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PART II

Pallet Packing Specification

REQUIREMENTS: These requirements are in addition to any that may be in the material descriptions or other Saudi Aramco specifications, including Saudi Aramco Packing Specification 8314-02, which should be used in combination with this specification. Deviation from these requirements is not allowed without the Procurement Planner's prior written approval.

Wooden Pallet

1. Pallet Design:

- 1.1 The preferred pallet for break bulk shipments is a 120 by 120 cm, 2-way entry, double-deck, nonreversible wing type. (See page 5)

Note: If the material's dimensions are such that it cannot be securely loaded onto the preferred size of pallet, the pallet dimensions may be increased.

However, to avoid unnecessary cube/freight charges, the pallet size must be adjusted as near to the load dimensions as possible.

- 1.2 A 100 by 120 cm or 80 by 120 cm, 4-way entry pallet may be used provided that its design is standard for the geographic area of the vendor/manufacturer.
- 1.3 For lightweight, low value materials, a lightweight pallet may be used provided the rigidity of the pack is maintained and the Procurement Planner gives written approval.

2. Pallet Construction:

- 2.1 Lumber must be new, sound, and well-seasoned with a moisture content between 12 and 20%. Knots must be sound and not in excess of 1/3 of the width of the board and must not cause any nailing interference. Where possible, nails should be driven into side grain of lumber.
- 2.2 Fasteners must be twisted or spirally grooved nails, of adequate size and quantity.

3. General Load Configuration:

- 3.1 Items should be nested on the pallet so as to occupy minimum volume.
- 3.2 No overhang is allowed, except as stated below.

Note: With the approval of the Procurement Planner, overhang may be authorized for bulky items palletized by local vendors for the convenience of Saudi Aramco receiving and storing operations.

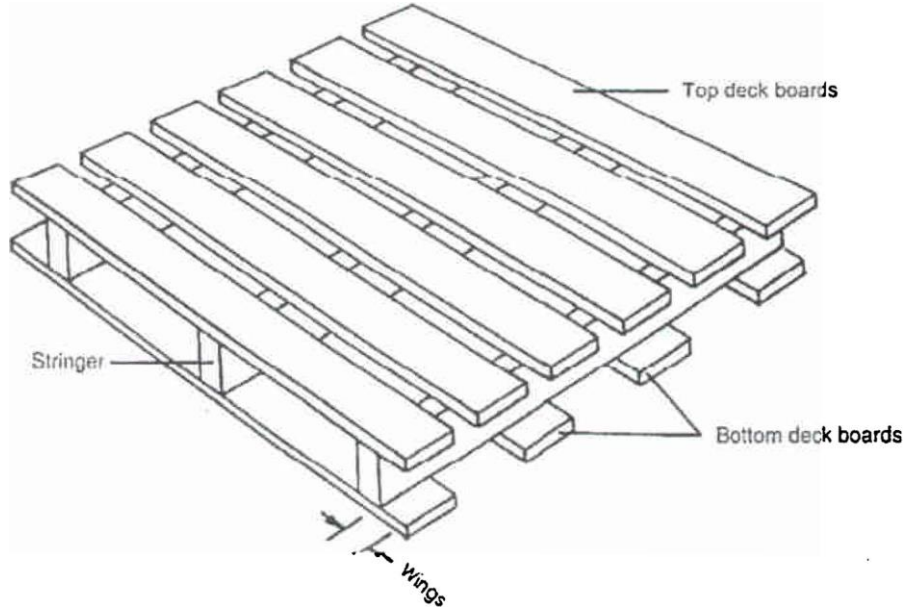
- 3.3 A tri-wall corrugated fiberboard sheet of the same width and length of the pallet shall be placed on the top of the load. Load shift is restrained by applying four 20-mm or larger metal straps around the load, 2 per side, which firmly anchor the load to the pallet.
 - 3.4 The 4 sides of the load shall be completely covered by a shrink wrap or stretch wrapping made of UV-resistant material with a minimum thickness of 6 ml.
 - 3.5 Total loaded pallet height (ground to top of loaded pallet) shall not exceed 115 cm.
 - 3.6 Total loaded pallet weight shall not exceed 1,860 kg. (4,100) lb.
4. Sacked Goods:
- 4.1 Sacks should be stacked in alternating layers, "cross tie," to form a square load.
 - 4.2 The load should be covered with a full pallet-size, water-resistant cardboard sheath, or the equivalent, that encloses the 4 sides and top and that helps to secure the load and provide protection against ruptured bags. Load shift or sag is restrained by applying 4 metal straps of 20-mm minimum width around the load, 2 per side, which firmly anchor the load on the pallet. No sharp edges should be left exposed. Additionally, prior to stacking the bags or sacks, a cardboard sheet of the same width and length as the pallet should be placed over the pallet top deck boards to provide an uninterrupted surface area for distributing the weight of the load and to prevent any bags or sacks from protruding through the open spaces between the pallet top deck boards.
 - 4.3 The 4 sides of the load and the pallet wings should be completely covered by a shrink-wrap cover or stretch wrapping (both UV-stabilized) to a minimum thickness of 6 mm.
 - 4.4 Total pack height must not exceed 115 cm.
 - 4.5 Total weight must not exceed 1,860 kg. (4,100) lb.
5. Pails (Metal):
- 5.1 Pails should be stacked in layers directly on top of each other to form a square load; cardboard layer pads, or the equivalent, may be necessary to provide stability between layers.
 - 5.2 A 12-mm plywood cap or 25-mm thick timber frame of the same outer dimensions as the pallet should be placed on top of the load.
 - 5.3 The load should be secured by 4 metal straps, each of 20-mm minimum width, 2 per side.
 - 5.4 Total pack height must not exceed 115 cm.

