



Standard Practice for Commercial Packaging¹

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1. Scope

1.1 This practice establishes minimum requirements for packaging of supplies and equipment, exclusive of ammunition, explosives, or hazardous materials, as covered in Title 49 of the Code of Federal Regulations.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D 996 Terminology of Packaging and Distribution Environments

D 4169 Practice for Performance Testing of Shipping Containers and Systems

2.2 Code of Federal Regulations:

Title 49 Transportation (Parts 100 to 199)³

3. Terminology

3.1 Terminology found in Terminology D 996 shall apply.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *safe delivery—in packaging*, delivery of a shipment to its destination with minimal damage to the package and no damage to the contents.

4. Significance and Use

4.1 This practice covers the requirements for the commercial preservation, packaging, packing unitization and marking for supplies and equipment. It includes the minimum requirements for physical and mechanical protection and provides for multiple handling, shipment by any mode, and storage periods

for a minimum of 1 year in enclosed facilities without damage to the product. It also provides for package quantities suitable for redistribution without additional repackaging or marking.

5. Requirements

5.1 *General*—The following requirements, unless specifically changed by the contract or order, shall apply. Suppliers are encouraged to use advanced packaging technology.

5.1.1 *Packaging*—Preservation, packaging, packing, and marking furnished by the suppliers shall meet or exceed the following minimum requirements:

5.1.1.1 *Cleanliness*—Items shall be free of dirt and other contaminants which would contribute to deterioration of the item or which would require cleaning by the customer prior to use. Coatings and preservatives applied to the item for protection are not considered contaminants.

5.1.1.2 *Preservation*—Items susceptible to corrosion or deterioration shall be provided protection such as preservative coatings, volatile corrosion inhibitors, or desiccated unit packs.

5.1.1.3 *Cushioning*—Items requiring protection from physical and mechanical damage or which are fragile shall be protected by wrapping, cushioning, pack compartmentization, cartonizing, or other means to mitigate shock and vibration to prevent damage during handling and shipment.

5.1.2 *Unit Package:*

5.1.2.1 *Unit Package*—A unit package shall be so designed and constructed that it will contain the contents with no damage to them, and with minimal damage to the unit pack during shipment and storage in the shipping container, and will allow subsequent handling.

5.1.2.2 *Unit Package Quantity*—Unless otherwise specified, the unit package quantity shall be one each part, set, or assembly. Excepted are small lightweight items, for example, industrial hardware, which will be unit packaged in quantities that are standard in the trade and suitable for retail sales. Bulk packaging is specifically excluded unless specified in the contract or order.

5.1.3 *Intermediate Package:*

5.1.3.1 The use of intermediate packaging is encouraged particularly when such use enhances handling and inventorying.

5.1.4 *Packing:*

¹ This practice is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.18 on Miscellaneous Packaging.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

5.1.4.1 Unit packages and intermediate packages not meeting the requirements for a shipping container shall be packed in shipping containers.

5.1.4.2 *Shipping Containers*—The shipping container (including any necessary blocking, bracing, cushioning, or waterproofing) shall comply with the regulations of the carrier used and shall provide safe delivery to the destination at the lowest tariff cost. It shall be capable of multiple handling and storage under favorable conditions, such as enclosed facilities, for a minimum of 1 year.

5.1.5 *Unitization*—Shipments should be considered for unitization where appropriate or specified. Unitization encompasses, but is not limited to, bundling, consolidation in a container, or placement on a pallet. All desired markings shall be as specified. All markings shall be legible, durable, and identify the contents of the shipment unit.

5.1.6 *Marking*:

5.1.6.1 *Unit and Intermediate Marking*—Marking for the unit and intermediate container shall mean those used in the commercial distribution or over-the-counter retail sales. The markings shall be sufficient to clearly and visibly identify the contents of the package.

5.1.6.2 *Shipping Container Markings*—Minimum markings shall include the name and address of consignee and consignor

and any applicable precautionary markings. Other desired marking shall be as specified. All markings shall be legible, durable, and identify the contents of the package.

6. Options

6.1 *Export Shipments*—This practice can be used for export shipments when favorable conditions are provided, such as containerization media and enclosed areas of receiving.

7. Performance Testing

7.1 The use of Practice D 4169 is recommended for determining the performance level of a shipping unit.

7.2 The supplier is responsible for requirements specified herein. The purchaser reserves the right to perform any or all of the tests.

7.2.1 Packaging used shall successfully pass the test levels of Practice D 4169, Distribution Cycle 1. Export shipments shall also pass the test levels of Distribution Cycles 15, 16, or 17 as appropriate. Assurance Level II shall be used. Acceptance shall be criterion I, no product damage.

8. Keywords

8.1 commercial packaging; intermediate; packaging; preservation; unit package

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