety and Regulatory Requirements

Each product system verified under this standard must be made from appropriate materials to facilitate adequate cleaning and sanitation between uses, if applicable to the product type. Each product must meet all applicable regulations, including but not limited to the regulatory references cited in Section 2.1 of this standard.

7. Durability Requirements

7.1. Overview

Keeper container durability is foundational to the performance of refillable product systems. To support repeated reuse and refilling, keeper containers must be designed and constructed to maintain structural

integrity, functional performance, and product protection throughout their expected service life under normal consumer use conditions.

Keeper containers verified under this standard shall be capable of withstanding repeated handling, dispensing, cleaning where applicable, and refilling without failure, deformation, or loss of functionality that would compromise the safe storage or dispensing of the product.

Durability requirements in this section are organized into two subsections:

- Section 7.3 contains baseline durability requirements for keeper containers.
- Section 7.4 contains modular requirements for specific product components.

Equivalent testing methods or manufacturer validation programs may be accepted where they demonstrate that the component meets or exceeds the performance criteria specified in the relevant module.

Referenced test methods are acceptable for validating the durability of the respective module.

Certification bodies shall review the durability evidence provided by the manufacturer, including testing protocols, performance thresholds, and supporting documentation, to verify that the keeper container system meets or exceeds the durability and performance criteria specified in this section. Equivalent test methods, validation protocols, or documented manufacturer testing programs may be accepted in lieu of the referenced standards where they demonstrate equivalent rigor.

7.2. Demonstration of Conformity

Compliance with the baseline durability requirements in Section 7.3, and with each applicable durability module in Section 7.4, shall be demonstrated through objective evidence reviewed by the certifier. Such evidence may include:

- Product engineering or design documentation;
- The bill of materials; and
- Test reports or certifications relevant to the product's intended use.

Where testing is relied upon to demonstrate durability, testing protocols shall:

- Reflect the product's intended use conditions, including the mechanical, thermal, chemical, or electrical stressors relevant to the applicable module;
- Apply repeatable, objective, and auditable methods;
- Demonstrate performance through at least the greater of the minimum number of cycles specified for the applicable module or the product's calculated MUFI;
- Demonstrate performance through the number of cycles specified in any consumer-facing claims about the product's durability made on product labeling or packaging; and
- Address all critical testing elements specified for the applicable module.

Conformity with an applicable module may be demonstrated through any of the following, provided that all critical testing elements and minimum use cycles for the module are addressed:

- Full compliance with a referenced standard, demonstrating conformity with all requirements of that standard;
- Targeted compliance, demonstrating conformity with the critical testing elements relevant to the module; or

- Direct testing evidence from custom tests that replicate intended use and address all critical testing elements for the module.

The certification body shall verify that the evidence demonstrates retention of function under normal conditions of use through at least the product's MUFI threshold, along with any consumer-facing durability claims, and that all critical testing elements and minimum use cycles for each applicable module are addressed.

7.3. Baseline Durability Requirements for Keeper Containers

Products must be designed to withstand typical handling, refilling, and consumer use conditions without loss of function, containment, or refillability.

7.3.1. Drop and Handling Resistance

7.3.1.1. Required Test Elements

Products must withstand repeated free-fall drop impacts representative of countertop, sink, or bathroom handling.

Testing must include:

- Drop heights of approximately 0.8–1.0 m
- Drops onto a rigid surface
- Multiple orientations, including base, side, and closure-facing impacts

7.3.1.2. Post-Test Performance Criteria

After completion of drop testing, product must show:

- No cracking, fracture, or deformation affecting refillability or use
- No leakage under normal orientation
- Closures and components engage fully and securely

7.3.1.3. Referenced Test Methods

- ASTM D5276 — Drop Testing of Loaded Containers by Free Fall
- ISTA 1A — Non-Simulation Integrity Performance Test
- ISTA 2A — Partial Simulation Performance Test

7.4. Durability Requirements for Specific Keeper Container Components (Modules)

7.4.1. Overview

Products shall comply with all durability modules applicable to their design, materials, and intended use conditions.

For each applicable module, products shall demonstrate:

- Minimum number of use or cleaning cycles, and
- Retention of functional performance and material integrity under the stresses specified for the module.

