7.3 Load weight distribution planning

Measure the packages to make sure they will fit into your container.
Check the weights of packages – then make sure the weight is spread evenly across container floor.

- Maximum 60% of weight of cargo in 50% of length of cargo transport unit

✔ Weight spread evenly – container hangs level – no lateral stress on cargo during lifting.

- Weight at one end – container dangerously unbalanced.

Cargo can slip and crush packages. Apart from the loss of value, this can release dangerous goods, damage lifting equipment, cause lifting equipment to topple over, and make the container difficult to load to the ship.
7.4 Check the condition of the shipping container

The shipping container into which the cargo is loaded becomes a “package” for the dangerous goods during the sea journey, so the shipping container must be checked to ensure that it is suitable for its job.

Before you begin loading any shipping container, check the condition of the shipping container for the following:

- Is it clean and dry and safe to work in?
- Is it suitable for loading dangerous goods?
- Is it structurally sound?
- Is it within the legal safety inspection date?

Carry out the following checks on shipping containers and report to your supervisor if you find any of the following:

- Residue
  Check for residue or contamination on the floor – it may be a hazardous substance that could injure you or react with the cargo.

- Structural damage
  Check visually for any indication of cracks or impact damage to main floor bearers or corner posts that may make the shipping container unsafe to lift.

- Holes and leaks
  Many packages will be susceptible to damage from rain or seawater, and some dangerous goods react violently on contact with water. A good method to detect holes is to stand inside the container and close the doors. Reject any container with holes.

- Nails
  Check the container for nails protruding from the floor, and remove them. Timber blocks and battens are often nailed to floors, and protruding nails are often left behind. These are a frequent cause of damage to packages, particularly drums.

- Old placards
  Remove any redundant placards from previous use – check both sides, and both ends – if they cannot be removed, paint them out.

- Container inspection plate
  Check the container inspection plate on the door. If the plate displays the letters “ACEP” it means the container owner takes responsibility for providing a continuous maintenance
program every time the container comes off hire. If there is no ACEP mark, the safety plate is stamped with the next due date for inspection. If the date has expired, reject the container. However, do not rely upon safety plate date stamps – use visual inspection and common sense.

8 Loading the shipping container

Loading dangerous goods into containers is a responsible and important job requiring skill and knowledge.

Your own safety and the safety of the ship depends on you getting this right. Poor quality packing is the most common cause of dangerous goods incidents. The following guidance is based on observation of a number of incidents. Follow the guidance and it will help you to avoid the most common problems, and protect you when you are handling dangerous goods.

8.1 Do not load damaged packages

Never load damaged packages to a shipping container whether they contain dangerous goods or non-hazardous goods. Any package that is damaged during loading must be removed from the shipping container and the spillage must be cleaned up. If the damaged package contains dangerous goods, this may require specialised protective equipment such as breathing equipment and chemical suits, or specialist help.

Spillages of dangerous goods may injure cargo handlers in a number of ways, create a fire hazard, react with the floor or steel of the container, timber packaging/pallets, or other cargo in a dangerous and unpredictable way. Spillages of non-hazardous goods may react with other cargo, spoil or taint foodstuffs, or damage other packages.
8.2 Food and dangerous goods
Foodstuffs, including canned and bottled food and drinks, should not be loaded in the same shipping container as dangerous goods of Classes 6.1, 6.2, 7 or 8.

8.3 Load dangerous goods closest to the door
If you are loading a shipping container with a mixture of dangerous goods packages and non-hazardous packages, always put the dangerous goods packages closest to the door. In case of spillage or problem with the dangerous goods, it is preferable that dangerous goods are loaded immediately inside the doors where they can be easily located. This makes emergency response easier, even on board ship.

If the dangerous goods are stowed at the front of the shipping container, all the goods have to be removed before the dangerous goods can be reached. If dangerous goods are spilled at the front of the shipping container and they are highly dangerous, the whole unit has to be unloaded by personnel in protective clothing. This is difficult and dangerous work – it is much quicker and safer to remove dangerous goods that are closest to the doors.

8.4 Packing shipping containers – Load with dangerous goods labels facing the doors
Packages are only required to have labels on one side (two sides for intermediate bulk containers) so far as possible, packages should be stacked so that the labels are facing the door, where they can be seen by persons unloading the shipping container or dealing with a problem.
8.5 Load solids over liquids

When drums of liquid have to be loaded with packaged solid goods, never load drums on top of packages – always stow solids on top of drums provided the drums are sturdy and can take the weight – plastic drums cannot take heavy weights safely. In general liquids are often heavier than solids, and it is always best to load with weight down. However the main reason is for safety. If the drums leak, there will be a release of liquid that will first be drawn downwards by the force of gravity, and will then spread horizontally along the floor.

If the packages of solid goods are stowed on top of the drums, contact with the spilt liquid will be reduced. This reduces the risk of a dangerous reaction, and it is possible that no damage to the solid goods occurs at all.

8.6 Over-stowing cargo in shipping containers – light over heavy

Over-stowing of one sort of cargo above another is proper and normal practice, when done with regard to the strength and weight of packages involved. However there are many
recorded incidents of packages of cargo in shipping containers being crushed because they were over-stowed by goods heavier than they could bear.

This can be caused by:

- Lack of skill and training of loaders
- Lack of quality supervision during the loading process
- Lack of load planning
- Genuine misjudgement of the weight of packages - mechanical handling equipment gives the loader little “feel” for the weight of the load he is handling
- Lack of due care and attention from loaders
- “Ram loading” using mechanical force and overweight over-stowing to maximise the use of available load space to avoid the cost of using a second shipping container
- Deliberately negligent dumping of cargo into a shipping container regardless of stowage and securing to get a job finished – perhaps to meet a deadline.

To load a shipping container safely takes skill and planning based on awareness of the strength and contents of the packages.

To an experienced loader it may seem obvious that it is not a good idea to load heavy wooden cases of machinery on top of cardboard boxes containing fragile goods such as aerosols or glass bottles. To an experienced loader, it is a simple decision to load the heavy cases first, and put the cardboard boxes on top. However, an inexperienced loader may not notice the difference in weight and simply see an opportunity to build a flat platform of cardboard boxes that are perfect on which to place the cases. The cardboard boxes may survive the loading process but may collapse as soon as the shipping container starts to move on its journey.