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Standard Practice for Preparation for Shipment of Solid Electrical Insulating Materials¹

This standard is issued under the fixed designation D 4088; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice contains procedures for packaging, packing, and marking of solid electrical insulating materials for domestic and export shipments to commercial and military destinations, and for protection in storage.

1.2 Materials covered by these procedures include, but are not to be limited to, flexible sheets and tapes, flexible tubes and sleeveings, and rigid plates, rods, and tubes.

2. Referenced Documents

2.1 ASTM Standards:

D 996 Terminology of Packaging and Distribution Environments²

D 2956 Practice for Conducting Controlled Shock Input Tests for Shipping Containers³

D 3331 Test Method for Assessment of Mechanical-Shock Fragility Using Package Cushioning Materials³

D 3332 Test Methods for Mechanical-Shock Fragility of Products, Using Shock Machines²

D 3580 Test Method of Vibration (Vertical Sinusoidal Motion) Test of Products²

2.2 Military Standards:⁴

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-147 Palletized and Containerized Unit Loads, 40 × 48

MIL-E-17555 Electronic and Electrical Equipment, Accessories and Repair Parts, Packing and Packaging

3. Terminology

3.1 *Definitions*—Refer to Terminology D 996.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *pack, intermediate*—a wrap box or bundle that contains two or more unit packs of identical items.

3.2.2 *pack, unit*—the first tie, wrap, or container applied to a single item, a quantity of the same item, a set, or an item with

all its component parts, that constitutes a complete and identifiable pack.

3.2.3 *unitization (load, unit, or unitized)*—the assembly of a group of containers or items into a single load in such manner that the load can be handled as a unit throughout the distribution system. Unitization comprises, but is not limited to, consolidation in a container, placement on a pallet or load base, or securely binding together.

4. Significance and Use

4.1 This standard provides the minimum requirements for the preservation, packaging, packing and marking of solid electrical insulating materials to be shipped by various forms of transportation, such as, but not limited to, truck, rail and air. It covers multiple shipments, handlings and storage periods encountered in the distribution of supplies through domestic channels, and includes distribution through government channels for export, domestic and military destinations.

5. Requirements

5.1 Unless otherwise agreed to by the purchaser and seller, the following requirements shall apply:

5.1.1 *Cleanliness*—Items shall be free of dirt and contamination that would contribute to, or would cause deterioration of the item during shipment or storage, or would have to be removed by the user prior to use. Any coatings or preservatives applied prior to shipment to protect the item are not considered contamination.

5.1.2 *Preservation*—Items susceptible to deterioration or damage from the elements, such as electrostatic charges, shall be protected by appropriate means.

5.1.3 *Cushioning*—Cushioning shall be provided for all items susceptible to damage by shock and vibration during shipment and handling.

NOTE 1—Practice D 2956 or Test Methods D 3331, D 3332, or D 3580 may be helpful in determining the need for cushioning.

5.1.4 *Unit Pack Construction*—When used or specified, a unit pack shall be so designed and constructed as to contain the contents during shipment and storage in the shipping container with no damage to the item, and with minimal damage to the unit pack, and to allow handling after shipment.

5.1.5 *Unit Pack Quantity*—Unless otherwise agreed to by

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² Annual Book of ASTM Standards, Vol 15.09.

³ Discontinued, see 1984 Annual Book of ASTM Standards, Vol 15.09.

⁴ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.



the purchaser and seller, the unit pack quantity shall be one or more of the same item or an item with all its component parts. The quantity per unit pack shall be the same as that used in commercial distribution or retail sales. Intermediate packing of unit packs is acceptable, but not required.

5.1.6 Unit Pack Markings—When required in the contract or order, unit packs (and intermediate packs, if used) shall be marked as follows:

5.1.6.1 Identification of contents by specification number, drawing number, part number, catalog number, including National Stock Numbers (NSN), where applicable (See MIL-STD-129),

5.1.6.2 Trade designation of the material,

5.1.6.3 Quantity and unit of issue,

5.1.6.4 Contract, purchase order, or delivery order number, and

5.1.6.5 Additional markings as may be required by the contract or order.

5.1.7 Packing—Unit packs and intermediate packs not meeting the requirements of a shipping container shall be packed in shipping containers in a manner acceptable to the carrier.

5.1.7.1 Military Packing—Unless otherwise specified in the contract or order, military export shipments shall be packaged Level A and packed Level A in accordance with MIL-E-17555.

5.1.8 Shipping Containers—The shipping container including any necessary blocking, bracing, cushioning, or water-proofing shall comply with the regulations of the carrier used and shall permit safe delivery. To ensure delivery to the first purchaser, it shall be capable of multiple shipments, with the associated handling and storage.

5.1.9 Shipping Container Markings—Unless otherwise specified in the contract or order, shipping containers shall be marked in addition to that specified in 5.1.6 as follows:

5.1.9.1 Except for full carload of full truckload shipments to a single consignee within the continental United States (CONUS), the exterior shipping container shall contain the consignee's address.

5.1.9.2 One copy of the shipping document and the contract or order documentation shall be attached to the outside of the container by any appropriate means as to allow damage-free removal of the documents. Alternatively, the documents may be placed inside the container.

5.1.10 Unitization—Unless otherwise specified in the contract or order, and when appropriate, unitization or palletization or both shall be used (See MIL-STD-147).

5.1.11 Export Shipments—Shipping containers as described in this practice are not intended for exterior containers for export shipments. For export shipments the exterior containers shall be agreed upon by the purchaser and seller. However, if shipment is made by air or by water using containerization media such as intermodal closed vans, and if discharge and distribution facilities are available at the receiving location, shipping containers described in this standard may be suitable for export shipments.

6. Keywords

6.1 intermediate pack; marking; packaging; packing; preparation for shipment; solid electrical insulating materials; unitization; unit pack

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