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## SHEETED PREPREG MATERIAL (REFRIGERATED)

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### **1.0 SCOPE**

This standard provides for the packaging of sheeted preimpregnated (prepreg) materials requiring refrigeration and desiccant during shipment and storage.

### **2.0 REFERENCES (CURRENT ISSUE)**

- 2.1 Lockheed General Packaging Standard LPS 40-001
- 2.2 Hazardous Materials Regulations, Department of Transportation
- 2.3 Uniform Freight Classification
- 2.4 ICAO, Technical Instructions for the Safe Transport of Dangerous Goods by Air
- 2.5 IATA, Dangerous Goods Regulations
- 2.6 Consolidated Freight Classification
- 2.7 National Motor Freight Classification

### **3.0 REQUIREMENTS**

#### **3.1 GENERAL**

- 3.1.1 The supplier's package shall meet or exceed the General Packaging Requirements of LPS 40-001.
- 3.1.2 Prepreg sheets shall be maintained at a temperature of 40°F or colder, or at a temperature as specified in the LMSC Material Specification, or Procurement Document.
- 3.1.3 Prepreg sheets shall be maintained at a relative humidity of 50% or less during shipment.
- 3.1.4 Samples are randomly selected from prepreg sheets sent. Allow sufficient material of plastic bag(s) to permit at least one additional reseal, or supply test samples in separate bag per procurement instructions. If this is not possible, enclose additional plastic bags in shipment to seal those bags that samples are taken from. Resealing plastic bags will protect prepreg sheets during storage.
- 3.1.5 Prepreg sheets shall not be bent, kinked, or creased.
- 3.1.6 Prepreg sheets shall be clean and free of foreign matter/contaminants injurious to its function/performance.
- 3.1.7 Shipments of items/materials classified as hazardous (e.g., dry ice), shall be properly identified, packaged and marked in compliance with applicable carrier/state/federal regulations.
- 3.1.8 Preservation/packaging methods and designs shall be of minimum cost consistent with adequate performance. The preservation/packaging methods selected shall ensure protection of prepreg sheets against natural and induced environments during handling/shipment.
- 3.1.9 The environment of packaged prepreg sheets shall be maintained in accordance with the applicable material specification during shipment.
- 3.1.10 The shipping container shall be selected to ensure protection of prepreg sheets consistent with the mode of transportation required.
- 3.1.11 The gross weight of the shipping container with contents shall not exceed 100 pounds.

#### **3.2 UNIT PACKAGING** – (See Figure 1)

- 3.2.1 Unless otherwise specified, place not more than 50 prepreg sheets in a plastic bag. Close bag by heat sealing. Allow sufficient material to permit at least one additional reseal. (See A)
- 3.2.2 Place bagged prepreg sheets between two (2) fiberboard corrugated stiffener pads (C flute – 200 pound board or greater). Stiffener pads shall be of sufficient rigidity to prevent creasing/bending, and shall extend beyond the bagged prepreg sheet(s) on all sides. (See B)

**CAUTION:** SHEETS WILL BE DAMAGED IF BENT, KINKED, OR CREASED.

3.2.3 Tape stiffener pads on all four (4) sides so bagged prepreg sheets will be retained and supported. (See C)

3.2.4 Place protected prepreg sheets in a water-vaporproof, foil lined bag. Add sufficient amount of desiccant to maintain relative humidity at 50% or less during shipment. Close bag by heatsealing. Allow sufficient material to permit at least one additional reseal. (See D)

**CAUTION:** DO NOT PLACE DESICCANT IN DIRECT CONTACT WITH PREPREG SHEETS. PLACE DESICCANT BETWEEN BAGGED PREPREG SHEETS AND WATER-VAPOR PROOF, FOIL LINED BAG.