Each module specifies:

- Required Test Elements – the durability or cycling conditions used to simulate repeated consumer use
- Post-Cycle Performance Criteria – the functional performance that must be maintained following testing
- Referenced Standards – applicable external test methods or performance benchmarks that may be used to demonstrate compliance

Modules are intended to evaluate the durability of key packaging functions, including structural integrity, dispensing performance, and closure performance.

For each applicable module, the manufacturer shall document, and the Certification Body shall verify the accuracy of, the calculation used to establish the number of actuations, openings and closures, or other operational events.

7.4.2. Pumps, Sprayers and Dispensing Mechanisms

Where the keeper container includes a dispensing mechanism (e.g., pumps, spray actuators, airless pumps, or similar mechanical dosing systems), the dispensing system shall demonstrate mechanical durability sufficient to support repeated use across the expected refill life of the product. For the purposes of this standard, an actuation cycle is defined as one complete activation of the dispensing mechanism resulting in product discharge.

Dispensing mechanisms shall be capable of maintaining functional performance after repeated actuation cycles representing the expected service life of the refillable system. Durability testing shall simulate repeated consumer use and demonstrate that the dispensing mechanism continues to function as intended after the required number of cycles.

The dispensing system shall demonstrate reliable performance after a minimum of actuation cycles equal to:

2 x Calculated MUFI × the estimated number of actuation cycles per auxiliary unit consumed

where the estimated number of actuation cycles represents the typical number of actuation events that occur during a single auxiliary unit use under normal consumer conditions.

The estimated number of actuation cycles per container shall be determined based on:

- the nominal container volume; and
- the calibrated dose output per actuation of the dispensing mechanism.

7.4.2.1. Required Test Elements

Durability testing shall subject the dispensing mechanism to repeated actuation cycles sufficient to meet or exceed the required cycle threshold defined in this section.

Testing shall:

- Simulate repeated actuation under conditions representative of normal consumer use,
- Maintain consistent actuation force and stroke length during testing,
- Evaluate the dispensing mechanism as assembled within the container system where applicable, and
- Document the total number of completed cycles.

Testing may be conducted using automated cycling equipment or equivalent methods capable of reliably replicating repeated actuation.

7.4.2.2. Post-Cycle Performance Criteria

Following completion of the required actuation cycles, the dispensing mechanism shall continue to demonstrate functional performance consistent with intended product use.

The dispensing mechanism shall:

- Dispense product when actuated without mechanical failure,
- Maintain structural integrity of the actuator, pump housing, and associated components,
- Show no evidence of leakage, cracking, deformation, or component separation that would compromise product containment or dispensing, and
- Continue to deliver product within the acceptable dosing range specified by the manufacturer where applicable.

Minor cosmetic wear that does not affect functional performance is acceptable.

7.4.2.3. Referenced Test Methods

- ASTM D6633-18 — Standard Practice for Basic Functional Stability of a Mechanical Pump Dispenser

7.4.3. Twist-Off, Screw-Cap and Twist Closures

Closures that rely on threaded, twist-off, or snap engagement mechanisms shall demonstrate durability sufficient to maintain functional performance across repeated opening and resealing events consistent with the expected service life of the refillable system. For the purposes of this section, a closure cycle is defined as one complete opening of the closure followed by resealing to the normal consumer-applied closure position.

Closures shall maintain sealing performance and mechanical engagement after repeated opening and closing cycles representing normal consumer use.

Closures shall demonstrate reliable performance after a minimum of opening and closing cycles equal to:

2 x Calculated MUFI × the estimated number of opening and closing events per auxiliary unit consumed

where the estimated number of opening and closing events represents the typical number of opening or closing events experienced during a single auxiliary unit use under normal consumer conditions.

7.4.3.1. Required Test Elements

Durability testing shall subject the closure system to repeated opening and resealing cycles sufficient to meet or exceed the required cycle threshold defined in this section.

Testing shall:

- Simulate repeated opening and closing under conditions representative of normal consumer use,
- Apply torque levels consistent with typical consumer application for threaded closures measure torque at initial application and after completion of cycling where applicable, and
- Document the total number of completed opening and closing cycles.

Where relevant, testing shall also include verification of closure engagement integrity following cycling.

7.4.3.2. Post-Cycle Performance Criteria

Following completion of the required opening and closing cycles, the closure shall continue to demonstrate functional sealing performance.