- 5.5 Total weight must not exceed 1,860 kg. (4,100) lb.
- 6. Drums (200 liters [55 gal]):
 - 6.1 Drums should be stacked in a square formation, 1 layer only.
 - 6.2 A 12-mm plywood cap or 25-mm thick timber frame of the same outer dimensions as the pallet should be placed on top of the drums.
 - 6.3 The load should be secured by 4 metal straps, each of 20-mm minimum width, 2 per side.

Plastic Pallet

- 7. Pallet Design:
 - 7.1 The preferred pallet dimension is 120 X 120 X 15 cm (L X W X H)
 - 7.2 The plastic pallet shall be multi-use, double deck and 4-way fork entry. The top and bottom of the pallet shall be designed to allow adequate friction during handling and material transport.
 - 7.3 The pallet shall be hygienic and environmentally friendly.
- 8. Pallet construction:
 - 8.1 Plastic pallets shall be made of virgin high density polyethylene (HDPE) or polypropylene (PP) resin, recycled plastics can only be used as packing material. The resin material shall be chemically resistant to commonly used oil field solvents and strong acids. The resin material shall be moisture and weather resistant, and shall adequately be stabilized with heat and UV stabilizers to render a service life of 10 years at outdoor condition. The resin material shall be able to withstand temperature fluctuations from -20C to 70C.
 - 8.2 The plastic pallets shall be tested for mechanical integrity, impact strength and load carrying capacity.
 - 8.3 The pallet shall have a static load capacity of 2500 kg.
- 9. The section 3 to 6 of wooden pallet specification is also applicable to plastic pallets.

WOODEN PALLET DESIGN



Pallet size		120 x 120cm (48 x 48")
Wings		7.5cm (3")
Top deck boards	6 of	15 x 2.5 x 120cm (6 x 1 x 48")
Bottom deck boards	4 of	15 x 2.5 x 120cm (6 x 1 x 48")
Stringers	3 of	5 x 10 x 120cm (2 x 4 x 48")

Note: For pallets exceeding 140 cm in width, 4 stringers are to be provided.