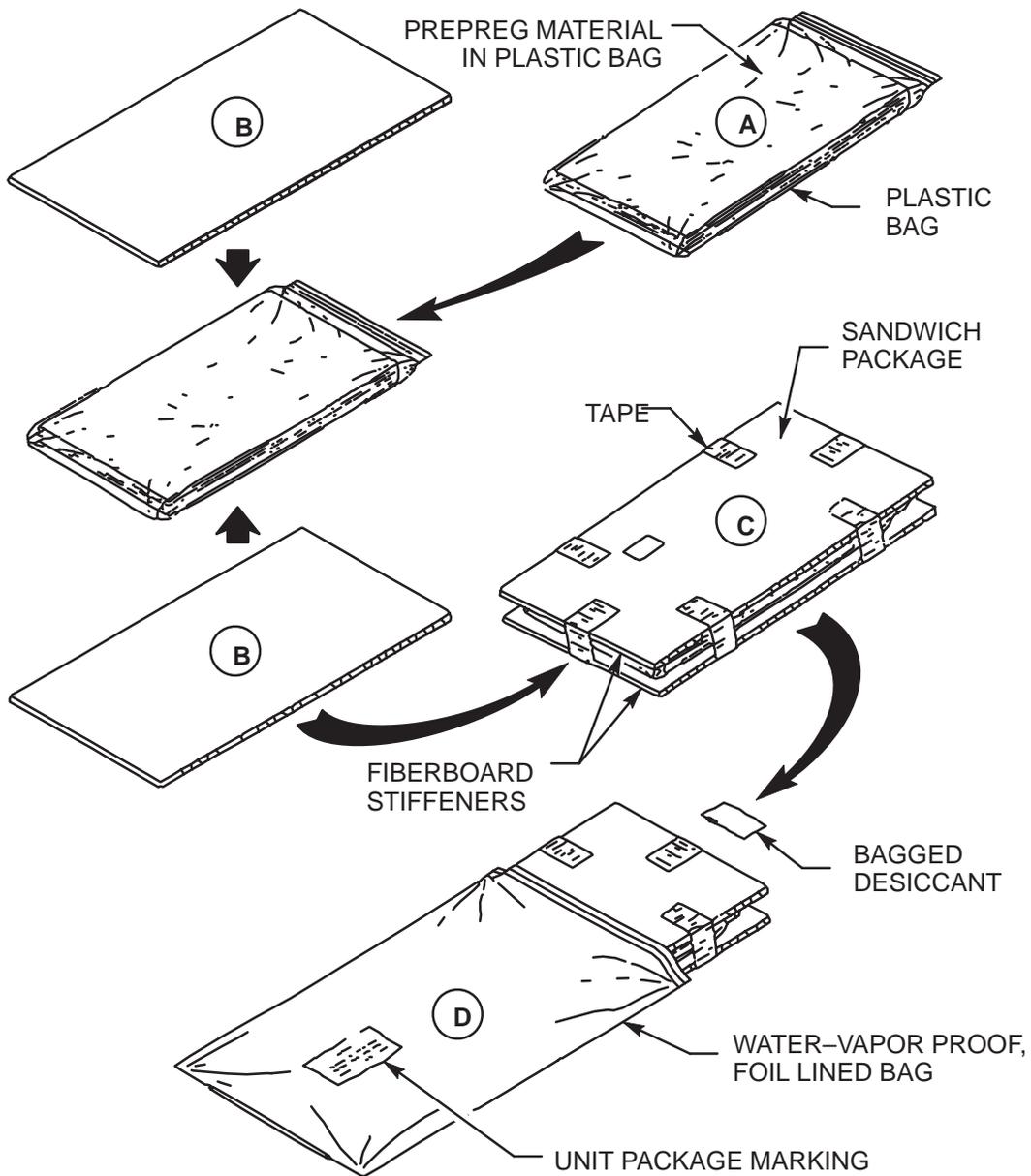


Figure 1.

**3.3 SHIPPING CONTAINER**

3.3.1 Unless otherwise specified, the number of unit packages per shipping container (containing identical parts) shall be limited to the dimensions and gross weight provisions of the container specification (reference Rule 41 of the Consolidated Freight Classification).

