

# *Prevention of Pest Contamination of Containers: Joint Industry Guidelines for Cleaning of Containers*





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Jointly prepared by:



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**CONTAINER OWNERS ASSOCIATION**

The Container Owners Association is the international organisation representing the common interests of all owners of freight containers. The principle aims of the COA are to provide global expertise, to promote common standards and to facilitate international lobbying.

More information is available at: [www.containerownersassociation.com](http://www.containerownersassociation.com)

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More information is available at: [www.worldshipping.org](http://www.worldshipping.org)

## Introduction

There is international consensus among competent authorities that containers and their cargoes can carry and facilitate the introduction and spread of pests that may pose a serious risk to agriculture, forestry, and natural resources. The packing of sea containers with cargo is the most likely stage in the sea container supply chain at which pest contamination can occur. Shippers and packers, acting on behalf of shippers, should implement measures to minimise pest contamination during packing. Others in the international container supply chains should also implement measures to reduce the risk of pest contamination while the container is in their control.

These measures, referred to as best practices, should be in accordance with the parties' roles and responsibilities in the supply chains and should take into consideration all safety and operational constraints.<sup>1</sup>

Minimizing pest contamination of containers and their cargoes is a shared responsibility and by applying best practices described in this Guide these parties can keep containers and their cargoes clean. This will help to prevent the introduction and spread of pests through international commerce. Containers are also likely to move through ports and reach their final destinations faster and with less expense if they are clean.

These guidelines are complementary to the guidance given in various guidelines published by the IPPC and in the IMO/ILO/UNECE Code of Practice for Packing Cargo Transport Units ("CTU Code") regarding prevention of pest contamination of containers.<sup>2</sup>

Chapter 4 of the CTU code, "Chains of Responsibility and Information" states in para.4.1.4:

"All persons involved in the movement of CTUs also have a duty to ensure, in accordance with their roles and responsibilities in the supply chain, that the CTU is not infested with plants, plant products, insects or other animals...".

The purpose of this document is to provide guidance on how this may be achieved by the various container custodians in the supply chain for those containers that are in their direct control.

These guidelines are not intended to replace individual container operators' cleaning guidelines. Nor do they replace applicable local regulatory pest contamination measures and requirements.

Finally, these guidelines are additional to industry guidelines regarding container cleanliness for non-pest contamination such as paint, oil etc.; such non-pest contaminations fall outside the scope of this document.

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<sup>1</sup>Sea container supply chains and cleanliness, IPPC, March 2020. (<https://www.fao.org/documents/card/en/c/ca7963en>)

<sup>2</sup>The CTU Code can be accessed at: (<https://www.imo.org/en/OurWork/Safety/Pages/CTU-Code.aspx>)

## Interchange Events and Custodial Responsibilities

The following tables identify the various points of change of custody (“interchange events”) of a container in the supply chain and responsibility for measures that, in accordance with the guidance from the IPPC and in the CTU Code are required to minimise visible pest contamination.

In conformance with the CTU Code, “pest contamination” means visible forms of animals, insects or other invertebrates (alive or dead, in any lifecycle stage, including egg casings or rafts), or any organic material of animal origin (including blood, bones, hair, flesh, secretions, excretions); viable or non-viable plants or plant products (including fruit, seeds, leaves, twigs, roots, bark, intact or broken wood packing material, including dunnage); or other organic material, including fungi; or soil, or water; where such products are not the manifested cargo within the container”.

Further, “visible” means detectable by the human eye without the aid of any supporting instruments or aids such as magnifying glasses and microscopes<sup>3</sup>. It is stressed that whenever reference is made in these guidelines to “pest contamination” it should be understood and read to mean “visible” such contamination.

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<sup>3</sup> See [IMO MSC1./Circ.1649 Guidelines for the Implementation of the Inspection of Cargo Transport Units](#).

Note: The tables are without prejudice to existing local requirements at either the export, import packing and/or unpacking locations.

Note: These guidelines use the definitions in the existing CTU Code; they may be revised if and when a new version of the CTU Code.