The closure shall:

- Maintain seal integrity with no leakage under normal orientation,
- Maintain thread engagement or snap retention sufficient to securely close the container,
- Maintain functional torque characteristics sufficient to achieve sealing without excessive force, and
- Show no cracking, deformation, or component separation that would compromise closure performance.

Minor cosmetic wear that does not affect functional sealing or engagement is acceptable.

7.4.3.3. Referenced Test Methods

- ASTM D2063 — Torque Retention of Packaging Closures
- ASTM F88 — Seal Strength Testing
- ASTM F2054 — Burst and Creep Testing of Package Seals

7.4.4. Hinges, Latches and Compacts

Containers incorporating hinged closures, latch mechanisms, or compact-style opening systems shall demonstrate durability sufficient to maintain alignment, closure retention, and functional usability after repeated opening and closing events representative of normal consumer use.

Such mechanisms are subject to repeated mechanical stress during the service life of the keeper container and must maintain structural integrity and reliable operation without failure of the hinge, latch, or closure mechanism. For the purposes of this section, an opening and closing cycle is defined as one complete opening of the hinged or latched closure followed by full reclosure to the normal closed position.

Hinged closures and latch mechanisms shall demonstrate reliable performance after a minimum of opening and closing cycles equal to:

> **2 x Calculated MUFI × the estimated number of opening and closing events per auxiliary unit consumed**
>
> *where the estimated number of opening and closing events represents the typical number of opening or closing events experienced during a single auxiliary unit use under normal consumer conditions.*

Cosmetic wear such as scratching, scuffing, or finish wear is acceptable. Structural damage or functional failure affecting closure performance or refillability is not acceptable.

7.4.4.1. Required Test Elements

Durability testing shall subject the hinge or latch mechanism to repeated opening and closing cycles sufficient to meet or exceed the required cycle threshold defined in this section.

Testing shall include:

- Repeated full-range opening and closing of the hinge or compact mechanism,\
- Inspection of hinge alignment and latch engagement during cycling, and
- Documentation of the total number of completed opening and closing cycles.

Following completion of the opening and closing cycles, the container shall undergo drop testing to evaluate structural and functional performance under conditions representative of accidental handling during consumer use.

7.4.4.2. Post-Cycle Performance Criteria

Following completion of the required opening and closing cycles and drop testing, the container shall:

- Maintain hinge alignment and functional opening and closing operation
- Maintain latch engagement and closure retention sufficient to secure the container
- Show no cracking, fracture, or deformation that would impair usability or refillability.

Minor cosmetic wear that does not affect functional performance is acceptable.

7.4.4.3. Referenced Test Methods

- ASTM D5276 — Drop Testing of Loaded Containers by Free Fall
- ISTA 1A / 2A — Handling and Drop Performance Procedures

7.4.5. Seals, Gaskets and Liners

Seals, gaskets, and liner materials used in keeper containers or auxiliary containers shall maintain sealing performance and material integrity after repeated compression cycles associated with opening, closing, dispensing, and refilling.

These components play a critical role in preventing leakage and maintaining product protection. They must therefore resist permanent deformation, compression set, and degradation caused by repeated mechanical loading and contact with the product formulation over the expected service life of the refillable system. For

the purposes of this section, a compression cycle is defined as one complete compression of the sealing element under normal closure force followed by release or decompression.

Sealing elements shall demonstrate reliable performance after a minimum number of compression cycles equal to:

2 x Calculated MUFI × the estimated number of compression events per auxiliary unit consumed

where the estimated number of compression events represents the typical number of opening, closing, or sealing events experienced during a single auxiliary unit use under normal consumer conditions.

7.4.5.1. Required Test Elements

Durability testing shall subject sealing elements to repeated compression cycles sufficient to meet or exceed the required cycle threshold defined in this section.

Testing shall include:

- Repeated compression and release under closure forces representative of normal consumer use,
- Evaluation of sealing material deformation during and after cycling, and
- Documentation of the total number of completed compression cycles.

Following completion of the compression cycles, the container system shall undergo leak testing to verify sealing performance.

7.4.5.2. Post-Cycle Performance Criteria

Following completion of the required compression cycles, the sealing system shall:

- Maintain leak resistance under normal orientation and handling conditions
- Show no permanent deformation that compromises sealing performance, and
- Maintain compatibility with the contained product formulation without swelling, degradation, or loss of sealing functionality.

Minor cosmetic wear that does not affect sealing performance is acceptable.