3.3.2 The shipping container shall be a corrugated fiberboard box, (Regular Slotted Container (RSC) or Full Overlap Slotted Container (FOL) style) meeting Common Carrier regulations.

**3.4 PACKING** – (See Figure 2)

3.4.1 Packing for nontemperature controlled vehicle shipments or air shipments.

3.4.1.1 Shipping containers to be transported in nontemperature controlled vehicles require carbon dioxide solid (dry ice) in each container of material.

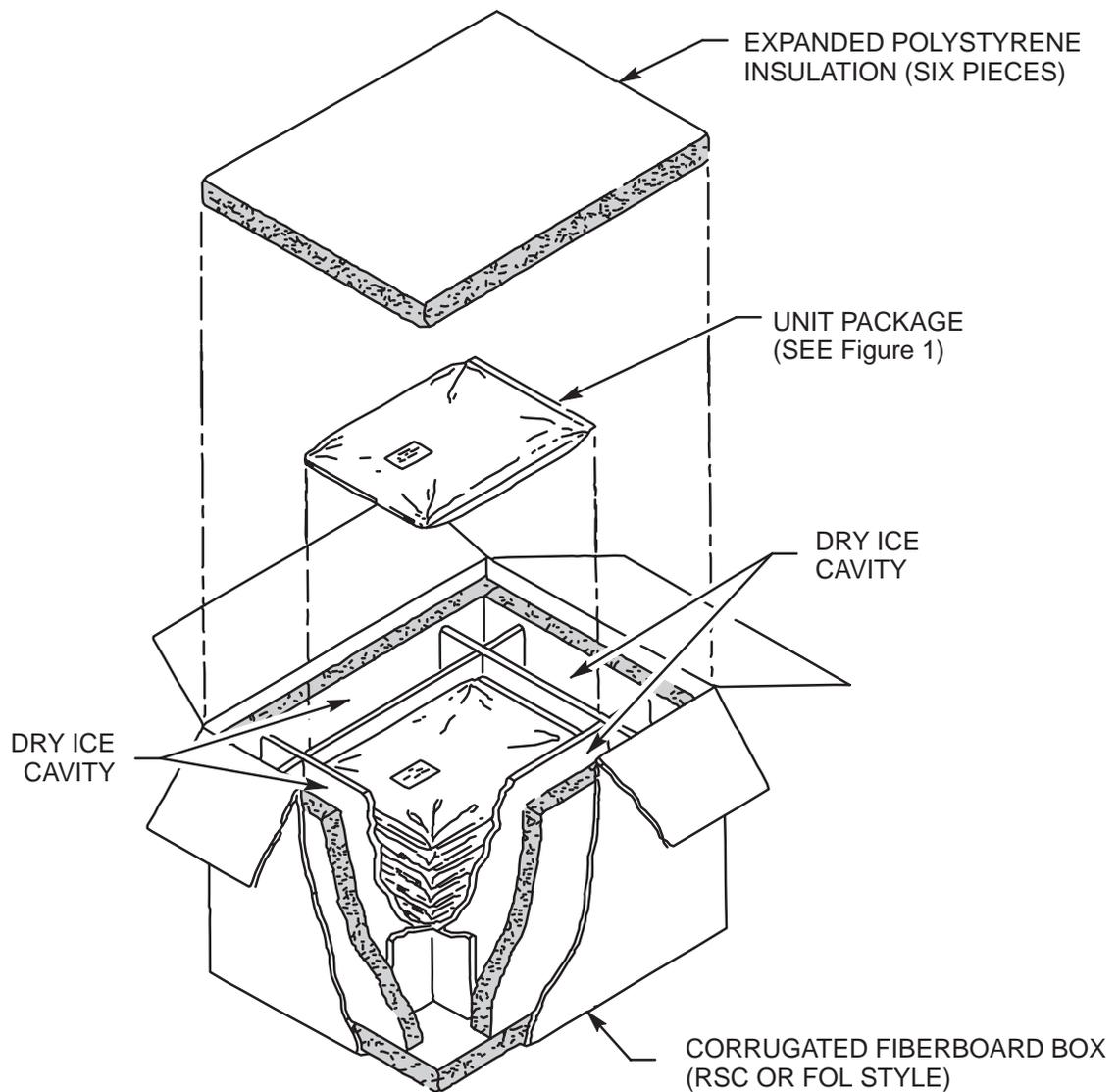


Figure 2.

