ELLEN MACARTHUR FOUNDATION

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Measuring reuse in the Global Commitment

A metric for products delivered through packaging reuse systems

CONTENTS

INTRODUCTION AND CONTEXT

This metric was developed to help signatories to the Ellen MacArthur Foundation and the UN Environment Programme's Global Commitment understand their progress on reuse.

- Moving from single-use to reuse systems presents one of the biggest opportunities to reduce plastic pollution.[1] It is estimated that moving to reuse systems could cut total annual plastic leakage to the ocean by more than 20% by 2040 - varying by product category.[2]
- Since the launch of the Global Commitment in 2018, momentum and action on reuse has risen substantially. Many companies have set up dedicated reuse teams and, as of 2022, 61% of Global Commitment business signatories have launched reuse pilots. Despite these efforts, however, progress on reuse at scale has been very limited.
- Reuse has been identified as a pivotal hurdle that is vital to address in order to tackle plastic waste and pollution. The first few companies have recently set reusable packaging targets and we expect more to follow. A common metric to measure the share of reusable packaging is now required to support and understand their progress.
- This document outlines how reusable packaging models should be measured in the context of the Global Commitment in order to support the scaling of reuse.
- This metric has been developed in collaboration with the World Economic Forum, and builds on the work by the World Economic Forum's 'Scaling Reuse Models: A Guide to Standardized Measurement', which the Ellen MacArthur Foundation contributed to.
- This document was developed through consultation with over 20 companies and non-profit organisations, including: Nestlé, PepsiCo, Reckitt, Terracycle, TOMRA, and WWF. This does not mean that every element in the final guidance fully aligns with the views or input of these organisations.

The purpose of this document:

- To provide a common definition and quantitative metric for reuse that enables company-level reuse reporting and target setting, applicable globally, across the different packaging reuse systems and across many different products and sectors.
- To be used by signatories of the Global Commitment to report and (optionally) set targets. In the current phase of the Global Commitment (up to 2025), reporting these reuse metrics will be voluntary. In the Global Commitment beyond 2025, reporting these metrics will be mandatory for brand and retail signatories and setting related targets will be voluntary.

Please note:

- This definition does not necessarily apply to claims linked to specific geographical areas (e.g. on-pack labels, or customer communications), as these should always take into account the local context, and be in line with the local regulations that apply to such claims.
- This metric has been developed in 2024 for reporting until 2030, in the context of the current state of knowledge and progress on reuse. Given the low current levels of reuse, we hope and expect this to be an area for fast-paced innovation. Therefore, the metric has been designed to enable innovation, striking a balance between ensuring that the systems included deliver significant environmental benefits and minimising the complexity of the criteria. As a result, this metric and underlying criteria should not be considered to define the 'perfect end-state' version of reuse and will be re-evaluated after 2030. Ahead of this date, the criteria may also be reviewed to ensure that any qualifying systems are aligned with the core principle that reuse brings significant environmental benefits and leads to the effective reuse of packaging or containers.

The following four principles should guide the implementation of reuse:

- **Reuse is a significant part of the solution to reducing virgin material use, emissions, waste, and pollution. However, reuse may not be the most effective solution for all products in all geographies.** The Foundation's Upstream Innovation Guide provides a suite of solutions designed to help design out waste at source by rethinking packaging, products, and business models.
- **There are four business-to-consumer packaging reuse models:** Return-on-the-go, return-from-home, refill-at-home, and refill-on-the-go. Definitions of these are found below, and more details and examples are available in the Foundation's publication Reuse - Rethinking Packaging.
- **Companies should strive for packaging reuse models that lead to highest environmental savings. This will vary by product category.** Reuse models that lead to the highest environmental savings may require collaboration across companies and supply chains.
- **Expected environmental benefits depend on the local context, consumer habits, and economic feasibility:** For example, emissions released by the collection and cleaning of packaging in a return system, as well as the likelihood of packaging ending up in the environment, vary significantly by geography.

