

International Freight Forwarding by Peters & May

A Guide to General Cargo Preparation/Packaging for Shipment

As an international freight forwarder, our expert multimodal team provides comprehensive global import, export, and cross trade solutions for any cargo type. Your freight can be safely transported anywhere in the world with our tailored solutions and network of international partners.

We have prepared this guide, to ensure you are fully informed on the basic areas of international freight forwarding – especially with regards to proper packing and preparation of your cargo.

Please take a moment to read through the below guide and do not hesitate to contact us, should you require any further information.

Preparation of your cargo and your responsibilities

It is important that the cargo – however large, fragile, valuable, or dangerous it may be - is properly packed and therefore protected from damage during transportation. **It is your responsibility** to ensure that all items are packaged, arranged, stuffed, bundled, covered and secured properly to withstand the movements and exposure during the transportation by sea, rail, road and / or air.

If you are unsure on whether your cargo is sufficiently protected or would like us to arrange the packaging for you, please do not hesitate to contact us at Forwarding@petersandmay.com.

It is important to note, that any damage (or losses) resulting from insufficient, missing or wrong packaging and protection is not covered by the carrier, freight forwarder, their insurance nor your separate cargo insurance.

Different items require different packaging

Depending on the type, size, weight and shipping method, the right packaging needs to be chosen. Due to the large variety of cargo which we are moving, however, the following is only a very general guide. If in doubt at any time, please do contact us.

1) Cargo Shipped and Delivered in Shipper's own Containers

a) Condition/Maintenance

First of all, choosing the right container is crucial, as it will protect your cargo during the transport.

All containers used for international movement need to have an in-date CSC plate. Such CSC plate acts as a container's certificate of safety, assuring container depots and international ports that a container is safe to be handled and transported whilst loaded.

Here are a few points to look out for when choosing a shipping container:

i) Interior

- Free from splinters, snags, dents, or bulges: These may interfere with loading, endanger the cargo and create a safety hazard to personnel. Serious defects indicate that the container is structurally unsound.
- Cleanliness: Free of residue from previous cargoes, particularly odours that may taint your cargo.

- Watertight integrity: Enter the container, have the doors closed and look for light leaks in the roof, side panels and deck. If you find any, the container is not watertight. Also check previous patches or repairs to be sure they are watertight.
- Fittings: Cargo tie-down cleats or rings should be in good condition and well anchored. If ventilator openings are present, be sure that they have not been blocked off, and that they are equipped with baffles to prevent rain or seawater entry.

ii) Exterior Condition

- Free from dents, bulges or other damage: All may interfere with handling or endanger personnel.
- Doors: Be sure doors can be securely locked and sealed. Check that door gaskets are in good condition and watertight when closed. Inspect door hardware closely. If bolts or nuts can be easily removed from the outside with simple tools, it means that the container can be opened without breaking the seal or lock, an attractive invitation to the professional thief.
- Fittings: A quick look at the lifting fittings at each corner of the container will reveal those which are obviously damaged or unsafe. Check the fittings that secure the container to the trailer chassis; they should all be in working order and all should be in use.
- Covers and Hatch panels: If an open-top container, be sure that the fabric cover supplied with the container is in good condition and can be properly secured. Check hatch panels for a close, watertight fit.

iii) Specialist Containers

- In addition to the standard containers, some cargo requires shipping in a specialised container, e.g. a refrigerated container.
- For these, you must also check that motors and compressors are in good operating condition and perform as required; and ensure that adequate fuel has been supplied.
- Electrical wiring and connections must be clean and free of corrosion; switches should operate properly.
- Any valves and piping must be free of leaks with tight fittings and valves should operate smoothly and seal tightly.

b) Packing and stowing/stuffing of your cargo inside your container

When it comes to packing your container, there are some basic rules to follow, to ensure everything stays in place and undamaged during transportation. You should ensure that

i) The cargo inside your container is stowed correctly:

