

Why do we need safety guidelines?



Is reusable packaging (not) hygienic (?)

Claims and assumptions...



Single-use paper-based packaging played an important role in **preventing the spread of COVID-19** during the pandemic. Single-use packaging provides **simple guidelines** that have a **higher chance of being followed by consumers** than multi-use systems....



... In contrast, **multiple-use packaging increases the risks of cross-contamination between humans**, packaging, and food due to **multi-location cleaning, sanitation, storage, and transport**.



Is reusable packaging (not) safe (?)



(Control: glass bottles)

Migration of > 400 plastic related compounds



Migration of > 3500 dishwasher related compounds



More non-polar compounds difficult to remove

Tisler and Christensen, 2022. [Non-target screening for the identification of migrating compounds from reusable plastic bottles into drinking water](#)



Reusable water bottles leach phthalates, bisphenol A, lead and other dangerous chemicals
The Norwegian Consumer Council [Report 2018](#)



[Report 2024](#)

2026: A cross-national quantitative [study](#) among German and Italian citizens shows that public concern about microplastics is overall high. While most people say they think or talk about microplastics only rarely or sometimes, many report being willing to adopt behaviours to reduce their exposure.

Is reusable packaging (not) safe (?)



"Safety and hygiene are critical for all packaging and are determined by how the packaging is managed and handled, not whether it is single-use or reusable"

The Ellen MacArthur Foundation



How is safety of reusable food packaging ensured today in the EU?

All reusable packaging, processes, and operations in the EU must comply with the following legislation:

- ✓ EU Food Contact Materials Regulation (EC) No 1935/2004.
- ✓ EU Good Manufacturing Practices Regulation (EC) No 2023/2006.
- ✓ General Food Law Regulation (EC) No 178/2002.
- ✓ Hygiene of Foodstuffs Regulation (EC) No 853/2004.
- ✓ Specifically for plastics: Regulation (EU) No 10/2011 on plastic materials and articles, Regulation (EU) 2022/1616 for recycled plastic materials and articles intended for food contact, and Commission Regulation (EU) 2025/351 amending Regulations 10/2011, 2022/1616 and 2023/2006.
- ✓ Regulation (EU) 2025/40 on packaging and packaging waste.
- ✓ National food safety regulations applicable in the jurisdiction of operation.¹
- ✓ Other legal frameworks that may apply depending on product type and composition.

“Study on sustainability in the context of food contact materials (FCM) in view of a possible revision of the FCM legislation” (2025): the provision of clear requirements and guidance on material durability, handling/cleaning, traceability and reusability cycles would remove barriers that may prevent businesses from choosing to use reusable FCMs.



Safety guidelines



Annex III Safety guidelines

Supporting the implementation of reuse systems
for food and beverage packaging for take-away
2026



Reuse Safety Guidelines

Supporting the implementation of reuse systems
for food and beverage packaging for take-away

Value chain stages

Follow the lifecycle of reusable packaging – from production to quality assurance.



Reusable Packaging Type



Manufacturing - Manufacturers & Distributors

Responsible for: material selection, design, testing, and providing safe reusable packaging

KEY REQUIREMENTS AND OBLIGATIONS

- Material safety and performance:
 - Food-grade/food-contact approved materials only
 - Remain food safe after repeated washing
 - Microbiological limits enforced (e.g., <5-10 kBE)
 - Thermal stability and integrity across intended use conditions (-20°C to 120°C)
 - Avoid chemicals of concern (LP Scorecard Tier 1)
 - Provide usage and deterioration instructions

PERFORMANCE TESTING

- Disinfectant resistance
- Microplastic shedding
- Thermal cycling/lagging
- Chemical migration under stress
- Sensory impact (odour, flavour, colour transfer)



Reuse System Operators

Responsible for: ensuring quality, traceability, and operational safety during the reuse lifecycle

KEY REQUIREMENTS AND OBLIGATIONS

- Select only certified, compliant packaging
- Define washing and logistics protocols
- Maintain traceability and safety data for all items
- Conduct regular inspections to assess packaging integrity, hygiene, and food safety
- Apply removal criteria for degraded or unsafe items
- Ensure end-of-life handling: proper sorting, recycling, preference for closed-loop systems



