

E216 Distribution and Transportation

Problem 04

Pack for Export

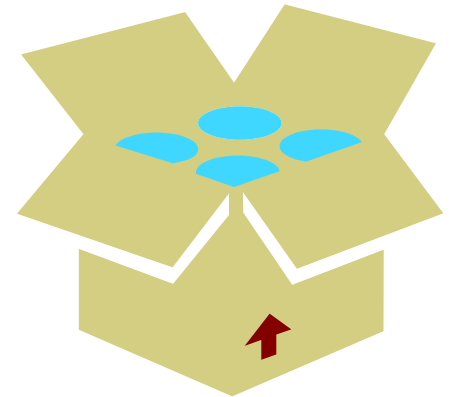
- Various Roles of Packaging in Logistics
- Export Packaging
 - Outer Packages
 - Fill Materials
 - Means to Prevent Dampness
 - Package Labeling & Handling Marks
 - Box Manufacturer Certificate
 - Packing of Cartons

SCHOOL OF
ENGINEERING

Why Packaging?



- Purchase and disposal costs are borne by firms at opposite ends of a distribution channel. Hence, productivity gains generated by efficient packaging are spread throughout the logistics system



Why Packaging?- Damage Protection



- To protect products from the physical environment
 - E.g. Prevent contents from getting wet due to condensation and rain
- To protect the environment from dangerous products
 - E.g. Chemical Spillage



Why Packaging?- Material Handling Efficiency / Utility

Logistics productivity is influenced by packaging:

- **Product Characteristics**
 - Weight out or cube out (e.g. vacuum packed, light weight plastic, bales for cotton)
 - Large and heavy object (e.g. wooden pallets)
 - Liquids (e.g. drums and containers)
- **Unitization**
 - Rigid containers (e.g. 20,40 ft containers)
 - Non rigid containers (e.g. Master cartons or slip sheets)
 - Unit Loads (e.g. Pallet shipments)

Why Packaging?- Product Identification & Communication

- **Content Identification**
 - E.g. Universal Product Code (UPC), Electronic Product Code (EPC)
- **Tracking**
 - Traceability for quality
 - Control of movement reduce product loss and pilferage
 - Inventory control
- **Handling Instructions**
 - Fragile, temperature restrictions, stacking considerations and environmental considerations
 - Dealing with chemical spillage and contamination



- **Transportation and Storage Costs**
 - Package size and density
- **Inventory Control**
 - Accuracy of manual or automatic identification system on packaging
- **Handling Costs**
 - Unitization capability and techniques
- **Customer Service**
 - To achieve quality control during distribution, provide customer education and convenience, and comply with environmental regulations

Main Classifications of Packaging



- Consumer Packaging (**Marketing Emphasis**)

- Customer convenience
- Market appeal
- Retail shelf utilization
- Product protection



- Industrial Packaging (**Logistics Emphasis**)

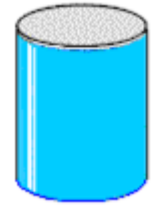
- Damage Protection
- Material Handling efficiency / utility
- Product identification & communication



Outer Packages



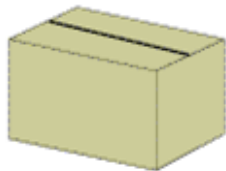
- Smallest unit of transportation
- Protect, secure, and identify the merchandise they contain
- There are various outer packages available in the market



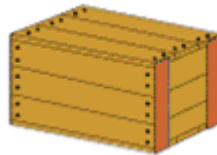
Drum



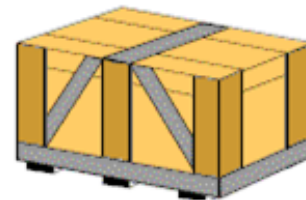
Bag and Sack



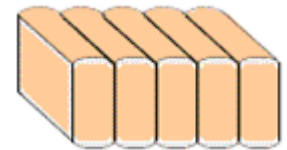
**Corrugated Carton
(Box)**



Wooden Case



Wooden Crate



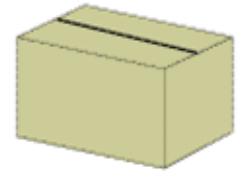
Bale

Types of Outer Packages



Corrugated Carton (Box)