## Custodial Responsibilities\* for Pest Contamination Prevention – a Schematic Description

	EXPORT									IN TRANSIT ON SHIP
	Depot	Terminal	Rail Yard	Pack Point		Depot	Rail Yard	Terminal, incl. transshipment terminals	Loading on Ship	
<b>Carrier Haulage<sup>4</sup></b>										
<b>Interchange event</b>	Empty Gate-out	Empty Gate-out	Empty Gate-out	Empty IN	Empty OUT	Full Gate-in	Full Gate-in	Full Gate-in	Full Loading	
<b>Custodial responsibility</b>	Carrier's Haulier	Carrier's Haulier	Carrier's Haulier	Shipper & Packer	Carrier's Haulier	Depot Operator	Yard Operator	Terminal Operator	Terminal Operator	Carrier
<b>Merchant Haulage<sup>5</sup></b>										
<b>Interchange event</b>	Empty Gate-out	Empty Gate-out	Empty Gate-out	Empty IN	Full OUT	Full Gate-in	Full Gate-in	Full Gate-in	Full Loading	
<b>Custodial responsibility</b>	Shipper's Haulier	Shipper's Haulier	Shipper's Haulier	Shipper & Packer	Shipper's Haulier	Depot Operator	Yard Operator	Terminal Operator	Terminal Operator	Carrier
	IMPORT						Empty Return/Position			
	Discharge from Vessel	Terminal	Depot	Rail Yard	Unpack Location		Terminal	Depot	Rail Yard	
<b>Carrier Haulage</b>										
<b>Interchange event</b>	Full Discharge	Full Gate-out	Full Gate-out	Full Gate-out	Full IN	Empty OUT	Empty Gate-In	Empty Gate-In	Empty Gate-In	
<b>Custodial responsibility</b>	Terminal	Carrier Haulier	Carrier Haulier	Carrier Haulier	Client	Carrier Haulier	Terminal Operator	Depot Operator	Yard Operator	
<b>Merchant Haulage</b>										
<b>Interchange event</b>	Full Discharge	Full Gate-out	Full Gate-out	Full Gate-out	Full IN	Empty OUT	Empty Gate-In	Empty Gate-In	Empty Gate-In	
<b>Custodial responsibility</b>	Terminal	Client's Haulier	Client's Haulier	Client's Haulier	Client	Client	Terminal Operator	Depot Operator	Yard Operator	

The container operator is responsible for providing a clean container either directly to the shipper customer or, as shown in this table, via a container depot, terminal, or rail yard. It is then the responsibility of every subsequent container custodian in the supply chain to ensure that the container remains clean and free from visible pests at every point of interchange above. However, inspection of the interior of packed containers cannot be undertaken by intermediary custodial parties following the sealing of the container by the shipper or the packer on its behalf; consignees should undertake such inspection of the interior of the packed container upon removal of the seal.

It is the responsibility of the receiving container custodian to determine whether the previous custodian has met their responsibility and inform them and hold them accountable in case this has not been done. Persons that handle and pack cargoes into containers are also responsible for ensuring that the cargo is free from pest contamination.

\* Table shows the new custodial responsibility triggered by the indicated preceding Interchange event.

<sup>4</sup> Carrier Haulage is when the container transport is organized by the ocean carrier.

<sup>5</sup> Merchant Haulage is when the merchant, which may be the cargo owner, consignor or shipper, arranges the container transport through their appointed service providers (e.g. trucking company).

## Inspections and Actions by Container Custodians

The IPPC has published guidance to national plant protection organizations (NPPOs) on how to inspect and record contamination details in a safe, consistent, and harmonized manner when carrying out sea container cleanliness surveys<sup>6</sup>. Container custodians should consult the IPPC's inspection guidance when planning for and undertaking container inspections.

The table below describes inspection and other measures that container custodians should undertake to minimize pest risks in the sea container pathway. The custodial responsibilities approach set out in these guidelines embody that the receiving container custodian should inform the tendering container custodian if the container and its cargoes have visible presence of pest contamination. This information requirement applies to all parties in the international container supply chains; it has not been repeated for each interchange event in the table below but does nevertheless apply for each event.