1 Ellen MacArthur Foundation, From single-use to reuse: A priority for the UN Treaty (2023)

2 The Pew Charitable Trusts and Systemiq, Breaking the Plastic Wave (2020)

THE METRIC

Share of product delivered through packaging reuse systems. This is defined as product delivered through refill-at-home, refill-on-the-go, and return systems as a % of total volume of product delivered across reuse and non-reuse systems.

FIGURE 1

Share of product delivered through packaging reuse systems =

$$\frac{\text{Volume or units of product delivered through return systems}}{\text{Total volume or units of product delivered across all formats (reuse and non-reuse systems)}} + \frac{\text{Volume or units of product delivered through refill-on-the-go systems}}{\text{Total volume or units of product delivered across all formats (reuse and non-reuse systems)}} + \frac{\text{Volume or units of product delivered through refill-at-home systems}}{\text{Total volume or units of product delivered across all formats (reuse and non-reuse systems)}}$$

MEASUREMENT GRANULARITY

Categories:
Companies may segment reporting at a global category level, for example household, personal care, cosmetics, beverages, fresh food, and store-cupboard food. Companies may segment reporting further by sub-category.

Separate reporting of packaging reuse models:
Refill-at-home, refill-on-the-go, and return models have fundamentally different business models. That leads to extensive variation in supply chain requirements, consumer experience, investment, infrastructure, and collaboration requirements. As such, each model requires a different approach to determining what qualifies as an effective reuse model. Global Commitment signatories should report the share of product delivered through each reuse model separately.

SCOPE

Timeframe:
The metric must be reported for products delivered over a 12-month period, in alignment with each signatory's other Global Commitment metrics.

Portfolio scope:
Global Commitment signatories are required to report reuse across the company's full scope of products, as with all Global Commitment metrics. Voluntary reuse targets under the Global Commitment umbrella could also be set for major business units, as long as this is transparent and covers a significant part of the business.

Packaging types:
This metric is based on product volume rather than packaging type. Specific criteria that determine what constitutes a reuse system are focused on primary packaging and how the product is delivered to the consumer. It does not consider any secondary and tertiary packaging used and we encourage companies to also explore reuse opportunities for these types of packaging.

Sectors:
This metric focuses on packaging for consumer products put on market by consumer goods companies, retailers (own-brand packaging only), and food service providers.

Packaging vs products:
This metric focuses on how products are being delivered and does not focus on the reusability of the products themselves.

Packaging material:
This metric is material agnostic, meaning all product volumes are included regardless of the type of packaging material used.

DEFINITION OF PARAMETERS

Volume of product:
Measures the volume of product delivered, with the exception of concentrated products that are commonly sold in diluted form.[1] In such cases, the volume should include the final diluted volume intended for consumer use (e.g. concentrated cleaning spray capsules). Volume should be reported in cubic metres or litres to enable reuse figures to be aggregated across a wide range of products at company level. Volume may also be estimated using functional units.

Product volume was selected as the preferred unit of measure as it enables sales through reuse to be compared to sales through single-use using the common objective of delivering a particular amount of product to consumers. It also allows a reuse metric to be aggregated across a broad portfolio of products, in a way that is least distorted and creates minimal unintended incentives:

- A metric based on packaging weight would favour the use of heavier reusable packaging (materials).
- A metric based on product weight would favour reuse for heavier goods over reuse of lighter goods.
- A metric based on sales would favour reuse for expensive goods over less expensive ones.
- A metric based on sales units would favour smaller reuse units over larger ones. Furthermore, defining a 'unit' in a way that can be aggregated over a broad portfolio of very different goods would be challenging.
- Although a metric based on product volume could favour reuse for products delivered in large volumes over those delivered in small volumes, product volume is a key driver of packaging use and therefore is more closely correlated with packaging volumes avoided than the alternatives listed above.
- We do recognise, however, that measuring via volume may require companies to build new measurement capabilities and systems.

Units of product:
Companies are highly encouraged to use product volume as a metric. In cases where the ability to measure volume is not yet in place, product delivered through reuse may be reported in sales units or functional units.

Delivered:
Quantity of product made available for use by a consumer (e.g. a quantity of product produced and sold by an FMCG/CPG company or the quantity of product sold by a retailer).