- Please ensure that any cargo / merchandise cannot move within its boxes / in the container in which it is packed. Contents should be blocked, braced and adequate cushioning should be provided.
- Fibreboard boxes or wooden boxes must be able to withstand the weight pressure of cargo stacked up to the full interior height of the container.
- Wooden boxes, fibreboard boxes, or crates must be able to survive lateral pressures exerted by adjacent cargo, up to 7/10 of the vertical stacking weight pressure. This will help to prevent crushing as the container is tilted (up to 45 degrees) during handling or at sea.
- Heavy items, machinery and items non-uniform in shape or dimension should be crated, boxed and/or provided with skids to permit ease of handling and compact stowage. Where possible, cargo should be unitized or palletized. This will enable the cargo handler to use mechanical handling equipment to move cargo into and out of the container.
- Provide adequate water damage protection. Use of desiccants (moisture absorbing materials), moisture or vapor barrier paper or plastic wraps, sheets or shrouds will protect cargo from water

leakage or condensation damage. Susceptible machine parts should be coated with a preservative.

ii) Weight limitations

- The weight of the cargo inside the container must be distributed correctly and the total weight should not exceed permissible weight concentrations per square foot of deck. Heaviest items shall be stowed at the bottom and concentrating heavy weights at one side or one end should be avoided. To distribute the weight, heavy items should be boxed, crated or placed on cradles or skids. You should check highway axle weight limitations on both sides of the ocean voyage because some containers have total capacities that exceed local permissible limits.

iii) Cargo is protected from other hazardous cargo stowed in the same container

- You must avoid mixing incompatible cargo, e.g. cargo that lets off moisture which could harm other water sensitive cargo or items with sharp projections should be separated from other cargo using suitable padding, crating and boxing. Cargo subject to leakage or spillage should not be stowed on the top of other cargo.

iv) Materials used for dunnage and stowage

NOTE: Any wood materials which are used to transport goods between countries and are thicker than 6mm must meet [ISPM 15 regulations](#). This includes pallets, dunnages, crates, cable drums, spools, packing cases and boxes, whether they are made from softwood (coniferous) or hardwood (non-coniferous).

(1) LUMBER:

- Should be clean and dry, (not above 18 percent water content).
- Most common sizes used as dunnage and for bracing are nominal: 2"x 4" and 4"x 4".
- Should be free from significant splits.
- Use it as filler, decking, blocking, bracing, and for constructing partitions.

(2) PLYWOOD:

- Should be clean and dry.
- Used for partition faces, dividers, auxiliary decking, and blocking in limited spaces.

(3) INFLATABLE:

- Available in paper, fabric, rubber or plastic; in both reusable and disposable versions.
- Use it for filling voids; light and medium duty bracing.
- Be sure cargo facing inflatable dunnage will not cause punctures.

(4) PATENTED SYSTEMS

- Various patented cargo control and dunnage systems are available. Pre-built partitions, shelves, strap laminated kraft linerboard bulkhead, and dunnage bars facilitate stowage and securing of cargo.

(5) FIBREBOARD

- Available in sheets, rolls and in pre-scored structural shapes for light-duty bracing.
- Use sheets for dividers, decks, partition facings and auxiliary decks.
- Use rolled fibreboard sheets (solid or corrugated), for linings or facings and for filling voids.

(6) STRAPPING

- Heavy-duty metal strapping is used to separate cargo units and for tying down of heavy or awkward items.

- Nonmetallic strapping is used to separate and tie down light cargo units. Nonmetallic strapping has only a fraction of the strength of similar steel strapping and would not resist shearing on a sharp edge as well as steel strapping. Furthermore, it will elongate as much as nine percent under heavy loads.
- Metal and plastic straps must be firmly anchored and properly tensioned. Be sure not to puncture container panels when attaching strapping anchors.

c) Here are a few stow and packing options:

i) FIBREBOARD BOXES

- Fibreboard boxes containing tightly packed dense items that support sides and ends of the boxes are stowed using the “bonded block” method.
- Fibreboard boxes containing lightweight or fragile items that provide little or no support to the box surfaces are stowed by stacking directly one atop the other. This method takes advantage of the vertical rigidity of the side walls and corrugations in each box.
- Use plywood or lumber dunnage, or fibreboard divider as auxiliary decking sheets to segregate tiers of different sized fibreboard containers.
- Provide plastic or water-repellent shrouds over top and sides of load to protect against damage from water (ship’s sweat or leaky containers).
- Use dunnage or pallets on the container deck to provide a condensate sump area, protecting lower tiers from moisture.
- Fill all voids by bracing or using fillers to prevent sliding or shifting of cargo.