Note: In the table below it should be understood that by accepting the container, the new custodian accepts that the previous custodian has met their responsibilities especially in terms of pest contamination.

Where	Interchange event	Inspection	Responsible Party	Responsibility / Action
Container depot/Rail Yard	Gate In EMPTY	Structural deficiencies, internal cleanliness, visible <sup>7</sup> pest contamination on the exterior and interior of the container	Depot (for container operator) Haulier	Acceptance of pest-free container  Handover of pest-free container to depot
Container depot/Rail Yard	Gate Out EMPTY	Internal cleanliness, overall condition, suitability for cargo, visible pest contamination on the exterior and interior of the container	Depot (for container operator)	Handover of clean, pest-free container only to haulier
Container depot/Rail Yard	Pick up EMPTY for transport to Pack location	Container Number, obvious defects, visible pest contamination on the exterior or interior of the container	Haulier	Acceptance of clean, pest-free container only
Pack point	Receipt for packing	Internal cleanliness, overall condition, suitability for cargo, visible pest contamination on the exterior and interior of the container and of the cargoes to be packed into the container	Shipper or Packer on behalf of shipper	Acceptance of clean, pest free container only
Pack point	Pick up for transport to Terminal	Container Number, Seal number, obvious major defects, visible exterior pest contamination	Haulier	Acceptance of pest-free container only
Export Terminal	Gate In	Container Number, Seal number, obvious major defects, visible exterior pest contamination <sup>8</sup>	Terminal	Acceptance of pest-free container only; report presence of pest to container operator, or reject per local protocol

<sup>6</sup> <https://www.ippc.int/en/publications/90644/>

<sup>7</sup> "Visible" means detectable by the human eye without the aid of any supporting instruments or aids such as magnifying glasses and microscopes. This applies to both the exterior and interior of the container; however, as discussed, it may not be possible to inspect the roof and undercarriage of the container for visible trace soil and other pest contamination.

<sup>7</sup> Exception - Automated gates.

<sup>8</sup> Automated terminals may present particular challenges for detecting such contamination. Technologies such as cameras and e-DNA are being trialled and should be considered.



Where	Interchange event	Inspection	Responsible Party	Responsibility / Action
Export Terminal	Load on Ship	Container Number, obvious major defect, visible exterior pest contamination <sup>9</sup>	Terminal	Load only pest-free containers, Report presence of pests to container operator and/or to responsible authority, as required
On ship	Container is in transit aboard ship	Appropriate pest prevention measures should be implemented.  Regulatory requirements, e.g. regarding Flighted Spungy Moth Complex (FSMC), must be followed.	Carrier	Inspection of the exterior of on-deck containers to look for, remove (scrape off) and properly dispose of or destroy all egg masses and other life stages of insects such as FSMC, where required.
Transshipment Terminal	Unload/Load from/to Ship	Container Number, Seal number, obvious major defect, visible exterior pest contamination <sup>10</sup>	Terminal	Report presence of pests to container operator and/or to responsible authority, as required
Import Terminal	Unload from Ship	Container Number, obvious major defect, visible exterior pest contamination <sup>11</sup>	Terminal	Report presence of pests to container operator and/or to responsible authority, as required
Import Terminal	Pick up for transport to Unpack location	Container Number, Seal number, obvious major defects, visible exterior pest contamination	Haulier	Accept pest-free container only, or reject container
Unpack location	Receipt for unpacking	Container Number, Seal number, obvious defects, visible pest contamination on the exterior and interior of the container and of the cargoes being unpacked from the container	Consignee	Accept pest-free container only, report visible pest contamination to responsible authority, as required; prevent contamination
Unpack location	Prior to return	Internal cleanliness (contractual obligation), visible pest contamination on the exterior and interior of the container	Consignee	Ensure clean, pest-free container; prevent contamination

<sup>9</sup> Automated terminals may present particular challenges for detecting such contamination.