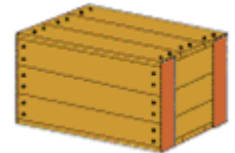
- Most widely used in export shipments (Light, resilient and economical)
- Can be double wall or tripled walled
- Can be strengthened with wooden framing or/and plastic straps



Corrugated Carton (Box)

Wooden Case

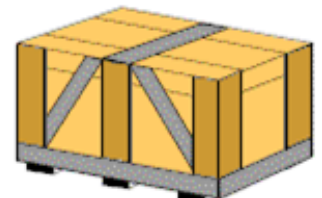
- Used for small heavy items (e.g. hand tools, machine parts)
- withstand rough handling and staking
- Can be reinforced with steel wires or steel straps



Wooden Case

Wooden Crate

- For large heavy objects like machines
- Sling point and centre of gravity must be properly marked on the crate



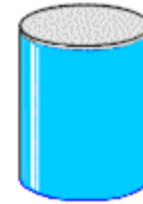
Wooden Crate

Types of Outer Packages



Drum

- Commonly used for liquid or powder (E.g. chemicals)
- Can be made of plastic, steel or fiber



Drum

Bag and Sack

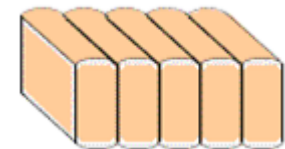
- Used for powder and granular materials (e.g. cement, rice , sand and sugar)
- Can be made of paper or plastic



Bag and Sack

Bale

- Used for bulky items that can be compressed (e.g. cotton)
- Tension bands are provided to hold the bale together



Bale

Fill Materials



Items may be used to fill the space between goods and packing :

Styrofoam

- Lightweight and takes up the space of the box
- Non-reactive
- Heat resistant



Bubble packs, crushed recycled paper, sponges, plastic holders, foam balls, newspapers

- Lightweight, cushion, non-reactive, cheap, recyclable



Waterproof inner plaster liners

- Added protection from water seeping through carton box
- May be airtight, air sucked out, or filled with helium

Means to Prevent Dampness



Dampness is considered to be one of the worst hazards to which export shipments are exposed:

Barrier Material

- The goods may be wrapped in waterproof paper and sealed with waterproof tape

Rust inhibitors

- The goods may be treated with special chemicals so as to provide a protective coating which may later be stripped off or removed with solvent

Desiccants

- Non-metallic and other goods that cannot be coated with rust inhibitors can be protected by the use of chemical desiccants, particularly, dehydrating agents that absorb the moisture from the air