ii) USE OF RETAINING OR DUNNAGE PAPER IN “BONDED BLOCK” STOWAGE

- Use rough dunnage paper between storage blocks of fibreboard containers with smooth exteriors to prevent sliding or shifting.
- Roll paper along deck for a length equal to eight blocks of stowed boxes and then up end wall.
- Stow first two blocks to full height of planned stow. Stow second two blocks to half height. Release rolls and fold back over first two blocks; then down to and over second two blocks, and down to deck.
- Complete stow of second two blocks; then anchor paper to deck by stowing third two blocks to half-height.
- Repeat first, second, and third steps for continuation of load.

iii) WOOD BOXES AND CRATES

NOTE: Any wood materials which are used to transport goods between countries and are thicker than 6mm must meet [ISPM 15 regulations](#). This includes pallets, dunnages, crates, cable drums, spools, packing cases and boxes, whether they are made from softwood (coniferous) or hardwood (non-coniferous).

- Boxes or crates of uniform size and weight should be stacked directly one on top of the other.
- Separate groups of crates or boxes of different weight or dimensions by use of partitions, dividers, or auxiliary decking.
- Fill voids at top, sides, or ends by use of partitions or fillers.

- If large voids are present, block, brace, and tie down cargo to prevent movement in any direction.
- When contents are susceptible to water damage, provide plastic or water repellent paper shrouds over the top and the sides of the load.
- Use dunnage on container deck to provide sump area for condensate drainage if crates are not skidded.
- When bracing boxes or crates, apply bracing to strength members only, not to panels or sheathing.

iv) MACHINERY AND HEAVY ITEMS

- Distribute weight by proper placement and use of cradles or skids.
- Use deck cleats and bracing to prevent lateral and fore-and-aft movement; use tie down of metal strapping to prevent vertical movement.
- Extremely heavy, dense items should be bolted through the container deck. Consult with carrier or container leasing operator for approved method.
- Top-heavy items should be shored and braced to prevent toppling. Do not brace against the side panels of the container. All bracing must bear on a structural member of the container.
- Provide plastic or water-resistant paper shrouds over the top and on the sides of the item to prevent water damage.

v) BAGS, SACKS AND BALES

- Use “cross-tier” method of stacking bags and sacks.
- Use sufficient dunnage layer on container deck to provide sump area for condensate drainage.
- Separate bags, sacks or bales from other cargo by using partitions or auxiliary decks.
- When stowing bales, provide dividers between rows and tiers to prevent chafing and friction between metal bands or strapping.

vi) LIQUID CARGOES

- Provide adequate dunnage on container deck to prevent leakage or spillage from damaging lower tiers.
- Stow liquid cargoes below the other cargo.
- Separate liquid cargoes from the other cargo by use of partitions and auxiliary decks.
- Stow liquid cargo with container full and drain holes up.
- Use dividers to protect drum rims from chafing damage.

d) Stowage Order and Sealing

- When stowing the cargo, think about the unloading.
- If possible, stow the cargo in reverse order of desired cargo discharge. Always ensure that openings on pallets for forklifts face doors and that there is sufficient lift clearance at the top.
- Isolate cargo from container doors to prevent it from contacting doors and falling out when doors are opened.
- Once the stow is completed, ensure to close and seal the container properly, making sure all locking lugs are engaged, locks and seals are affixed and seal numbers are recorded and listed correctly on all shipping documentation.

2) Non-containerized cargo

Not all cargo will be shipped in a shipper's dedicated container – some goods will be given to us packed in parcels, boxes or crates or on pallets – to be shipped in a consolidated container; arranged and stowed by us as freight forwarder or shipped separately as breakbulk cargo.