7.4.5.3. Referenced Test Methods

- ASTM D395 — Compression Set of Rubber Materials
- ASTM F2054 — Burst and Creep Testing of Package Seals

8. Auxiliary Unit Requirements

8.1. Product Protection and Microbial Safety

The requirements in this section apply to the following product types:

- Skin cleanser
- Skin moisturizer
- Makeup
- Deodorant

8.1.1. Packaging Material Compatibility and Product Protection

Refillable cosmetic packaging must be designed and manufactured so that packaging materials do not adversely affect the cosmetic product through contamination, degradation, or chemical migration. Packaging must also protect the product from external contamination during consumer use and refill cycles.

Compliance may be demonstrated through one or more of the following:

1. Demonstration of conformance to *ISO 22715 – Cosmetics — Packaging and Labelling,* limited to sections addressing material compatibility and product protection.

2. Equivalent testing or evidence demonstrating that packaging materials and construction do not:
   - Contaminate the product,
   - Enable product degradation or chemical migration, or
   - Compromise product protection from external contamination during intended use and refill cycles.

8.1.2. Microbial Safety and Product Integrity

Refillable consumable contents must meet acceptable microbial limits to ensure product safety and integrity over the product's intended use and refill life cycle.

Compliance may be demonstrated through one or more of the following:

1. Demonstration of conformance to ISO 17516 – Cosmetics — Microbiology — Limits for Microorganisms in Cosmetics, or equivalent microbial limit testing.
2. Microbial testing evidence confirming that the finished product remains within acceptable microbial limits after repeated use and refill cycles, including exposure to consumer handling and refill processes.

9. Consumer Use Requirements

This section establishes consumer use requirements for validating that certified products achieve the MUFI in practice. The MUFI Threshold represents the number of times consumers typically refill a product of that type. The MUFI threshold is calculated for each refillable product system based on the quantity of product dispensed at the MUFI Threshold (Q_{MUFI}), keeper container capacity, and auxiliary unit container capacity. The Q_{MUFI} is established through consumer surveys or other supporting data. A refillable product system is eligible for certification only where the system-specific calculated MUFI computed by the REST falls at or below the applicable MUFI Threshold, ensuring that the number of refills required to deliver the environmental benefit is within the range of observed consumer behavior.

For each sub-product type and form factor, a Q_{MUFI} is designated in Section 10.4. The Q_{MUFI} is either pre-validated by the scheme owner or requires manufacturer validation. Pre-validated Q_{MUFI} values are supported by consumer behavior data already collected or reviewed by the scheme owner; in these cases, no additional consumer use data is required from the manufacturer. Manufacturer-validated Q_{MUFI} values or MUFI Thresholds require the certification applicant to submit consumer use data for their specific product demonstrating that observed refill behavior supports the threshold value.

Compliance with the requirements set forth in this section is mandatory for all product types and form factors subject to certification.

9.1. Validation of Q_{MUFI} values and MUFIs

9.1.1. Pre-Validated Q_{MUFI}

MUFI Thresholds are calculated dynamically based on a Q_{MUFI} that has been validated by the scheme owner using supporting consumer behavior data. In these cases, surveys conducted by or presented to the scheme owner have validated that consumers refill the relevant product type an equal or greater number of times than the calculated MUFI. The validated Q_{MUFI} values for each product sub-type and form factor are identified in the table below. Where a Q_{MUFI} is pre-validated, manufacturers are not required to submit additional consumer use data.

9.1.2. Manufacturer-Validated MUFI Thresholds

In some instances, manufacturers may wish to propose an alternate MUFI threshold based on their internal consumer use data. The threshold value substantiated by this data shall then be compared to the system-specific calculated MUFI computed by the REST to determine eligibility in accordance with Section 10.1. A Q_{MUFI} is not necessary for this step if the manufacturer is able to directly provide a MUFI threshold in accordance with the definition in Section 3.2.

Submitted data must:

- Reflect actual consumer behavior (e.g., sales-linked refill data, longitudinal tracking, or structured post-purchase follow-up).
- Include a minimum of 100 consumer units or a statistically justified equivalent sample size.
- Cover a sufficient observation period to reasonably capture auxiliary unit count for the product type.
- Establish the mean number of refills per consumer observed for the product, which shall serve as the MUFI Threshold for eligibility determination.