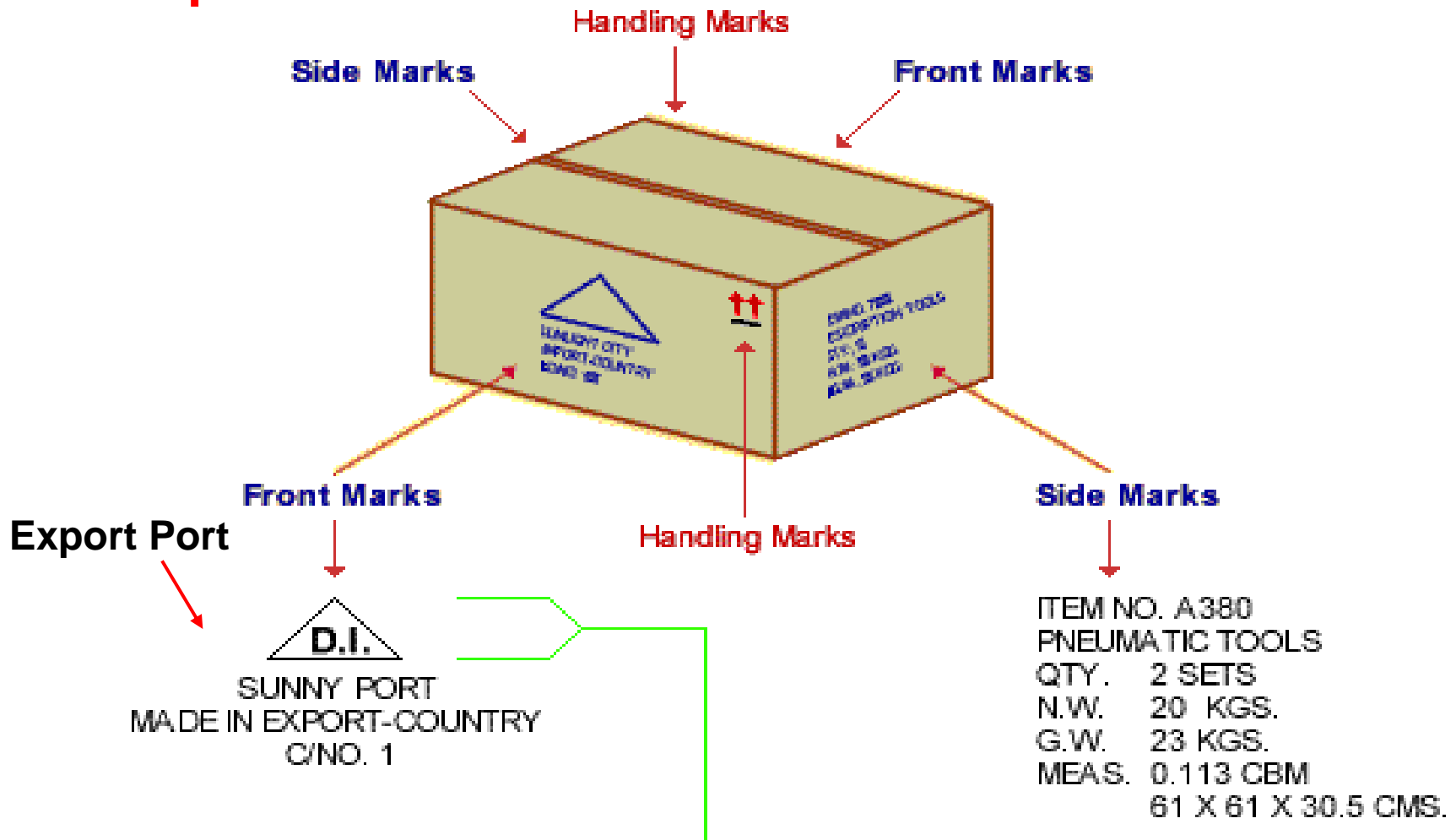
Volatile corrosion inhibitors

- These prevent rust by giving off a vapor that forms a microscopic coating on the surface to be protected. Colorless, odorless, and tasteless, the VCI may be impregnated into the barrier wrap or it maybe used in crystalline form inside an airtight package