Reuse systems:
Packaging systems that qualify under this metric must involve the effective reuse of packaging or containers and be significantly environmentally better than single-use alternatives. Each type of reuse scheme must meet specific criteria, as laid out in the next section of this report.

1 For example, concentrated cleaning products or soft drinks that are otherwise commonly sold in diluted form should be measured in final diluted volume. However, coffee powder, which is most commonly delivered in powder form, should be measured in the volume of concentrated product delivered.

SPECIFIC CRITERIA PER REUSE MODEL

To use this metric, specific criteria must be met for each reuse model. These criteria have been developed to ensure as far as possible that:

- **The reuse systems included in this metric involve the effective reuse of packaging or containers.** The criteria have been developed in a way that ensures that reuse of packaging or containers is happening or very likely to happen for a significant share of product purchases. Packaging innovations such as lightweighting, larger volumes per pack, or use of concentrates for products that do not require keeper containers – while they could be beneficial and the right thing to do – would not be counted under reuse metrics as no element of the packaging would be reused.
- **The reuse systems included in this metric are significantly environmentally better than single-use alternatives**, including reducing virgin material use, emissions, (non-recyclable) waste, and pollution.

The reuse of packaging can take a wide variety of forms, even within each of the four reuse models. These criteria aim to balance, as far as possible, the need for reuse systems to deliver significant environmental benefits with the need for a metric that is practical enough to be applied at both a company-wide level and across a wide range of products and packaging systems. In addition – given current low levels of reuse – we have tried to avoid over-prescriptive criteria that may impede innovation.

The criteria has been developed in 2024, in the context of the current state of knowledge and progress on reuse, and will be re-evaluated ahead of reporting after 2030. Ahead of this, the criteria may be reviewed to ensure that qualifying reuse systems should be significantly environmentally beneficial and involve the effective reuse of packaging or containers.

Beyond applying these criteria, companies are encouraged to assess the lifecycle impact of reusable packaging systems in the local context within which each product is put on the market. This will help ensure reuse systems are environmentally beneficial.

I. Criteria for all reuse models

Component of model:	Criteria:
Reusable containers (incl. keeper containers in a refill model) *Note: These criteria apply to reusable packaging that is owned or put on the market by the company selling the product. It excludes other consumer-owned containers, given the lack of data or control over this.*	**Reusability:** To qualify as a reuse system, the system must involve the effective reuse of packaging or containers. **I.A.** For packaging to qualify as reusable, **the main container of the packaging must be reusable**. This is the part of the packaging that stores the product, excluding lids and labels. As much of the packaging should be reused as possible, with single-use components minimised. This includes containers returned to companies for refilling and containers retained by consumers for refilling (keeper containers). For refill-at-home models that use a capsule-style auxiliary product where a cartridge or capsule-style container is inserted into a keeper container (e.g. in the case of a refillable deodorant or lipstick), packaging for the auxiliary product should be minimised and fulfil all criteria under IV.D. and IV.E. **I.B.** Reusable containers should be designed to be **sufficiently durable** to ensure they are likely to last the expected number of uses, **while minimising material use.** **Note:** Reusable packaging or containers need not be owned or put on the market by the company selling the product, for example: • In return models, packaging may be owned and managed by a service provider. • In a refill-on-the-go model, containers may be owned by consumers (e.g. drink bottle, cup, or pot). • In a refill-at-home model, keeper containers may be owned by consumers (although they must also serve an essential function not provided by the auxiliary container or commonly owned tableware or home storage containers. *See detailed requirements for keeper containers in refill-at-home models under **IV.B**.*)
	Recyclability: **I.C.** As each container will eventually reach the end of its useful life, **reusable containers must be designed for recycling and ideally be recyclable in practice and at scale.**

