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## **Reusable packaging system design**

Standard Overview

Version 1.0  
October 2021

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RESOLVE



## Introduction

Single-use packaging, especially plastic packaging, has become a critical threat to human health and the environment — choking ecosystems and contributing significantly to climate change. Only 9% of all plastic waste ever produced has been recycled.<sup>1</sup> About 12% has been incinerated, while the rest — 79% — has accumulated in landfills, dumps or the natural environment.<sup>2</sup> Around 40% of all plastic produced has been used for packaging.

Reuse is an underutilized solution. Research shows that reuse can dramatically reduce plastic packaging production and greenhouse gas emissions, while producing economic return on investment long term.<sup>3</sup> A shift to reusable packing moves supply chains away from fossil fuel and global sourcing to local employment for filling, washing and logistics, while preventing petrochemical factory pollution. To reach this potential, reuse systems must be enabled to scale.

[PR3 the Global Alliance to Advance Reuse](#) developed standards to align and support reuse initiatives for the long haul.<sup>4</sup> The goal of these standards is to enable large-scale interoperable reusable packaging systems. PR3's standards aim to make it easier for people and companies around the world to reuse packaging and encourage others to join them.

## Structure of the Standard

PR3's Reusable Packaging System Design Standards currently include seven parts.

- Collection points
- Container design
- Digital
- Return incentives
- Marking and labeling of reusable containers, collection points, and signage
- System Operations and Performance
- Container washing, inspection & packing for distribution

As PR3 continues its work testing standards and developing reuse infrastructure, it is likely that more parts will be added to accommodate additional packaging and system formats. A list and links to all PR3's standards can be found on the [PR3 website](#).

These draft documents are currently under development by PR3's Standards Panel and subject to change. As drafts, the information contained in them does not represent the views of PR3's Panel.

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<sup>1</sup> *Production, use, and fate of all plastics ever made*, Roland Geyer et al, Science Advances, 19 Jul 2017, <https://advances.sciencemag.org/content/3/7/e1700782>

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<sup>3</sup> PEW Charitable Trusts and SystemIQ. "Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution," 2020, [https://www.pewtrusts.org/-/media/assets/2020/10/breakingtheplasticwave\\_mainreport.pdf](https://www.pewtrusts.org/-/media/assets/2020/10/breakingtheplasticwave_mainreport.pdf)

<sup>4</sup> PR3 project charter available [here](#)

## Scope of Standards

PR3's standards are specifically designed to accommodate the following systems, models, and formats.

### ***Shared, interoperable systems***

PR3's standards are specifically designed to align multiple reuse systems into a shared and interoperable reuse ecosystem. They offer both broad guidelines and very detailed requirements for this alignment.

While parts of the standards are applicable to independent and proprietary reuse systems, numerous clauses, such as those for labeling, digital protocols, and collection point design, are not meant for independent systems.

### ***Returnable packaging systems***

As there are many different reuse models on the market, it is important to note that PR3's standards are primarily intended for returnable packaging models.

Reusable packaging programs and systems are commonly categorized into four models: refill at home, refill on the go, return from home, return on the go. PR3's standard is for "return from home" models in which packaging is picked up from residences and "return on the go" systems in which consumers return packaging to collection points located in public spaces. A key benefit to both of these systems is that the consumer experience is very similar to the single-use recycling experience and thus does not require substantial behavior change in certain regions where recycling is common.



Source: Ellen MacArthur Foundation, *Reuse: Rethinking Packaging*

### ***Take-away foodware***

While PR3's standards are applicable to all shared return models, PR3's Washing Standard focuses specifically on containers that are intended to come into contact with food, such as cups for coffee and soda and clamshells and bowls for takeaway food. PR3 will continue to build out the standards to more thoroughly accommodate other packaging formats.

## Interpreting the Standard

Reuse is complex, as it combines elements of both the forward supply chain and waste/materials collection and recovery systems. It also requires entirely new reverse supply routes that will prepare used containers for refilling. Shared reuse ecosystems involve many different players from many industries — including packaging manufacturing, packaging collection and transportation,

washing and sanitizing, data management, financial transaction management, and others — each with distinct skill sets and responsibilities.

These standards apply to different players in the reuse ecosystem. For example, PR3's Container Design standard is most applicable to packaging manufacturers. Likewise, PR3's Washing Standard is applicable to facilities that wash containers. However, the efficacy of this suite of standards is contingent on it being adopted by all players system-wide. We recommend close collaboration among all those players to consistently apply and align with this standard.

## **Glossary of Terms**

Throughout the standards, the terms and definitions given in PR3's Glossary of Terms apply.

## **Requirement Levels**

Throughout the standards, the following requirement levels apply<sup>5</sup>.

- SHALL indicates an absolute requirement of the standard. REQUIRED and MUST are alternative terms that also indicate requirements.
- SHALL NOT indicates an absolute prohibition of the standard. MUST NOT is an alternative term that also indicates a prohibition of the standard.
- SHOULD indicates a recommendation. Under most circumstances, the recommendation should be followed. However, users who do not follow the recommendations still conform with the standard.
- SHOULD NOT indicates a recommendation. Under most circumstances, the recommendation should be followed. However, users who do not follow the recommendations still conform with the standard.
- MAY indicates something that is truly optional. One practitioner may choose to include the item because a particular marketplace requires it or because the practitioner feels it enhances the product while another practitioner may omit the same item. MAY is also used to clarify when something is allowed.

## **Benefits**

PR3 standards are designed to create ease of function, accessibility, social equity, and scalability. As they have for so many products and industries, from wi-fi standards to shipping containers,

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<sup>5</sup> This language is taken in part from the [U.S. Federal Plain Language Guidelines](#) and [IETF RFC 2119](#)

standards will help provide confidence and security for investors, stakeholders, as well as consumers. Key benefits of standardized reuse systems include:

- The potential for reusable packaging from multiple companies and retailers to share the same core infrastructure and services (e.g., collection points, transportation, and washing);
- Per-use reusable packaging is cost comparable to single-use packaging; and
- Dramatically decreased climate and environmental impact compared to single-use packaging.

## **How to Engage**

PR3 welcomes feedback. PR3's Reusable Packaging System Design Standards are in version 1.0 and will continue to evolve. As they are refined, updated versions will be made available. If you would like to share feedback, please contact PR3 Technical Director, Claudette Juska ([cjuska@resolve.ngo](mailto:cjuska@resolve.ngo)).