When packaging your consignment, please consider the following:

a) Boxed consignments / Parcels

- i) Material:
 - Always use high-quality corrugated cardboard boxes when shipping parcels. We recommend using double-walled or triple-walled corrugated cardboard boxes for fragile or heavy items. Double and triple-walled cardboard boxes are reinforced and much more stable than single-walled boxes. They therefore provide better protection from knocks and impacts during storage and transport.
 - If you choose to reuse old boxes, which is good from an environmental perspective, it is important to ensure that they are in a good shape. They may have lost some of their strength and stability and therefore don't offer the same degree of protection. If using recycled packaging, ensure to remove any old labels / bar codes to avoid conflict.
- ii) Strength
 - Check the manufacturer's stamp for information about the material and strength of the box. Ask the box supplier for information if necessary. Check the box's specifications to choose packaging suitable for the weight of the shipment.
- iii) Size
 - Half-empty boxes may collapse, and overloaded boxes may burst. To prevent this happening, choose a box that is the right size for what you are sending.
- iv) Marking
 - Ensure to clearly mark the box if fragile goods are inside and/or if the crate needs to be always kept upright to prevent the cargo from being damaged.

b) Crated consignments / wooden crates and boxes

- i) Although wooden crates and boxes are excellent at protecting your goods from external elements, along with impacts, it's still vitally important that you protect your fragile goods by wrapping them in materials such as bubble wrap or cushioned packaging and secure them with tape.
- ii) To ensure maximum protection when shipping a crate, follow these guidelines:
 - Pack crates as full as possible to prevent additional movement during transport.
 - Pack heavier items on the bottom of the crate and place lighter items at the top.
 - Use packing material to fill excess space inside of the crate.
 - Individually wrap items before crating. This adds an extra layer of protection.
 - Clearly label the crate. You will want to mark which end is upright and whether the freight is fragile.

c) Cargo packed on Pallets

- i) Depending on the weight of the cargo, decide which material your pallet(s) require (wood, plastic or metal). Ensure to only use pallets that are in good condition.

- ii) Boxes or cartons must not overhang any sides of the pallet. For all other cargo, this may overhang a pallet, where appropriate, with the pallet serving as the base for the cargo to sit on so long as the weight of the cargo is evenly distributed without damaging the pallet.
- iii) The weight of the cargo must be distributed evenly on the pallet.
- iv) The orientation of cartons in your palletized freight shipments can have a big impact on the integrity of your shipments.

1) Column-stack loads for palletized freight.

In almost all cases it increases the top-to-bottom compression strength for most palletized shipments.

2) Interlocking Stack

If the carton contents are rigid, interlocking cartons will result in increased stability. Stack boxes corner-to-corner and edge-to-edge, for better stacking strength.

- v) Ensure your cargo is lashed/secured appropriately onto the pallet so it cannot move during transport. If required, pack and wrap the consignment prior to lashing onto the pallet to protect it from damage.

d) Project Cargo Items

- i) Ensure that all items are suitably packed/wrapped/protected for transport and that any lifting and lashing points are clearly marked and can be accessed without damaging the packing material.
- ii) Lifting, load and stow instructions must be given to us in advance of the load together with clear and latest drawings of the item.

e) Dangerous Goods

- i) To transport Dangerous Goods all packaging must be labelled to adhere to the respective international regulations of each mode.
- ii) An MSDS sheet should be provided to your forwarder and packing company in order to apply the correct label to the packaging.

f) Temperature Controlled Goods

- i) To maintain the required temperature, ensure to use insulating packaging like foil bubble bags and linked boxes, polystyrene boxes or insulated carry bags.
- ii) Dry ice, gel packs and cool packs can aid lowering the temperature
- iii) Temperature sensitive stickers can be applied to the packaging to monitor the temperature; alternatively use temperature data loggers or even GPS and wireless tracking systems to monitor the temperatures of your goods over time

What are my responsibilities when it comes to packing?

- Packing is governed by IMO/CSS regulations and the carrier and shipper must both play their respective parts to ensure safe and secure transportation.
- While it's the responsibility of carriers to handle products with care, and stow, secure and deliver them to their destination safely, shippers must prepare their products for transport to ensure they are fit for the intended voyage, be that by truck, rail or sea.

- Acceptance of cargo by Peters & May or the carrier should not be taken as an acknowledgment or agreement the cargo is correctly packaged. Indeed, in most cases how effectively a shipment is packed cannot be known to us or the carrier without unpacking it. Therefore, it is worth taking photos of the cargo as it is being packed.
- Damages resulting from insufficient, missing or wrong packaging, are neither covered by the carrier, freight forwarder, or your cargo insurance.
- Therefore, considering its high importance, we recommend paying particular attention to the preparation and packing of your cargo for transportation.
- Peters & May has its own packing division and can provide competitive pricing and tailored solutions to meet your requirements – for further information and a quote, please contact the team: info@petersandmay.com