The certification body shall review submitted data for methodological soundness and plausibility. The scheme owner reserves the right to require updated validation if product design, distribution model, or consumer use conditions materially change.

10. Material Composition and MUFI Threshold Calculations

This section establishes the material eligibility requirements for refillable product systems certified under this Standard. Material eligibility is determined through the Refillable Eligibility Scanning Tool (REST), which computes a system-specific calculated MUFI based on the product's bill of materials, in conjunction with the Assessed Materials Library, which establishes the universe of materials eligible for use under this Standard.

10.1. Certification Requirements

The Certification Body shall evaluate materials used in product system containers certified under this standard according to the following requirements:

- The certification body shall apply the Refillable Eligibility Scanning Tool (REST) to the product system containers' bills of materials to compute a system-specific calculated MUFI.

- The calculated MUFI shall then be compared against the MUFI Threshold for the applicable product type set out in this section.

A product system is eligible where all of the following conditions are met:

- The bill of materials input to the REST accounts for a minimum 95% of total product mass (note that this may require inclusion of materials that individually account for less than 5% of the product by weight);

- The manufacturer has disclosed the product's complete material composition, including any constituents that individually account for less than 5% of product mass and any constituents not listed in the Assessed Materials Library; and
- The calculated MUFI is less than or equal to the applicable MUFI Threshold calculated within the REST.

10.2. Assessed Materials Library

The scheme owner maintains the Assessed Materials Library as the authoritative source of material eligibility under this Standard. The public layer of the Assessed Materials Library, which identifies all assessed materials, their assessment dates, applicable product scope, and any absolute conditions, is normatively incorporated into this Standard by reference and is published at [URL]. Certification bodies shall apply the version of the Assessed Materials Library in effect at the time of assessment; the version applied shall be recorded in the certification record.

The scheme owner may add newly assessed materials to the Assessed Materials Library without triggering a revision to this Standard, provided any addition is supported by a completed LCA characterization consistent with the LCA Methodology Report. Removal, restriction, or significant revision of a previously listed material requires stakeholder notification and a comment period as defined in the scheme owner's governance procedures. A significant revision of a previously listed material occurs when evaluated impact factors are updated and increase by 5% or more. All changes to the Assessed Materials Library shall be logged in a publicly available change history.

10.3. Q_{MUFI} values and MUFI Thresholds

The MUFI Thresholds applicable to each product type are calculated dynamically in the REST based on the Q_{MUFI}, the capacity of the keeper container, and the capacity of the auxiliary unit for a given refillable product system. Thus, there will be one MUFI threshold calculated for each unique combination of auxiliary unit and keeper container. The equations by which the MUFI threshold is calculated using the quantity of dispensed product are detailed in the LCA report. The Q_{MUFI} is maintained by the scheme owner and published in Section 10.4 of this standard. The Q_{MUFI} is established based on validated consumer use data, and may be updated by the scheme owner as additional data becomes available, subject to the same stakeholder notification and comment process applicable to material removals. Calculated MUFIs for product systems certified under this standard shall not exceed the MUFI thresholds that are calculated based on the Q_{MUFI} values in the table in Section 10.4.

10.4. Eligible Product Types, Subtypes, Container types, and pre-validated quantity of product dispensed at the MUFI Threshold

Product type	Product subtype	Container type	Q_{MUFI}
Cleaning agent	Dish soap	Spray bottle	5619 ml
	Floor cleaner	Spray bottle	5619 ml
	Glass cleaner	Spray bottle	4377 ml
Skin cleanser	Hand soap	Pump bottle	7393 ml
	Hand soap	Jar	3224 ml
	Body wash	Pump bottle	5353 ml
	Body wash	Jar	3224 ml
	Facial cleanser	Pump bottle	2100 ml
	Facial cleanser	Jar	3224 ml
Skin moisturizer	Hand lotion	Pump bottle	1656 ml
	Hand lotion	Jar	621 ml
	Body lotion	Pump bottle	1656 ml
	Body lotion	Jar	621 ml
	Facial Moisturizer	Pump bottle	473 ml
	Facial Moisturizer	Jar	473 ml
Deodorant	Solid stick	Propel/repel/elevator dispenser	1538 g
	Roll-on liquid	Roller ball applicator bottle	2011 ml
	Spray-on	Spray bottle	3253 g
Makeup	Foundation	Compact	36 g
	Pressed powder	Compact	45 g
	Blush, bronzer, highlighter	Compact	36 g
	Eyeshadow	Compact	45 g
	Concealer	Compact	36 g

11. Restricted Substances

This section establishes a Restricted Substances List (RSL) to exclude intentionally added materials and substances known to pose significant environmental, health, or safety risks during manufacturing, use, or end-of-life disposal. The following substances are prohibited from use as ingredients in products verified under this standard.

