

Drafted by:

Carole Manceau, Packaging Expert, FSA, WFP
Claudia Montoy, Procurement Officer, SCDP, WFP
Bichr Maamoun, Food technologist, FSA, WFP

Version: 2, adopted 2024

Replacing: 1, November 2023

Guidance - Packing of food rations

The objective of this document is to provide guidance for the packing of food rations.

This document complements mandatory requirements included in WFP packaging and food contracts.

This document complements as well the “Guidance: Best practices for palletizing of goods”¹

1. Pre-kitting operations:

- The supplier must define the best layout of commodities in cartons before validating the final design of the carton.
- It is highly recommended to perform a static stacking test of cartons filled with the food products for a height equivalent to the pallet height and for a minimum of 1 week.

2. Inspection of in-coming commodities:

- Ensure compliance of primary packaging material (based on certificate of analysis received from packaging suppliers) against relevant WFP specifications.
- Carton specification must meet WFP specification, e.g. ECT (Edge Crush Test), and supplier must ensure that the BCT (Box Compression Test) is suitable for the purpose.
- Vendors need to visually inspect commodities (100% visual inspection of primary packaging).
- Workers must be trained to identify defective commodities (clear pictures and definitions provided to workers).

3. Kitting process:

- Place separator on the bottom of the carton and between layers of cans.



- Separators need to cover the entire surface of the box.



¹ Available here: <https://docs.wfp.org/api/documents/WFP-0000160248/download/>

- The height between the top of the commodities and the top flaps of the cartons should be around 1cm. If the space is too small, the commodities will be damaged by the cartons stacked on the top and if it is too big, the carton will bulge.
- Cans must be upright in cartons and easy opening of can facing the top flaps of cartons.
- Smaller size cans should be distributed between the bigger size cans (avoid grouping all small size cans on the same side of the cartons).



- All the commodities must be well secured in cartons. No empty spaces are allowed.



- Cans must not be in direct contact with commodities in plastic bags (to avoid sharp edge damaging bags).



- When bottles of oil are packed in the ration's boxes, the supplier must ensure that there will be no pressure applied on the bottle from the top (during stacking) and from the other commodities.
- It is recommended to place the heavy commodities on the bottom of the box and the lighter commodities on the top. Exception is made for cans: the cans with a bigger diameter should be placed on the top of the can with a smaller diameter.
- The boxes must be firmly closed with tape. The quality as well as the length and width of the tape must be suitable for humanitarian operations. The closure of top and bottom flaps must be done using automatic box taping machines.²

4. Palletization of cartons or trays:³

- Cartons must be palletized as per requirements in WFP packaging specification (e.g. column stacking) and guidance for palletizing goods.
- Pallet corners need to cover the upper part of the pallet and be locked to the pallet. Pallet corner must also be covering the total height of the load.
- The load must match the pallet dimensions.

² If automatic box taping machine is not available at the supplier, manual taping can be accepted if suitability done.

³ Suppliers need to refer to the Customs Information Guide (CIG) attached to the tender documents. Requirements from the CIG, when existing, prevail against this guideline.



- A drop test (Annex I) on ration boxes must be done.
- If cans are loaded in carton trays/plastic, a carton sheet needs to be put between the layers of cans (recommended every 3 layers of trays/plastic) and on top of the pallet. The carton sheet needs to cover the entire surface.



- If cans are loaded in trays/plastic, consider covering the pallet with a thick carton sheet.
- If ration boxes contain cans, consider covering the pallet with a thick carton sheet.
- A carton cover can also be used on the top of cans loaded in trays/plastic



5. Loading of pallets in trucks / containers

- Forklift must be used carefully and must not impact the integrity of pallets and goods.
- Pallet must be well secured in trucks / containers. Back and forth movement of pallets needs to be prevented as well as transversal movement (use of dunnage or alternative solution).

6. Work instruction

Work instruction containing, at least the following information, must be developed before any new kitting operations:

- The content: type of commodities and quantities
- The layout of each commodities inside the box
- The dunnage and/or separator when required
- The quality checks to be done during the process (e.g. inspection of commodities, weight)
- Pictures and definition of defective commodities

Annex I: Drop test protocol

Unless otherwise specified, **drop test** shall be applied on oil containers packed inside corrugated carton. Drop test shall be performed as per principles of ISO 2248/ASTM D5276 (or equivalent), with following sequence on the same carton:

- **Edge dropping:** carton is dropped from a height of 460mm on 1 edge (the angle between a prescribed surface of the package and the horizontal surface $\pm 5^\circ$)
- **Corner dropping:** carton is dropped from a height of 460mm on 1 corner (the angle between a prescribed surface of the package and the horizontal surface $\pm 5^\circ$)
- **Face dropping:** carton is dropped from a height of 460mm on 1 face (2° maximum angle between the impacting face and the horizontal surface)

The velocity at impact shall be within $\pm 1\%$ of that which would be achieved by a free fall.

There shall be no rupture or loss of contents as a result of the test (the required minimum number of units to be checked with drop test is 3 cartons per 500mt). If only the carton is damaged, it shall be replaced.