Technologies such as cameras and EDNA are being trialled and should be considered.

<sup>10</sup> Automated terminals may present particular challenges for detecting such contamination.

Technologies such as cameras and E-DNA are being trialled and should be considered.

<sup>11</sup> Obvious external contamination. Automated terminals may present particular challenges for detecting such contamination.

Technologies such as cameras and e-DNA are being trialled and should be considered.

<b>Custodial Responsibilities for Pest Prevention - EMPTIES</b>	
<b>Container Terminals</b>	
<b>Empties for loading on ships</b>	<b>Empties discharged from ships</b>
<p>While containers are waiting to be loaded, the measures described in the IPPC guidelines<sup>12</sup> and further detailed in Annex 6 of the CTU Code «Minimizing the risk of recontamination» should apply, based on the principle «gated in clean, stay clean».</p> <p>After loading of the empty container aboard ship, and during the ship's voyage, the carrier should ensure appropriate pest prevention measures are in place.</p>	<p>After being discharged and while containers are waiting to be released to hauliers, the measures described in the IPPC guidelines and further detailed in Annex 6 of the CTU Code «Minimizing the risk of recontamination» should apply.</p>
<b>Depots &amp; Rail Yards</b>	
<b>Empties for release for packing</b>	<b>Empty returns/Empty positioning</b>
<p>For Clean containers waiting to be released to hauliers, the measures described in the IPPC guidelines and further detailed in Annex 6 of the CTU Code «Minimizing the risk of recontamination» should apply.</p>	<p>Containers should be inspected for visible pest contamination and cleaned of any contamination on receipt and before repair and preparation for cargo.</p>

## Inspections and Safety

Inspections should only be conducted when it is safe to do so. Prior to inspection, the IPPC's inspection guidance should be consulted<sup>13</sup>. Specifically, and due to safety requirements or other operational constraints, inspections of the exterior of containers, and in particular their understructures ("undercarriages") and roof, should be subject to a thorough risk assessment with suitable safety management controls put in place.

No persons should be exposed to uncontrolled risk during any part of the inspection process. If an uncontrolled risk arises during an inspection, the inspection should be suspended. The inspection should not continue until suitable measures have been put in place that mean it is safe to continue the operation. The need to inspect should never override the safety of those undertaking (or others who might be affected by) the work.

<sup>12</sup> See footnote 1.

<sup>13</sup> [Sea Container Cleanliness Survey\\_SCTF\\_Final\\_20181116.pdf \(ippc.int\)](#)

## Container Cleanliness

The container operator is responsible for providing a clean container either directly to the shipper customers or, as the case may be, via a container depot, terminal, or rail yard. It is the responsibility of every subsequent container custodian to ensure that the container remains clean and free from visible pests at every interchange point discussed above. However, inspection of the interior of packed containers cannot be undertaken by intermediary custodial parties following the sealing of the container by the shipper or the packer on its behalf; consignees should undertake such inspection of the interior of the packed container upon removal of the seal.

It is imperative that no attempt is made to enter a container until any unknown residue has been identified and the appropriate safety precautions have been taken.

For the purpose of these guidelines, “clean” means that the empty container’s exterior and interior and, for reefer containers, also ventilation inlet grilles and floor drain holes, should, at the time of dispatch or at interchange, have no visible presence of any of the following:

- Soil
- Plants/plant products/plant debris
- Seeds
- Moths, Wasps, Bees
- Snails, Slugs, Ants, Spiders
- Mould and Fungi
- Frass (insect and bird droppings or waste)
- Egg sacs
- Animals, animal parts/ blood/excreta and reproductive components or parts thereof
- Other contamination that shows visible signs of harbouring pests.

## **Cleaning methods for visible pest contamination<sup>14</sup>**

This section contains recommendations on cleaning methods for visible pest contamination. In cases of doubt about how to proceed, the local National Plant Protection Office (NPPO) or, if animal origin contamination, the local Quarantine Office should be contacted for guidance.

Proper consideration should be given to disposal of pest contamination residues to minimize the potential for pests to flourish.