11.1. Keeper Container and Auxiliary Unit

The following substances are prohibited from use in the keeper container and auxiliary unit container.

a) Per- and Polyfluoroalkyl Substances (PFAS)

Substance	CAS	Hazard	Source
Perfluorooctanoic Acid (PFOA)	335-67-1	Persistent, bioaccumulative, carcinogenic	IARC[25], EPA IRIS[26]
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	Persistent, bioaccumulative, reproductive toxicant	EPA, Stockholm Convention[27]
Perfluorononanoic Acid (PFNA)	375-95-1	Persistent, developmental toxicant	EPA IRIS
GenX (HFPO-DA)	13252-13-6	Persistent, liver and developmental toxicity	EPA IRIS

b) Bisphenols & Related Epoxy Compounds

Substance	CAS	Hazard	Source
Bisphenol A (BPA)	80-05-7	Endocrine disruptor, reproductive toxicant	EU REACH SVHC[28], EFSA[29]
Bisphenol B (BPB)	77-40-7	Endocrine activity concern	ECHA[30]
Bisphenol F (BPF)	620-92-8	Endocrine activity concern	ECHA
Bisphenol S (BPS)	80-09-1	Endocrine disruptor	ECHA
Bisphenol A diglycidyl ether (BADGE)	1675-54-3	Reproductive toxicity concern	EU REACH SVHC

c) Phthalates (Ortho-Phthalates)

Substance	CAS	Hazard	Source
Di(2-ethylhexyl) phthalate (DEHP)	117-81-7	Reproductive toxicant	IARC, EU SVHC
Dibutyl phthalate (DBP)	84-74-2	Reproductive toxicant	EU REACH SVHC
Benzyl butyl phthalate (BBP)	85-68-7	Reproductive toxicant	EU REACH SVHC
Diisobutyl phthalate (DIBP)	84-69-5	Reproductive toxicant	EU REACH SVHC

d) Chlorinated & Fluorinated Solvents

Substance	CAS	Hazard	Source
Perchlorate	14797-73-0	Thyroid disruptor	EPA IRIS
2-Ethoxyethanol	110-80-5	Reproductive toxicant	EU REACH SVHC
2-Methoxyethanol	109-86-4	Reproductive toxicant	EU REACH SVHC
N-methyl-2-pyrrolidone (NMP)	872-50-4	Reproductive toxicant	EU REACH SVHC
Toluene	108-88-3	Developmental toxicity	EPA IRIS

[25] International Agency for Research on Cancer (IARC). *IARC Monographs on the Identification of Carcinogenic Hazards to Humans.* World Health Organization. https://monographs.iarc.who.int/
[26] U.S. Environmental Protection Agency (EPA). *Integrated Risk Information System (IRIS) and Chemical Assessments.* https://www.epa.gov/iris
[27] Stockholm Convention on Persistent Organic Pollutants. Annex A and related listings. https://www.pops.int/default.aspx
[28] European Chemicals Agency (ECHA). Candidate List of Substances of Very High Concern (SVHC) under REACH Regulation (EC) No 1907/2006. https://echa.europa.eu/candidate-list-table
[29] European Food Safety Authority (EFSA). Scientific Opinion on Bisphenol A and related compounds. https://www.efsa.europa.eu/en/topics/topic/bisphenol
[30] European Chemicals Agency (ECHA). Substance Evaluation and Endocrine Disruptor Assessment Reports. https://echa.europa.eu/hot-topics/endocrine-disruptors

e) Halogenated Flame Retardants (HFRs)

