

# Guidance on Calculation of Refill Rate

## Reporting Guidance for Producers Seeking a Substantial Impact Reduction Bonus for Switch from Single-Use to Refillable (e.g. Circular Action Alliance's Bonus C)

**Updated** Jan. 15, 2026

## Background

Product category rules for life cycle evaluation and disclosure are located at OAR 340-090-0900-0940. These rules are to be used by the top 25 largest producers in the state to fulfill an obligation pursuant to ORS 459A.944 to evaluate and disclose impacts of 1% of their products on a biennial basis. Evaluations conducted using the same methodology, when voluntarily undertaken, can also be used by all producers in requesting ecomodulated fee discounts – a smaller bonus for simple evaluation and disclosure, and larger bonuses for a more complex evaluation that proves that substantial impact reduction has been achieved through a producer action like a design change or switch from single-use to reusable or refillable packaging. Rule OAR 340-090-0910(3) requires Producer Responsibility Organizations operating programs in Oregon to make these two types of bonuses available to their member producers.

Producer Responsibility Organization Circular Action Alliance is fulfilling this mandate by making Bonuses A, B, and C available to member producers as described in its program plan. This guidance is particularly targeted toward producers seeking to attain CAA's Bonus C for switch from single-use to refillable packaging. The rules require estimation of refill rate as part of a Bonus C evaluation, and this guidance is intended to inform producers as to how to calculate this parameter.

### **Relevant Rule Language on Life Cycle Evaluation of Refillable Packaging Products**

OAR 340-090-0900(38) Refillable packaging product means a packaging product that is:

- (a) Designed to be refilled by consumers multiple times for the same or similar purposes in its original format;
- (b) Refilled without the support of any commercial or publicly-owned infrastructure and without return of the packaging to the producer or a third-party after each use; and
- (c) Actually refilled by consumers.

OAR 340-090-0930(2)(f) Refillable packaging product. When developing a life cycle inventory for evaluation of a refillable packaging product, defined in OAR 340-090-0900(38), the following shall apply:

(A) The following parameters shall be included in the life cycle inventory and disclosed under information module B pursuant to OAR 340-090-0930(1)(c)(B) in the project report:

- (i) A **refill rate factor** to account for losses or yield across each reuse cycle; and
- (ii) the expected number of refill cycles, as defined in OAR 340-090-0900(37) to be examined through scenario analysis described in OAR 340-090-0930(4).

(B) A producer must calculate a break-even point in an assessment focused on a refillable packaging product. The break-even point shall be calculated for the normalized and weighted single score as provided by OAR 340-090-0930(3)(c).

OAR 340-090-0930(2)(g) Refill rate factors shall be calculated according to the methods and guidelines of the Product Environmental Footprint method in section 4.4.9 of Annex I of EU 2021/2279 (European Commission Recommendation of 15 December 2021 on the use of Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organizations).

## Guidance FAQ

Whereas the rules mandate that the Product Environmental Footprint method in section 4.4.9 of Annex I EU 2021/2279 be used to calculate refill rate (as well as reuse rate for reusable packaging products), the PEF Annex does not contain a dedicated section regarding refillables distinct from reusables. As a result, DEQ is issuing this clarifying guidance for producers seeking to conduct a lifecycle evaluation on refillable packaging products.

Q: Are single-use, "child" refill packages used to refill "parent" refillable packaging considered part of a refillable packaging product, and therefore included in a life cycle evaluation conducted on a refillable packaging product?

A: Because it comports with the intent of the life cycle evaluations to capture all substantial impacts associated with the delivery of a functional unit of product, DEQ is guiding producers to include child refills within their life cycle evaluations of parent packaging. To ensure that products are not included within the scope that are not actually dedicated child refills of the parent packaging, DEQ is guiding producers to check that both of the following two criteria are met before proceeding with treating parent and child together as a refillable packaging product:

1. The child packaging should be conceived and designed specifically by the producer to fill the parent package at home.

2. The child packaging (refill) must not perform the same function as the associated parent packaging and cannot be used without the parent.

Q: What if my packaging does not meet the two criteria above, does that mean I cannot submit a life cycle evaluation for them?

A: If parent and child packaging do not meet the criteria above and thus do not qualify as a "refillable packaging product," bonus life cycle evaluations could still be submitted for them, but individually (for the parent or child), and they would need to be assessed as if they are single-use products rather than refillables (i.e., could qualify for CAA's Bonus A or Bonus B, but not for Bonus C).

Q: How should refill rate be calculated?

A: OAR 340-090-0930(2)(g) references section 4.4.9 of Annex I of EU 2021/2279 for the methodology for deriving the refill rate. While the EU document focuses on reuse rather than refill, it describes reuse generally as a concept of extending product lifetime either by providing the same function or by providing a different function. Looked at through this lens, refillable packaging products would qualify as reusables – they are also filling a purpose of extending product lifetime, with the parent packaging doing so by providing the same function – and therefore the basic equation in this document for calculating reuse rate can be adapted for application to refillables.