II. Criteria for return models

Component of model:	Criteria:
Return mechanisms	**Reusability:** **II.A. Reusable containers must be part of a broader reuse system** that enables containers to be reused in practice with a meaningful reuse rate. **To ensure this, all of the following mechanisms should be established:** • Incentives for customers or relevant supply chain actors to return containers. • Collection mechanisms that are easily accessible to all customers or consumers. • Supply chain and cleaning infrastructure for all containers that are collected to be reused in practice, either in-house or by a third party. • Data collection to measure the return rate and number of rotations.
	Environmental benefit: **II.B. Return systems should be designed to exceed environmental break-even when compared with the best available single-use alternative within 3 years to qualify under this metric and should be on track to reach this.** Given the current state of knowledge and progress on reuse, this criteria is intended to ensure that return systems are set up to enable containers to be reused at high rates in practice, while acknowledging that reaching high return rates, and as such delivering environmental benefits, might take some time. The return rate required to offset the added durability and materials needed for reusable packaging varies on a case-by-case basis. This should be assessed considering the full scope of the reuse supply chain. It has been found that return rates of 90% are achieved in most European countries with deposit return schemes in place.[1] Over time, criteria around the minimum return rate or number of rotations required may be updated to ensure that systems are environmentally beneficial.
*Please refer to **I. Criteria for all reuse models** for additional criteria that are applicable to return models*	

1 Zero Waste Europe, 2019, 'Deposit Return Systems: an effective Instrument towards a Zero Waste Future'; Tomra, 2023, 'Deposit return scheme in Germany: the world's highest-performing drink container recycling system'; Reloop, 2022, 'Deposit return systems: How they perform',

III. Criteria for refill-on-the-go models

Component of model:	Criteria:
B2B containers (used to bring product to point of refill)	**Reusability / recyclability:** **III.A. B2B packaging for refill-on-the-go models should be reusable (preferred) or designed for recycling.** A B2B reusable container may either be returned to be refilled at a central refilling location (e.g. a warehouse), or be refilled at the site of sale (e.g. through a pump mechanism). If B2B refill containers are not yet reusable, companies should strive for reusable solutions. Any B2B packaging that is not yet reusable should be designed for recycling and be used within supply chains where there is both a minimal risk of ending up in the environment and a high likelihood of being recycled.
	Environmental benefit: **III.B. If B2B packaging is not reusable, B2B refill container capacity must provide a meaningful number of refills for a standard single-use B2C container.** Companies should aim to minimise the quantity of packaging per functional unit of product, and as a minimum ensure that the combined usage of B2B and B2C packaging under a refill-on-the-go model is lower than the best available single-use alternative. **Note:** When making comparisons with single-use B2C containers, the use case for the reusable product should be the same as that of the original product when delivered in single-use containers. Products should be compared in a standard manner, e.g. diluted liquid volume. For example, milk powder sold in a refill-on-the-go model should be compared to milk powder sold in single-use containers.
B2C Containers (filled at point of refill)	**Reusability:** **III.C. In cases where B2C packaging would otherwise be pre-filled with product at the point of sale** (e.g. all products normally packed in single-use consumer packaging at manufacturing sites), **companies should ensure that refill-on-the-go systems are not commonly accessed with single-use containers. They should be designed with the intention that customers reuse containers.** This includes companies ensuring that no free takeaway packaging or containers are provided at refill-on-the-go settings (even if these are marketed as 'reusable'). Customers should be incentivised to reuse containers – for example, through price mechanisms. In cases where companies producing the product do not have control over B2C packaging provided at point of sale, they should collect evidence that no takeaway packaging or containers are provided for free and that customers are incentivized to reuse containers. **III.D In cases where B2C packaging would not otherwise be pre-filled at the point of sale,** (e.g. takeaway restaurants delivering coffee or food), **companies must ensure that only product delivered in reused containers are counted under reuse systems and contribute to the metric defined in this document.**
*Please refer to **I. Criteria for all reuse models** for additional criteria that are applicable to refill-on-the-go models*	

IV. Criteria for refill-at-home models

Note: the use of packaging for auxiliary products means that refill-at-home systems could resemble single-use systems. The below criteria aim to ensure that these systems effectively reuse packaging in practice via an essential keeper container and realise significant environmental savings relative to single-use alternatives. Given the wide range of possible refill-at-home systems, it is challenging for any set of practical criteria to fully guarantee this. Global Commitment signatories are expected to apply the criteria with the objective of realising significant environmental savings and work towards reuse systems that offer the greatest environmental benefits.