Substance	CAS	Hazard	Source
Polybrominated diphenyl ethers (PBDEs)	Various	Persistent, bioaccumulative, neurotoxic	Stockholm Convention
Hexabromocyclododecane (HBCDD)	25637-99-4	Persistent, bioaccumulative, reproductive toxicant	EU REACH SVHC
Tetrabromobisphenol A (TBBPA)	79-94-7	Endocrine disruption concern	ECHA

f) Polyvinyl Chloride (PVC) and Chlorinated Plastics

Substance	CAS	Hazard	Source
Polyvinyl chloride (PVC)	9002-86-2	Dioxin formation risk during production and disposal	EPA IRIS

g) Other Hazardous Chemicals

Substance	CAS	Hazard	Source
Benzophenone	119-61-9	Possible carcinogen	IARC
Formaldehyde	50-00-0	Carcinogen	IARC, NTP[31]
Short-chain chlorinated paraffins (SCCPs)	85535-84-8	Persistent, bioaccumulative, toxic	Stockholm Convention
Nanosilver	7440-22-4	Aquatic toxicity concern	EPA ECOTOX[32]
Triclosan	3380-34-5	Endocrine disruptor, aquatic toxicant	EPA IRIS

11.2. Consumable Contents

The following substances are prohibited from use in the consumable contents of auxiliary units verified under this standard.

a) Carcinogens, Mutagens, and Reproductive Toxins (CMRs)

Substance	CAS	Hazard	Source
Formaldehyde	50-00-0	Carcinogen	IARC, NTP
DMDM Hydantoin	6440-58-0	Formaldehyde releaser	EU SCCS[33]
Diazolidinyl Urea	78491-02-8	Formaldehyde releaser	EU SCCS
1,4-Dioxane	123-91-1	Probable carcinogen, aquatic toxicant	EPA IRIS and Ecotox, IARC

[31] U.S. National Toxicology Program (NTP). Report on Carcinogens. https://ntp.niehs.nih.gov/whatwestudy/assessments/cancer/roc
[32] U.S. Environmental Protection Agency. ECOTOX Knowledgebase. https://cfpub.epa.gov/ecotox/

[33] European Commission, Scientific Committee on Consumer Safety (SCCS). *Opinions on cosmetic ingredients and substances.* https://health.ec.europa.eu/scientific-committees/scientific-committee-consumer-safety-sccs_en

b) Endocrine Disruptors

Substance	CAS	Hazard	Source
Methylparaben	99-76-3	Endocrine disruptor	EU SCCS
Propylparaben	94-13-3	Endocrine disruptor	EU SCCS
Butylparaben	94-26-8	Endocrine disruptor	EU SCCS
Triclosan	3380-34-5	Endocrine disruptor, aquatic toxicant	EPA, EU REACH SVHC
Oxybenzone	131-57-7	Endocrine disruptor, coral reef toxicant	NOAA[34]

c) Phthalates (Ortho-Phthalates)

Substance	CAS	Hazard	Source
DBP	84-74-2	Reproductive toxicant	EU REACH SVHC, Prop65[35]
DEHP	117-81-7	Reproductive toxicant	EU REACH SVHC, IARC
BBP	85-68-7	Reproductive toxicant	EU REACH SVHC
DIBP	84-69-5	Reproductive toxicant	EU REACH SVHC

d) Volatile Organic Compounds (VOCs) and Solvents

Substance	CAS	Hazard	Source
Toluene	108-88-3	Developmental & aquatic toxicity	EPA IRIS, EU REACH SVHC
NMP	872-50-4	Reproductive toxicant	EU REACH SVHC
Perchloroethylene	127-18-4	Probable carcinogen	EPA IRIS, IARC

e) Environmentally Hazardous Compounds

Substance	CAS	Hazard	Source
Triclosan	3380-34-5	Aquatic toxicant	EPA ECOTOX
Oxybenzone	131-57-7	Coral reef toxicant	NOAA
Nonylphenol Ethoxylates	9016-45-9	Aquatic endocrine disruptor	EPA IRIS, EU REACH SVHC
Octylphenol	1806-26-4	Persistent aquatic toxicant	EU REACH SVHC

11.3. Compliance and Verification

Manufacturers shall disclose all intentionally added materials and substances present in the keeper container, auxiliary unit, or consumable contents at a concentration of 1,000 ppm (0.1%) or greater by weight. This

[34] National Oceanic and Atmospheric Administration (NOAA). *Coral Reef Conservation Program – Chemical Stressors and Sunscreen Impacts.* https://coralreef.noaa.gov/

[35] California Office of Environmental Health Hazard Assessment (OEHHA). *Proposition 65 List of Chemicals Known to the State to Cause Cancer or Reproductive Toxicity.* https://oehha.ca.gov/proposition-65/proposition-65-list

disclosure threshold applies to all components subject to the RSL requirements of this section.