Labeling of Export Cartons



Example A

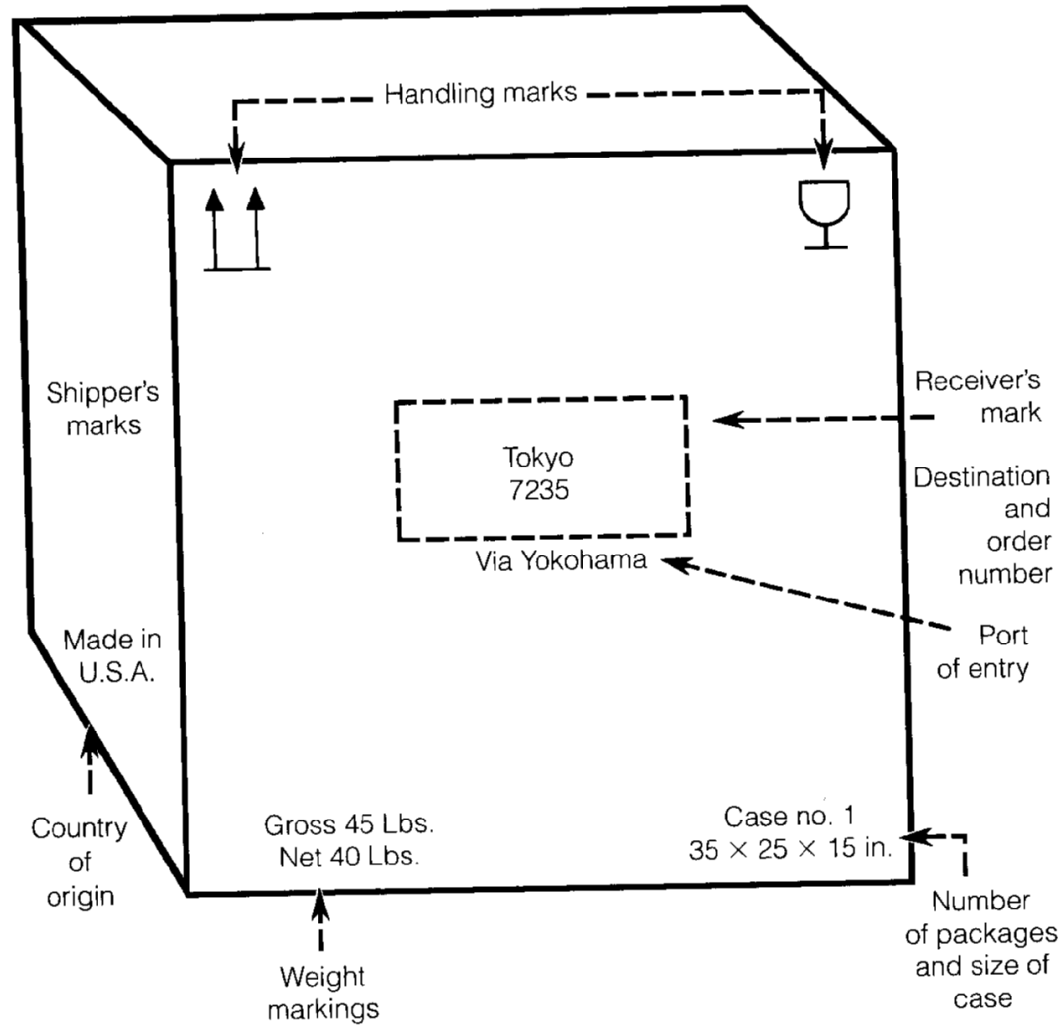


- Avoid full name to reduce pilferage (e.g. D.I. instead of DEP Imports)
- Invoice, purchase order number may be used

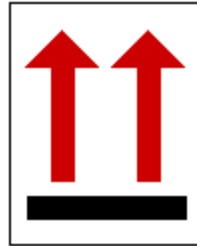
Labeling of Export Cartons



Example B



Handling Marks



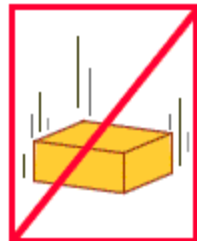
THIS SIDE UP



HANDLE WITH CARE
HAND WITH CARE



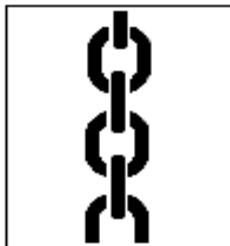
DO NOT STACK



DO NOT DROP



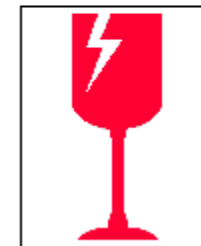
KEEP DRY



SLING HERE
SLING POINT



MAXIMUM STACK
(shown here is '8')