Component of model:	Criteria (all must be met):
Inclusion of volumes	**Reusability:** **IV.A. 'Volume or units of product delivered through refill-at-home models'** (i.e. the numerator of figure 1) **consists of volume or units of auxiliary product** that is used to support the refilling/loading of keeper containers. **Product volume or units delivered in reusable keeper containers may also be included in 'volume or units of product delivered through refill-at-home models'** (i.e. the numerator in figure 1) **but only if there is proof that the vast majority of sales are reuse.** Specifically, that means the total volume of product delivered in auxiliary packaging must outstrip the total volume of product delivered in keeper containers within the same product category by the higher of the following two ratios: 3:1, or by the ratio sufficient to reach environmental breakeven relative to conventional single-use packaging. If this is not the case, or cannot be demonstrated, volume or units of product delivered through keeper containers under refill-at-home models should not be included in 'volume or units of product delivered through refill-at-home models' (i.e. the numerator). Instead, they should only be included under 'total volume or units of product delivered across all formats (reuse and non-reuse systems)' (i.e. the denominator in figure 1). This avoids counting volumes delivered through packaging systems that are in practice single-use and offer no environmental benefits. Offering refills does not necessarily lead to a significant share of consumers buying refills, which could mean that the keeper container is in most cases single-use.

Keeper containers	**Reusability:** **IV.B.** To count as a packaging reuse system, keeper containers sold or provided by the company selling the product **must serve an essential function that is supplementary to functions provided by the packaging for auxiliary products** (e.g. a dispenser, a spray cap, an atomizer, or a twist-up base). This is in addition to fulfilling reusable container requirements. **A container that is used only at the point of consumption and cannot be used to store the product** (e.g. because it cannot hold more than one consumer serving, such as a cup) **is not considered a keeper container.** Note that this criteria applies to refill-at-home models and does not imply that reusable cups or containers that are not fit for storage cannot be part of a refill-on-the-go model. Please see refill-on-the-go criteria above. **Essential functions are defined as** a physical function of packaging that is used in practice by most consumers when they utilise the product. This should be something that is not provided by the packaging for auxiliary products, nor by commonly owned tableware, tools, and home storage containers (for example pegs, elastic bands, cups, water bottles, or airtight containers). Examples of keeper containers with essential functions include containers requiring a dispenser, spray cap, atomizer, squeezy cap, or twist-up base. Whether keeper containers are provided by the company selling the product or not, companies should refer to criterion IV.E, which states that the **packaging for auxiliary products must not be designed so that the product can be conveniently used by consumers without the need for a keeper container.** If the packaging for auxiliary products can conveniently be used without the need for a keeper container – in combination, if required, with commonly owned tableware, tools, and home storage containers – this will not be considered to be a product delivered through reuse. It is recognised that products requiring essential functions of keeper containers may vary by geography and over time, given varying consumer behaviour. Companies should be able to demonstrate that all keeper containers meet the above definition of an essential function for the region and product in question. **Note:** Packaging innovations such as lightweighting, larger volumes per pack, or use of concentrates for products that do not require keeper containers – which may be beneficial and the right thing to do – would not be counted under reuse metrics as no element of the packaging would be reused. Such innovations are encouraged through the Global Commitment's virgin plastic reduction targets.