Substances listed in Sections 11.1 and 11.2 above are prohibited as intentionally added materials regardless of concentration. The 1,000 ppm threshold governs the scope of disclosure required to demonstrate compliance, not the permissible concentration of any listed substance.

Compliance shall be demonstrated through one or more of the following, covering all components subject to disclosure at or above the threshold:

- Material inventories (Bills of Materials) identifying substances present at or above 1,000 ppm;
- Supplier declarations confirming the absence of RSL-listed substances; or
- Safety data sheets (SDSs), where these provide sufficient compositional detail to support a compliance evaluation.

Where SDSs alone are insufficient to confirm compliance (for example, where non-hazardous substances are omitted or where full formulation data is not disclosed) manufacturers shall obtain supplementary supplier documentation. Certification bodies shall evaluate the completeness of submitted documentation and may require additional evidence where compositional coverage cannot be confirmed.

12. Circularity Data Collection Requirements

12.1. Purpose

This section establishes requirements for manufacturers to submit, and for certification bodies (CBs) to collect, data related to six circularity indicators derived from ISO circular economy standards.

In this initial version of the Standard, the purpose of collecting circularity data is to establish a transparent, consistent baseline across certified refillable product systems. The data gathered under this section will enable the scheme owner to better understand prevailing material flows, design practices, and circular performance characteristics within the marketplace.

This version of the Standard emphasizes measurement, comparability, and data integrity rather than prescriptive minimum thresholds for each indicator. The aggregated and anonymized data collected through certification will inform future revisions of the Standard, including the potential establishment of category-specific performance benchmarks, minimum circularity thresholds, and continuous improvement expectations. In this way, this section serves both as a reporting requirement and as a foundational evidence base for the evolution of the program.

Manufacturers should therefore understand that participation in circularity data reporting contributes directly to the development of future performance criteria and to the maturation of the refillable product ecosystem as a whole.

12.2. Requirements for Manufacturers

Manufacturers applying for certification under this standard shall, for each verified product:

a) Submit complete and accurate data for each of the six indicators listed in Section 12.3
b) Provide supporting evidence for calculations, including bills of material, supplier attestations, and/or third-party verified data as available.
c) Use ISO 59020 principles and methodologies to ensure consistency and comparability of reported data.

12.3. Indicators to be Reported

Manufacturers shall report data for the following six indicators, consistent with ISO 59020 principles, to measure the circularity of their product based on these indicators. This data shall be shared with the standard owner in anonymized form.

Indicator Code	Indicator Name	Definition / Description	Calculation Notes
A.2.2	Average reused content of an inflow	Fraction of input material resources that are reused components and products. Reused content includes parts used again with minimal or no physical alterations.	Report as % of total inflow (by mass). Exclude internal scrap reused in the same process.
A.2.3	Average recycled content of an inflow	Fraction of input material resources that is recycled material. Excludes internal rework or scrap reused in the same process.	Report as % of total inflow (by mass).
A.2.4	Average renewable content of an inflow	Fraction of material resources inflow that is sustainably produced renewable material (e.g., sustainably harvested biomass).	Report as % of total inflow (by mass).
B.3.2	Percent designed reusability rate of the outflow	Share of the resource outflow (products/components) that is reusable, as intended by the manufacturer. Based on design features like repairability, dismantlability, etc.	Report as % of total outflow (by mass). May be supplemented by lifetime data.
B.3.3	Percent designed recyclability rate of the outflow	Share of the resource outflow designed to be recyclable, based on design intent and compatibility with existing recycling schemes.	Report as % of total outflow (by mass).
A.3.5	Percent designed recirculation of outflow in the biological cycle	Fraction of outflow content designed to be recirculated at end-of-life for safe return to the biosphere (e.g., composting, anaerobic digestion).	Report as % of total outflow (by mass). Must meet conditions for safe biodegradation.

12.4. Certification Body Responsibilities

12.4.1. CBs shall collect reported data and supporting evidence as part of product certification dossiers.

12.4.2. CBs shall review all submitted data and conduct a plausibility check (e.g., completeness, internal consistency), but are not required to independently validate calculations at this stage.

12.4.3. CBs shall transmit anonymized data to the standard owner at least every six months to support benchmarking and program development.

Circular Living Standards: Refillable Certified



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