FRAGILE
HANDLE WITH CARE
GLASS

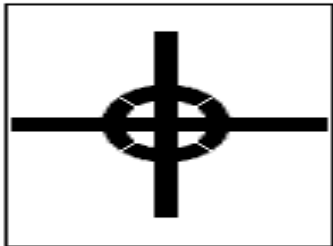
Handling Marks



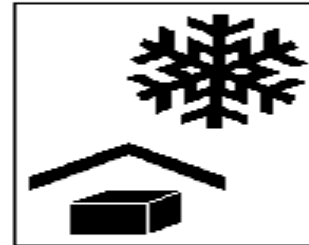
KEEP FROM FREEZING



KEEP IN COOL PLACE



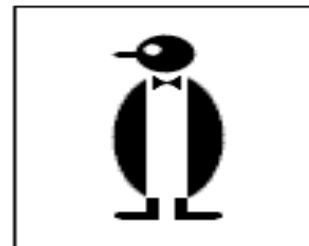
CENTER OF GRAVITY



KEEP AWAY FROM COLD



USE NO HOOKS

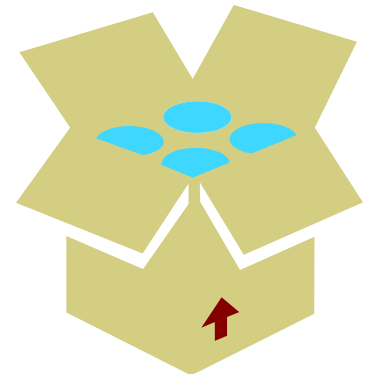


KEEP FROZEN

Labeling of Export Cartons



- Over labeling confuses people
- Use waterproof black ink
- Correct language
- Avoid using brand name (minimize pilferage)
- Slot on carton for holding
- Aid agency's logo / country's flag and message on food package (food package for disaster relief)



Labeling of Export Cartons (Cont'd)



- Ensure instructions are understood by destination seaport/airport through use of two languages
- Space to paste the airway bill/packing list/invoice/solid wood packing material form (in pouch)
- Prevent pilferage through tape and seals
- Aids calculation of volumetric weight (for airfreight) or weight or measurement (for sea-freight)

Box Manufacturer Certificate



Box Manufacturer

Resistance to Puncturing

Cumulative Weight Limit

Maximum sum of outside dimensions

Type of construction

Country of Manufacture

Packing of Cartons



Weight Limit of the export carton

- Limit the gross weight of cartons and wooden cases to 25kg to 30kg
- Average man can handle about 25kg
- Very heavy cartons are likely to sustain damage during handling at the destination

Shrink/Stretch wrap on Cartons

- To hold cargo together to minimize damage during movement
- If there is a puncture, it is likely the cargo have been tampered with
- Gives some protection to carton from rain and dust