### **Seeds and Plant parts**

Sweep up or vacuum ensuring that all residues collected are sealed in an airtight bag and stored for disposal. Dispose of bags based on advice from the local NPPO or plant quarantine organisation.

### **Insects, Egg masses and Nests**

Minimize risks of escape of live insects. Incapacitate live insects, larvae or pupae using an insecticide spray, fumigation or other means as advised by the local NPPO. All egg masses, nests etc. should be sealed and all inhabitants be rendered incapable of escape and/or incapacitated.

Sweep, vacuum or scrape up ensuring that all residues collected are sealed in an airtight bag and stored for disposal. Dispose of bags based on advice from the local NPPO or plant quarantine organisation.

### **Soil, Dirt, Mud**

When and where deemed safe, remove soil, dirt, or mud on the exterior and interior by scraping, sweeping, or washing. Remove the material from the top down to avoid recontaminating an area already cleaned.

If scraping and/or sweeping is used the residues should be collected and sealed in a bag for future disposal. Dispose of bags based on advice from the local NPPO or quarantine office.

Soil, dirt, or mud removed by washing may, pursuant to local environmental regulations, be allowed to drain away with the wash water, subject to any requirements that wash water residues are appropriately treated to prevent that pests escape to the local environment.

Soil, dirt, or mud on the exterior that can be clearly identified as having come from the depot location, where the cleaning is carried out, may be disposed of in accordance with existing practices for general cleaning residues.

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<sup>14</sup>The information provided in this section has been collated from the CTU Code, existing IPPC Guidance and work undertaken by the IPPC's SCTF and SCFG.

**Live animals, snakes, birds etc.**

Minimize risks of escape of all live animals and isolate them, if possible, preferably in the container. For rats, mice and other vermin, the services of a Pest Removal company should be considered. For exotic species or domestic animals consult the agency responsible for capture or dealing with such matters e.g., Quarantine Authority, Zoo, or a veterinarian etc. for further action.

Minimize risk of escape of birds found associated with container unless the bird species have been identified as native to the location. Consult the agency responsible for capture or dealing with such matters e.g., Quarantine Authority, Zoo, or a veterinarian etc. for further action.

Minimize risk of escape of all snakes found associated and isolate them, if possible. Even if the species is clearly identified as native to the location they should not be released in, or remotely near, the depot. Consult the agency responsible for capture or dealing with such matters e.g., Quarantine Authority, Zoo, or a veterinarian etc. for further action.

Animal disease risk from livestock and birds should be mitigated by using appropriate disinfectants after cleaning the container to deactivate any remaining disease agents. Consult the local Quarantine authority for recommendations for appropriate disinfectants. The disinfectants used should not contain phenols or strong perfumes as these may give rise to taint problems with future food cargoes.

**Treatments and risk management<sup>15</sup>**

Under certain circumstances, treatments may be necessary to neutralize contamination. NPPOs or other authorities may have requirements and guidance in place on the use of treatments.

Recipients of sea containers and their cargoes that have moved internationally are encouraged to seek guidance on appropriate risk management actions and disposal of contamination, including wash water, from their respective National Plant Protection Organization if contamination is detected on or in imported containers, including empty containers.

**Third party pest control, cleaning and/or disposal service providers**

If third party pest control, cleaning and/or disposal services are employed, suitable "Control of Contractor" procedures should be in place and applied. These would include but are not limited to: planning, choosing a contractor, contractor work on site, keeping a check and reviewing the work.

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<sup>15</sup>SEE DRAFT REVISION OF CPM RECOMMENDATION ON MINIMIZING PEST RISK ASSOCIATED WITH SEA CONTAINER PATHWAY:  
[https://assets.ippc.int/static/media/files/publication/en/2024/02/R-06\\_CPM\\_Recommendation\\_Sea\\_Containers\\_en\\_IJ9qbxU.pdf](https://assets.ippc.int/static/media/files/publication/en/2024/02/R-06_CPM_Recommendation_Sea_Containers_en_IJ9qbxU.pdf)



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