Collection & Transport

Responsible for: safe collection and transportation to prevent cross-contamination between used containers

KEY REQUIREMENTS AND OBLIGATIONS

- Clean transport vehicles
- Separation of clean/used packaging, temperature control if required, and handling damaged/contaminated items



Washing & Sanitisation

Responsible for: safe cleaning and sanitisation of reusable packaging

KEY REQUIREMENTS AND OBLIGATIONS

- HACCP-compliant washing processes
- Wash at >65°C (thermal disinfection) or use validated alternative
- Develop and validate material-specific washing protocols
- Conduct microbiological testing and residue checks
- Ensure complete drying before redistribution



Staff & Facility Requirements

Responsible for: maintaining hygiene, training, and proper operational environment

KEY REQUIREMENTS AND OBLIGATIONS

- Mandatory initial and refresher training
- Handwashing and Personal Protective Equipment protocols
- Competency verification for inspections
- Training on end-of-life criteria and quality issues
- Separate areas for used, washed, and clean packaging
- Air quality control and pest control
- Controlled storage conditions (dry, dust-free, properly stacked)
- Regular maintenance of equipment and facility



Quality Assurance & Documentation

Responsible for: maintaining proof of compliance and continuous improvement



Learn more at Zero Waste Europe



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Safety guidelines

3.2 Material performance testing

3.2.1 Dishwashing (DW) resistance assessment³

- Mechanical assessment after the appropriate⁴ number of DW cycles for each material type:
 - Impact testing⁵
- Visual assessment after the appropriate number of DW cycles for each material type:
 - Clarity
 - Colour
 - Microcrack/microcraze
 - Fraying

3.2.2 Microplastic shedding assessment⁶

- Testing should be done to detect if the material is shedding microplastics during use (particularly with microwaving and other high temperature moments, during washing, refrigeration or long-term storage).
- Validated testing protocols are conducted which are appropriate to the material type, with defined thresholds agreed upon for acceptable microplastic release once they have been established (see footnote explanation).
- Documentation of the testing results and trend analysis is strongly encouraged, to see if microplastics released from the material start to plateau or decrease/increase after a set time/number of cycles.

3.2.3 Thermal cycling stability: aging

3.2.4 Chemical migration under stress

- Migration testing under combined stress conditions (mechanical stress, thermal stress, and chemical exposure).
- Testing after multiple (first 5, 10, and every other 10) use cycles to assess potential cumulative effects.
- Evaluation of different food types (depending on for what type of food is a container purpose / suitable) effect on migration potential.
- Specific testing for known problematic substances based on material type.

3.2.5 Sensory impact testing⁷

- Standardised protocols for evaluating flavour transfer.
- Triangle testing to detect subtle sensory changes.
- Quantification of odour retention after washing.
- Expert sensory panel evaluations at defined intervals.

It's worth noting here that the EU Food Contacts Material (FCM) regulation requires that any type of food contact material must not change the organoleptic properties of food - commonly this is interpreted as the taste, smell and optical appearance.

³When applicable, other technology to wash and / or sanitise reusable containers can be considered (e.g. steam sanitising)

⁴To be determined by each provider (depending on e.g. material, specific packaging format and application)

⁵Specifically evaluates the impact resistance, strength, and breakage characteristics of glass or plastic containers by simulating collisions. For more details look for example [here](#).

Safety guidelines

5. PERFORMANCE AND SAFETY REQUIREMENT BY PACKAGING TYPE

Pre-testing protocol¹⁰ for hot and cold beverages

Pre-testing protocol for common food containers (bowls, burger boxes, pizza boxes)¹¹

Pre-testing protocol for sushi boxes and other specialised containers (containing more sensitive food)

Requirements for the packaging

Safety guidelines

- ✓ Safety and hygiene are critical for all packaging and are determined by how the packaging is designed, tested and handled, not whether it is single-use or reusable
- ✓ We strongly encourage to test the final packaging item to validate its ability for the intended use, and to understand the material's limitations being used in reuse operations for food and beverages.
- ✓ Ensuring the safety of reusable food packaging systems is essential for building both business confidence and consumer trust.