

FMS CONTAINER PROTOCOL

Background

This protocol prescribes requirements and procedures for shipping citrus fruit to the EU under the Citrus FMS in integral refrigerated containers. The protocol applies to shipments from all ports.

Table 1. Container shipping regime codes.

Option	Shipping regime code	Load-out temperature (°C)	Set point (°C)	Packaging allowed*
A	EC2	≤5.0	2.0	A15V
	EC1	≤4.0	1.0	All
	EW0	≤25	0.0	All
	EW01	≤25	-1.0	All
B	EC3	≤5.0	3.0	All
	EC35	≤5.5	3.5	All
	EC4	≤6.0	4.0	All
C	EC0	≤1.0	0.0	All
	ECW0	≤10	0.0	All
	EC01	≤0.0	-1.0	All
	ECW01	≤10	-1.0	All

*Cartons must comply with the “Packaging material specifications and palletization protocols for 2022 citrus export season”.

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1. Shipping regime codes and conditions

- Option B fruit can be shipped under A, B and C codes.
- Option A fruit can be shipped under A & C codes.
- Option C fruit can only be shipped under C codes.

2. Packaging

- a. Cartons must comply with the “Packaging Material Specifications and Palletization Protocols for the 2022 Citrus Export Season”.
- b. The following cartons / packaging types are allowed:
 - Telescopic cartons: only the new A15C SuperVent carton.
 - Open display cartons with adequate ventilation. Open display cartons may not be used under the code EC2.
 - No fruit wrapping is allowed, except alternating rows on the top layer for display purposes.
 - Ventilated trays may be used as internal packaging, but only under the following A-codes: EW0, EW01 and C-codes: EC0, ECW0, EC01, ECW01.
 - IFCO plastic crates are allowed. However, if internal packaging (trays) are used, the trays must be ventilated and exported under the following A-codes: EW0, EW01 or C-codes: EC0, ECW0, EC01 and ECW01.
 - Bulk bins, with ventilated sheets placed at the bottom of the bin.
 - The 9-slat pallet design is recommended to allow alignment of pallet slat spacings with the carton ventholes.
- c. The following additional specifications apply to palletizing:
 - Ventilation in securing sheets must align with the vent holes at the bottom of the cartons.

3. Loading Points and Loading Practices

- a. All Loading Points must annually be registered with PPECB and DALRDD.
- b. A Loading Point can either be:
 - An ambient facility, or
 - A cold store facility.
- c. All containers must be fitted with void plugs placed per the following requirements. Failure to do so will result in PPECB not authorising the container for export under the FMS.
 - No portion of the void plug protrude beyond the T-bars floor.
 - Void plug must cover the exposed base of pallets.
 - Void plug must cover the exposed T-bar floor area.
 - Void plug must be undamaged and not at a risk of being shifted by airflow.
- d. Only the following airflow improvement equipment/devices may be used:
 - Pallet spacers (Figure 2).
 - T-floor cover at refrigeration wall (Figure 2).
 - To improve the cooling efficiency of open display cartons, it is recommended to use these devices. Exporters are requested to inform the FMS Steering Committee when these devices are used to allow for an analysis of the efficiency in the commercial cold chain. Please contact Tarl Berry (tarl@sun.ac.za) and Bernardus Henning (bernardush@ppecb.com) to provide details of shipments.



Figure 1: Example of correction installation of void plug.

