

A BASIC PACKING GUIDE

CERTIFICATION OF INTERMODAL CONTAINERS

A number of independent firms provide testing and inspection services for intermodal container operators. Certification of adequacy of construction occurs prior to delivery of the new container to the carrier, and periodically thereafter.

The shipper should look for the certificate seal on containers supplied for his use as evidence that the container meets adequate construction and maintenance standards.

Presence of the certification seal is not, however, a guarantee that the container is presently free from defects. Damage may have occurred since last inspection by a certifying agency. The shipper must make a personal inspection of the container before use to be absolutely certain that it is in condition to adequately protect his merchandise.

An understanding of the hazards to which the container may be exposed is essential! This knowledge will permit intelligent inspection of the container and also provide the background necessary for adequate preparation of cargo and stowage of the cargo in the container.

Once the shipper has decided on the container service best suited to his needs and has selected the type of container that will adequately accommodate his cargo, he must inspect the container to be sure that it will properly protect the cargo while in transit.

Done at Geneva on December 2, 1972, the International Convention for Safe Containers entered into force on September 5, 1977. The Convention makes certain structural requirements mandatory for containers moving in international trade. Under the Convention approved containers are issued "safety approval plates" which are affixed to the container and recognized by all countries party to the Convention.

INSPECTING THE INTERMODAL CONTAINER

The following checklist will assist you in inspecting the container to be sure that it will properly protect your cargo. Containers that leak, pose a safety hazard to personnel, or have inherent defects that endanger the cargo, must be rejected.

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 odors 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.

EXTERIOR

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 close, watertight fit.

SPECIALIZED CONTAINERS

If you are utilizing a refrigerated, tank, or other special purpose container, inspect for the following:

Motors and Compressors: Check to see that they are in good operating condition and perform as required. Be sure that adequate fuel has been supplied.

Valves and Piping: They must be free of leaks with tight fittings. Valves should operate smoothly and seal tightly.

Electrical: Wiring and connections should be clean and free of corrosion. Switches should operate properly. Be alert for potential shock hazards.

BARGES

When using intermodal barges to transport your cargo, pay particular attention to:

Hull: The exterior should not show evidence of serious hull damage. The interior hull should be dry and tight.

Hatches: They should fit tightly with watertight seal at the edges. Securing lugs and bolts must be in good condition.

PREPARING THE CARGO

An intermodal container or barge is essentially a ship's hold on a reduced scale. When the containers and barges are placed aboard ship for an ocean journey, the cargo stowed in

them is subject to the same motion forces and damage hazards while at sea that affects cargoes shipped in break-bulk fashion.

The same principles and techniques which govern export packing and cargo stowage of break-bulk shipments are equally valid when preparing cargo for intermodal shipment and when stowing the cargo in the container or barge.

PACK FOR THE TOUGHEST LEG OF THE JOURNEY!

Refer to the Basic Packing Guide for guidance in selection of packing containers. Be certain that merchandise cannot move within the fibreboard box, wooden box or other container in which it is packed. Immobilize the contents by blocking or bracing, or provide adequate cushioning.

Fibreboard boxes or wooden boxes must be able to withstand the weight pressure of cargo stacked up to the eight-foot 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 not 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. Cargo handlers are then required 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 condensate damage. Susceptible machine parts should be coated with a preservative.

STOWING CARGO IN THE CONTAINER: PLAN THE STOW and OBSERVE WEIGHT LIMITATIONS

- Do not exceed rated capacity of container or barge.
- Do not exceed permissible weight concentrations per square foot of deck.
- Check highway weight-axle limitations on both sides of the ocean voyage because some containers have total capacities that exceed local permissible limits.

DISTRIBUTE WEIGHT EQUALLY

- Avoid concentrating heavy weights at one side or one end.
- Stow heaviest items on the bottom.
- Heavy, dense items should be boxed, crated or placed on cradles or skids to distribute weight.

AVOID MIXING INCOMPATIBLE CARGO

- Cargo that exudes an odor or moisture should not be stowed with cargo susceptible to tainting or water damage.
- Items with sharp projections or of awkward or unusual shape should be segregated from other cargo by boxing, crating, padding or use of partitions.
- Cargo subject to leakage or spillage should not be stowed on the top of other cargo.

OBSERVE HAZARDOUS MATERIAL REGULATIONS

You are required by law to train your staff sufficiently in the requirements of shipping hazardous materials. Different requirements exist for domestic overland transport, water, air freighters and passenger flights. Consult with carrier for regulations and restrictions on shipping:

- combustibles
- explosives
- flammable liquids
- flammable solids
- gaseous material
- radioactive material
- magnetized material
- alkalis
- corrosives
- poisons
- oxidizers
- etiologic agents

After receiving information from carrier, proceed as follows:

- Label and mark hazardous material property. Affix warning placards to container exterior. Note that placards vary throughout the world. What is acceptable at origin may not be in compliance with en-route or destination country regulations. Check before shipment to avoid embargo or delay.
- Record the nature of the cargo on shipping documents.

HAVE ALL CARGO AND STOWAGE MATERIAL READY BEFORE STOWAGE BEGINS:

- To facilitate proper placement, stacking and weight distribution.
- To preclude removal of cargo already stowed to accommodate unexpected items.
- To permit installation of blocking, bracing and filling of voids as stowing progresses.

PLAN FOR EASE OF UNLOADING

- Stow cargo in reverse order of desired cargo discharge.
- Be sure that partitions, dividers, or paper or plastic sheets physically separate cargo for multiple consignees.
- Make sure that forklift openings in pallets or skids face doors.
- Provide lift clearance a top for items to be handled by forklift.
- Fill the voids, but avoid wedging or jamming cargo in container.

COSMETIC DAMAGE

The exterior packaging containing your commodity is often the first representative the consignee sees of your company. A package showing exterior damages, although perhaps only cosmetic in nature, can cause loss of market, poor shipper/consignee relationships, and more importantly cause the goods to be rejected and/or not paid for even through the commodities inside may arrive without damage. Repackaging commodities can be very costly as well as time consuming.

Cosmetic damages can be prevented. Remember that the appearance of your product is in many cases as important as the product itself.

DUNNAGE AND STOWAGE MATERIALS

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.

PLYWOOD:

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

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.

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.

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.

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.

STOWING THE CARGO

FIBREBOARD BOXES

- Fibreboard boxes containing tightly packed dense items that support sides and ends of the box 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.

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.

1. Roll paper along deck for a length equal to eight blocks of stowed boxes and then up end wall.
2. 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.
3. Complete stow of second two blocks; then anchor paper to deck by stowing third two blocks to half-height.
4. Repeat first, second, and third steps for continuation of load.

WOOD BOXES AND CRATES

- 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.

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.

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.

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.

COMPLETING THE STOW

ISOLATE CARGO FROM CONTAINER DOORS: Construct partition across rear of stowed cargo to prevent it from contacting doors and falling out when doors are opened.

PROVIDE WATER DAMAGE PROTECTION: Cover cargo adjacent to doors with plastic or waterproof paper sheets to protect cargo from possible leakage at door gaskets.

VENTILATED CARGO: Be sure airflow in container is unrestricted and that vents are open and clear.

CLOSE AND SEAL CONTAINER:

- Be sure all locking lugs are engaged.
- Affix locks and seals. (On containers with side and end doors - be certain to check both.)
- Record seal numbers and enter on shipping documents.