Auxiliary packaging	**Recyclability:** **IV.C. Packaging for auxiliary products must be designed for recycling and ideally be recyclable in practice and at scale.** Packaging for auxiliary products that is not yet recyclable in practice and at scale should only be used for products for which there is currently deemed to be no feasible, more effective plastic reduction strategy. Companies using packaging that is not yet recyclable in practice and at scale are encouraged to take action, scaling up recycling infrastructure and seeking more environmentally beneficial alternatives. **In countries largely dependent on informal waste collection, no packaging for auxiliary products should be used that has a significantly higher propensity to end up in the environment than the conventional, single-use alternative.** For example, no flexible packaging for auxiliary products should substitute single-use bottles, as the latter has greater value to informal waste collectors. The risk of packaging waste being exported to such countries should also be considered. **Packaging for auxiliary products may alternatively be safely dissolvable.** Companies must ensure it is biodegradable in marine and freshwater environments, as defined by commonly used standards (e.g. Tüv Austria, DIN Certco).
	Reusability: **IV.D. To ensure the model involves the reuse of packaging or containers in practice, packaging for auxiliary products must not be designed such that the product can be conveniently used by consumers without the need for a keeper container** (see criteria IV.B)
	Environmental benefit: **IV.E. Evidence must be provided through a life-cycle analysis** (LCA) or alternative reputable environmental assessment that **packaging for auxiliary products demonstrates significant environmental savings** across GHG emissions, water usage, material usage and pollution when compared with the best available single-use alternative. **Environmental savings realised should be comparable to those realised by established return systems across impact categories.** For example, the Foundation's 'Unlocking a Reuse Revolution' estimates environmental savings realised through a collaborative return system for personal care products to be in the region of 50% across GHG emissions, water and material use relative to single use. In cases where an LCA is not available, the auxiliary product may alternatively provide a **concentrated solution of at least 3x times** relative to diluted volume that is commonly delivered in single-use packaging (e.g. requiring dilution of at least 2 parts water to 1 part solution when used by customer) in packaging that is recyclable in practice and at scale.

*Please refer to **I. Criteria for all reuse models** for additional criteria that are applicable to refill-at-home models*

GLOSSARY

Term	Definition
Reuse of packaging	Operation by which packaging is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products (see below) present on the market, enabling the packaging to be refilled. **Source:** ISO 18603:2013, Packaging and the environment - Reuse, modified
Reusable packaging	In addition to the below ISO definition, packaging must meet criteria I.A-I.C above in order to qualify as reusable packaging for the purposes of this metric. **ISO definition:** Packaging which has been designed to accomplish or proves its ability to accomplish a minimum number of trips or rotations (1,2) in a system for reuse (3). A reusable item can undergo reconditioning, that is operationally necessary to restore a reusable packaging to a functional state for further reuse. **Source:** ISO 18603:2013, Packaging and the environment - Reuse, modified (packaging component mentioned in notes) **Notes** **(1)** A trip is defined as transfer of packaging, from filling/loading to emptying/unloading. A rotation is defined as a cycle undergone by reusable packaging from filling/loading to filling/loading (ISO 18603). **(2)** The minimum number of trips or rotations refers to the fact that the 'system for reuse' in place should be proven to work in practice, i.e. that a significant share of the package is actually reused (measured for example by an average reuse rate or an average number of use-cycles per package). **(3)** A system for reuse is defined as established arrangements (organisational, technical, or financial) which ensure the possibility of reuse in closed-loop, open-loop, or hybrid system (ISO 18603)
Keeper containers	Reusable containers retained by consumers for refilling with auxiliary product.
Auxiliary product	An auxiliary product is a product used to support the refilling/loading of reusable packaging. (...) An example of an auxiliary product is a detergent pouch used to refill a reusable container at home. **Source:** ISO 18603:2013, Packaging and the environment - Reuse, modified
Reuse models	EMF categorises B2C reuse models into four modalities along two modes: refill (container refilled by consumers) and return (container returned to businesses).
Refill-at-home	Consumers refill their reusable container at home and are responsible for maintenance. Reusable containers are refilled with auxiliary products.
Refill-on-the-go	Consumers refill their reusable container away from home and ensure maintenance.
Return-from-home	The container is picked up from home (e.g. by a logistics company) and a business is responsible for cleaning and processing.

Term	Definition
Return-on-the-go	Consumers return the container at a drop-off point (e.g. in a deposit return machine or mailbox) and a business is then responsible for cleaning and processing.
Rotation	One cycle undergone by reusable packaging from filling/loading to filling/loading. **Source:** ISO 18603:2013, Packaging and the environment - Reuse
Cartridge or capsule-style containers	A container designed to be inserted into another container. This may be required to hold the structure of the product or for products that cannot safely be poured by a consumer.
Designed for recycling	Refer to definitions used in the Global Commitment.
Recyclable in practice and at scale	Refer to definitions used in the Global Commitment.

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