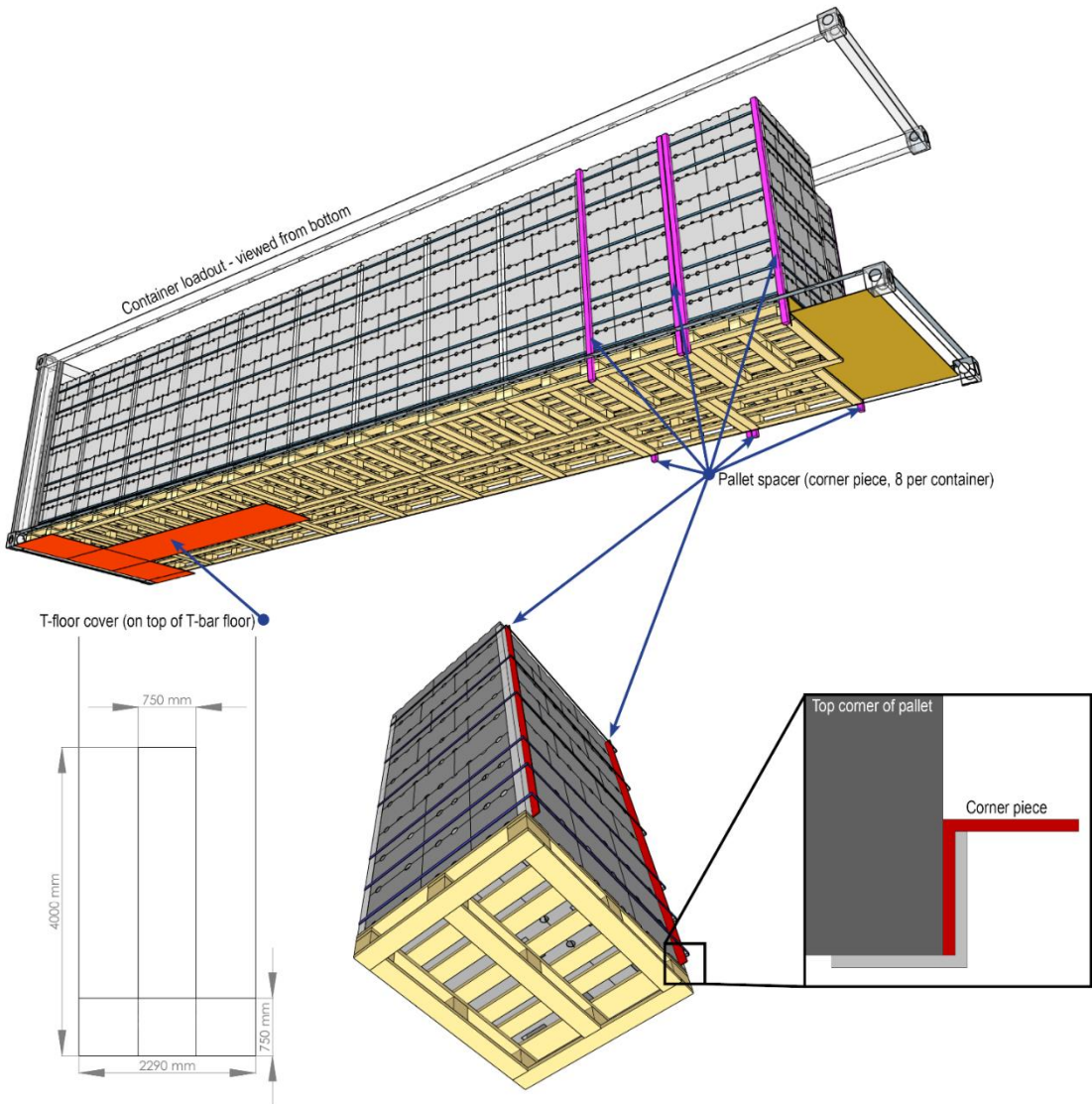


Figure 2: Illustrations of the T-floor cover and pallet spacers.

- e. A 21-pallet loading configuration is allowed in accordance with the following:
- The exporter must ensure that the chimney-type (**C-type**) void plugs are installed in both chimney locations (see the areas to cover in blue - Figure 3).
 - The C-type void plug should obstruct the T-bar floor and the exposed pallet bases so that no airflow can bypass the pallets.
 - The C-type void plugs can be manufactured from cardboard or a non-permeable sponge, as used in other export markets e.g., Israel - Table grapes; contact Bernard Henning bernardush@ppecb.com) at PPECB for more information.

21 pallet load-out - with C-type void plug

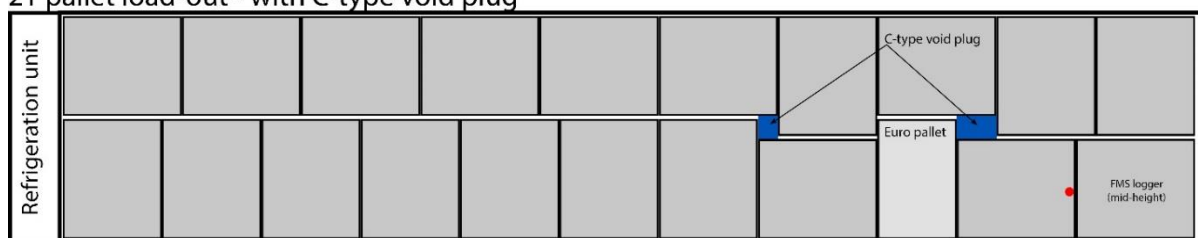


Figure 3: Placement position of C-type void plugs (blue) and the temperature loggers (red).

4. Cold stores

- a. Cold stores handling citrus fruit exported under the FMS must maintain a set point (air temperature) of 2.0°C or lower.
- Forced air cooling (FAC) rooms may use a higher initial Delivery Air Temperature (DAT) setpoint to allow step-down cooling to reach 2.0°C or below.
 - For Option B fruit, the following is allowed: Fruit may be cooled to target shipping temperature and held there i.e., 3.0°C for EC3, 3.5°C for EC35 and 4.0°C for EC4.
- b. Cold store facilities must have the functionality of digital measuring and recording DAT and return air temperature (RAT) in rooms where FMS fruit are stored. *No handwritten temperatures records accepted.*
- c. Digital traceability (hourly resolution) of pallet movement in the cold room must be recorded and made available on request.