Strapping of Cartons

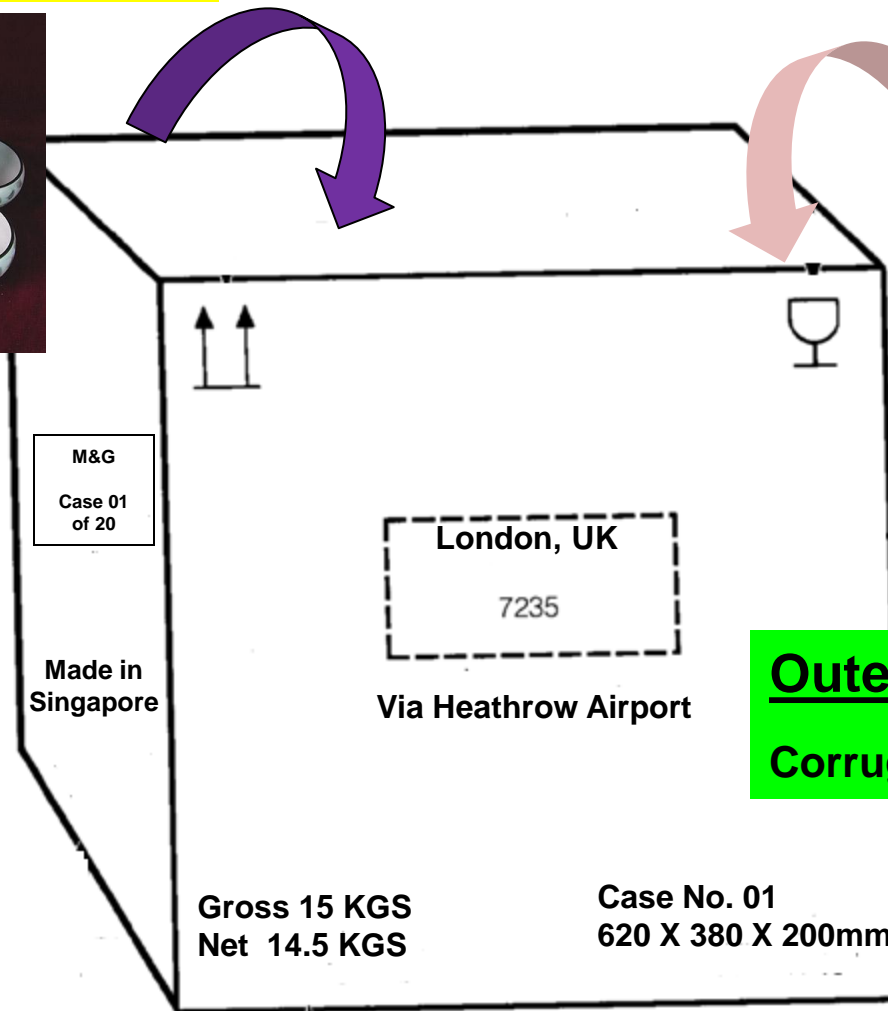
- To hold and keep the cartons sturdy and in place
- Secures the cartons to the pallet as well



Suggested Answer



Porcelain tea-sets



Fill Materials

- Bubble pack
- Crushed newspaper
- Packing Peanuts

Outer Package

Corrugated Carton Box

Today's Problem



- Wee Leng has to be aware of the kind of product (porcelain tea-sets) that he is handling, and thus choose a suitable master package
 - The packages must be labeled (e.g. **Fragile, Handle with care**) and packed (e.g. **corrugated carton**) to suit all requirements, such as handling, climate, customs, modes of transportation, weight limit
 - Fill materials (e.g. **Bubble packs, sponge, newspaper, foam-in-place**) should also be used to reduce the risk of damages to the goods
 - Ensure that goods carry do not exceed the weight limit of carton.
 - Shrink wrap on cartons and strapping on cartons (if more cartons are shipped via pallet)

Learning Outcome



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Other Considerations for Packing (Going Further...)



- Ports of destination
 - In areas with higher incidence of loss or damaged due to mishandling, theft and pilferage, stronger packing, security tape is needed
- Climatic Conditions
 - Desiccants (drying agent) and/or special packing materials may be required in areas with high moisture
- Buyer's requirement
 - Buyers may specify type of packing required
 - Occurs in original equipment manufacturer (OEM) arrangements (e.g. in ESD bags)
 - May be airtight, air sucked out, helium filled or pressurized
- Importing Country Requirements
 - Solid Wood Packing Material (ISPM15) for exports to e.g. US & China (prevent spread of insect and plant infection introduction)

Other Considerations for Packing (Going Further...)



- Types of carrier used
 - If using containers on vessels, may not even need to palletize
 - Goods may be damaged during transit of certain transportation mode
- Other types of hazards
 - For each type of carrier, what hazards is the shipment likely to encounter? For ocean shipping, this would include the type of storage, loading and unloading facilities, route, time of year (summer, winter, monsoon, etc.) port reputation, etc
- After-sale recycle usage
 - Some products have their sales appeal enhanced by being packed in cotton sacks, special boxes, etc. that can even be sold as recycled products in their own right