Below, find a listing of five subsections of Annex I regarding reuse rate and, for each, clarifying guidance from DEQ on how to apply the information specifically to refillable packaging products:

Section 4.4.9.1 of Annex I of EU 2021/2279 provides that basic formula for deducing the reuse rate (see image below).

$$\text{Number of reuse} = \frac{1}{100\% - (\% \text{ reuse rate})}$$

DEQ Clarifying Guidance on Section 4.4.9.1: As we have established above that refill is a form of reuse in the context of the EU document, this section/equation can be applied to calculate refill rate. Here we can calculate the expected number of refills using the above equation and simply replacing "refill" for "reuse."

$$\text{Number of refill} = \frac{1}{100\% - (\% \text{ refill rate})}$$

Section 4.4.9.2 of Annex I provides guidance on how to apply the number of reuses (or refills in this case) calculated with the equation described in section 4.4.9.1, to different stages of the product life cycle.

DEQ Clarifying Guidance on Section 4.4.9.2: the same guidance as above applies here. Replace the term "reuse" with "refill" throughout the five subsections of 4.4.9.2 for refillable products. With the following clarifications and additions:

1. Raw material acquisition – follow the guidance in 4.4.9.2 (1) for the refillable container itself. In addition, any materials required for the packaging needed to deliver the new supply, must also be accounted for.
2. Transport to product factory - follow the guidance in 4.4.9.2 (2) for the refillable container itself. In addition, any transport (to the factory) of materials required for the packaging needed to deliver the new supply, must also be accounted for.
3. Transport to final client – follow the guidance in 4.4.9.2 (3) for the refillable container itself. In addition, any transport (to the final client) of materials required for the packaging needed to deliver the new supply, must also be accounted for.
4. At the product factory – this section, 4.4.9.2 (4), does not apply to the case of refillable packaging products, since there is no infrastructure for return logistics, cleaning, or refilling.
5. Packaging End of Life - follow the guidance in 4.4.9.2 (5) for the refillable container itself. In addition, any end of life handling of materials required for the packaging needed to deliver the new supply, must also be accounted for.

Section 4.4.9.3 of Annex I pertains to methods for calculating the reuse rate in a more robust format (than described in section 4.4.9.1), specifically for company-owned or third party operated pools of packaging products. Further, this section provides two options (a & b) for performing this calculation, with option a (supply-chain specific data) being preferred over option b (estimated data).

DEQ Clarifying Guidance on Section 4.4.9.3 – because refillable packaging products are not managed in company-owned or third party operated pools. This section does not apply to refillable packaging products. Instead, the simple methodology for determining the reuse (refill in this case) rate from section 4.4.9.1 shall be used.

Section 4.4.9.4 of Annex I disclaims that supply-chain specific data is preferred (option a from 4.4.9.3) for company-owned pools, over average/estimated data.

DEQ Clarifying Guidance on Section 4.4.9.4 – as established, refillable packaging products are not managed in company owned pools, thus this section does not apply.

Section 4.4.9.5 of Annex I provides average reuse rates (option b from 4.4.9.3) for and third party operated pools of specific types of packaging materials.

DEQ Clarifying Guidance on Section 4.4.9.5 – as established, refillable packaging products are not managed in third party operated pools, thus this section does not apply.

Q: Reusable packaging product producers are allowed to use estimates of reuse rate rather than actual data for three years before they are mandated to use actual data in evaluations for a substantial impact reduction bonus (e.g. CAA Bonus C). Is it the same or different for a refillable packaging product? Why or why not?

A: Producers of reusable packaging products can take advantage of a 3-year grace period, described in OAR 340-090-0930(2)(e)(B), during which they can use projections for reuse rate rather than actual data and still be eligible for an ecomodulation bonus. The intent behind this grace period for reusable packaging products is to allow for a temporary ramp-up phase during which substantial impact reduction may not yet be achieved due to the complexity and cost of building out washing and distribution infrastructure.

Conversely, producers of refillable packaging products do not get such a grace period and must use actual data. This reflects the reality that producers of refillables do not face the same complex and expensive build-out phase as producers of reusables.

Q: How do producers of refillables meet the bar of “actual” data on refill rate?

A: To meet this data quality requirement for refillables, producers will need to have state-specific sales data for parent and child packaging alike, obtained through real-world, SKU-specific sales tracking.

## References

European Commission. 2021. [Commission Recommendation \(EU\) 2021/2279 of 15 December 2021 on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organizations](#). Document 02021H2279-20211230.

## Non-discrimination statement

DEQ does not discriminate on the basis of race, color, national origin, disability, age, sex, religion, sexual orientation, gender identity, or marital status in the administration of its programs and activities. Visit DEQ's [Civil Rights and Environmental Justice page](#).