5. Temperature monitoring

Containers shall be fitted with a **cellular air or pulp temperature monitoring and logging device (logger)** that complies with the following.

- a. Only PPECB approved loggers may be utilised, which are **compatible with PhytClean in supplying data** in the correct format. Find list of approved loggers in the “PPECB Approved List of Instruments”.
- b. PPECB to record the serial number of the logger on Q08.
- c. The exporters/agents responsibility to arrange for the logger/s to be at the loading point.
- d. It is compulsory for the exporters/agents to arrange for the logger/s to be downloaded and data to be uploaded on PhytClean, within 7 days after arrival in port of discharge.
- e. Placement during loading of the logger must be in the **required position**. Failure to do so will result in PPECB not authorising the container for export under the FMS (**Figure 4**):
- Refer to Figure 4 for logger position - second last pallet, on the left-hand side of the container, half the height of the pallet.
 - Loggers must be placed inside the carton, against the carton wall which was cut.

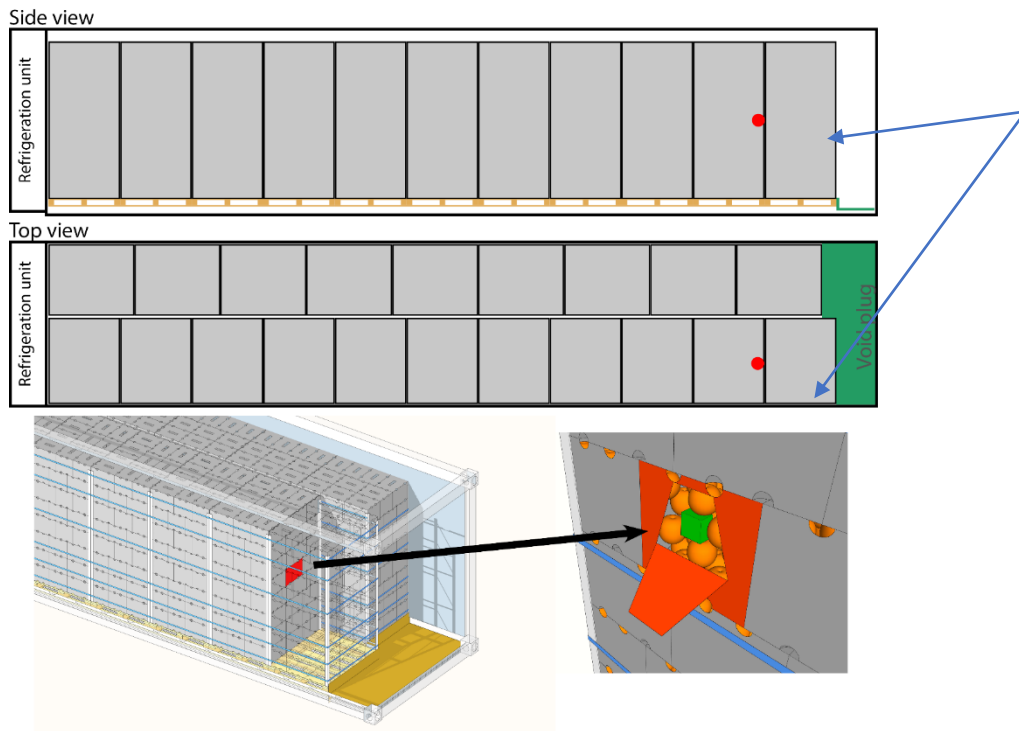


Figure 4: Illustration of cellular logger position. Red carton indicates where the temperature must be monitored (inside red carton).

6. Cooling duration

- a. Only shipping regimes codes as specified in **Table 1** are allowed.
- b. Exporters to ensure that all consignments exported in containers are under cooling for at least 24 days (Figure 5).
- c. For precooled fruit the cooling time consists of three parts:
 - i. **Duration in the cold room.**
 - ii. **Container dwell time under power.**
 - iii. **Estimated voyage duration** as per information from the shipping line.
- d. For ambient loaded fruit (EW01/0) the cooling comprises of two parts:
 - i. **Container dwell time under power.**
 - ii. **Estimated voyage duration** as per information from the shipping line.
- e. Once the vessel/voyage duration exceeds 30 days from gate-in, step up to 4.0°C (no higher) can be affected thereafter and maintained for the remainder of the voyage.

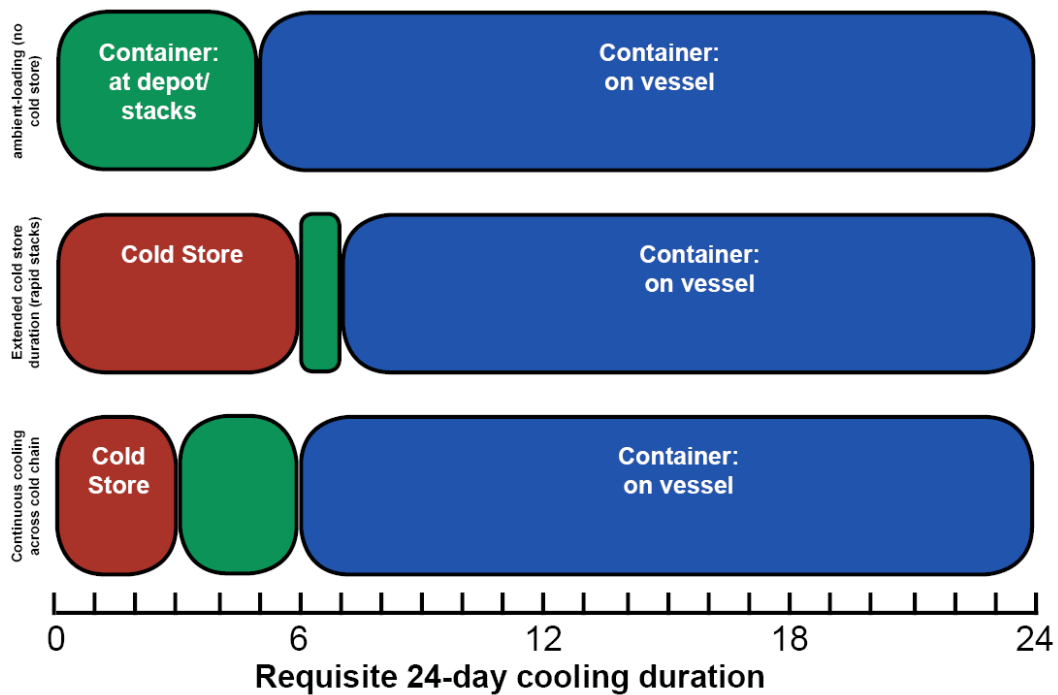


Figure 5: Three examples of how the 24-day cooling duration can be achieved.

7. Procedures

7.1 Loading Point

At the loading point (either cold store or warm loading facility), the following applies before commencement of loading

- **Loading point** to generate and provide load-out instruction and PhytClean report (or combination) to PPECB (**Control Point 1**).
- PPECB to **validate** working program/Q67, PhytClean report and load-out instruction:
 - **Verify pallet ID's** with the actual **cargo**
 - **Verifying cargo temperatures** (minimum four (4) pallets)
 - **PhytClean reference key number** to be recorded on Q08
 - **Cellular logger serial number** to be recorded on Q08
- **Additional requirements for dual loading:**
 - Exporter/agent to **provide both loading points** with complete PhytClean verification report for the full consignment
 - **1st loading point** to supply PPECB with PhytClean report for only the number of pallets to be loaded
 - **2nd loading point** to supply PPECB with PhytClean report for only the number of pallets to be loaded (balance of consignment)
 - **Both PhytClean reference key numbers** to be recorded on Q08 as per loading point
 - **2nd loading point** to supply cellular logger and the **serial number** to be recorded on Q08.
- **Loading point** to switch on all data loggers 30 minutes prior to loading and do status check in the presence of the PPECB assessor to **confirm successful activation during placement of logger.**
- **Loading point** to **correctly insert the void plug** inside the container.
- PPECB to verify **container setpoint** as per PhytClean/PPECB working program at loading (**Control Point 2**)

7.2 Exporters

- Exporters to ensure recording of all **pallets' durations and temperature exposure** in a cold room (**Control Point 3**)
- Calculation to determine Total Cooling Time must be made available on request (**Control Point 4**).

7.3 Changes to regime codes

No change of shipping regime code within 24h before "load out" of fruit into the container, but the exporter/grower can instruct a subsequent reduction in setpoint temperature in accordance with the following:

- Set point temperature reduction will only be allowed after the departure of the vessel.
- Set point temperature changes will only be allowed to be lower than the original set point (lowest denominator).
- Set point changes will only be affected by the Shipping Line with PPECB approval.
- For set point changes, a request must be submitted to PPECB (bernardush@ppecb.com) at least 48 hours prior to the planned change, indicating the reason for the change.
- On approval of the request, the exporter should:
 - Send an amended booking request to PPECB at Bookings@ppecb.com and cto@ppecb.com
 - Request confirmation from the Shipping Line that the set point was changed