**CAUTION:** DRY ICE RELEASES CARBON DIOXIDE GAS. CONTAINERS MUST PROVIDE PROVISIONS FOR RELEASE OF CARBON DIOXIDE GAS.

3.4.1.2 Provisions shall be made in the shipping container on top and/or side for placement of carbon dioxide solid (dry ice).

**CAUTION:** DRY ICE SHALL NOT COME IN DIRECT CONTACT WITH UNIT PACKAGES.

**NOTE:** Figure 2 is for illustration purposes only. Supplier's standard commercial package will be accepted if the package meets or exceeds the packaging requirements of this document.

3.4.1.3 Include adequate amount of dry ice to maintain a temperature of 40°F or colder for duration of transit, or at a temperature as specified in the LMSC Material Specification or Procurement Document.

3.4.1.4 All inner surfaces of the fiberboard box shall be lined with expanded polystyrene material sufficient to maintain the temperature specified per Paragraph 3.4.1.3.

3.4.1.5 Unit packages shall be placed uniformly into the shipping container.

3.4.1.6 Block and brace as required to prevent damage and movement within the container during sublimation of the dry ice.

3.4.1.7 Blocking and bracing in the shipping container shall be arranged in such a manner as to allow for the chilled air to circulate about unit packages.

3.4.1.8 Enclose or attach a copy of packing slip to the shipping container.

### 3.4.2 PACKING FOR TEMPERATURE CONTROLLED VEHICLE SHIPMENT

3.4.2.1 Shipping containers to be transported in temperature controlled vehicles do not require carbon dioxide solid (dry ice). Verification of temperature control may be requested at delivery destination.

3.4.2.2 Unit packages shall be maintained at a temperature of 40°F or colder, or at a temperature as specified in the LMSC Material Specification, or Procurement Document.

3.4.2.3 Unit packages shall be placed uniformly into shipping container. Provide sufficient cushioning/dunnage to protect contents from damage during shipment.

3.4.2.4 Block and brace as required to prevent damage and movement within the container during shipment.

3.4.2.5 Enclose or attach a copy of packing slip to the shipping container.

## 3.5 MARKING

### 3.5.1 UNIT PACKAGE MARKING

3.5.1.1 Label or mark each unit bag to include at least the following:

- a. Part number per procurement document
- b. Material supplier and designation
- c. Purchase order number
- d. Specification number and revision letter
- e. Date of manufacture
- f. Time of shipment
- g. Material class and type, as applicable
- h. Size/quantity as applicable
- i. Lot number

- j. Sheet/Roll number
- k. “Warning: Moisture is detrimental to material,” if required by P.O. or specification
- l. “40°F temperature or colder storage required”, unless otherwise specified in material specification.
- m. Limited–calendar–life control marking in accordance with the requirements of the material specification or purchase order.

3.5.1.2 Markings to remain legible until material is used.

### 3.5.2 SHIPPING CONTAINER MARKING

- 3.5.2.1 In addition to any special marking required by the material specification, contract, or order, label or mark each package to include the following:
- a. Part number per procurement document
  - b. Material description
  - c. Specification number and revision letter
  - d. Purchase order number
  - e. Manufacturer’s name, trademark, or symbol
  - f. Manufacturer’s lot number
  - g. Date of manufacture
  - h. Time of shipment
  - i. Manufacturer’s batch number
  - j. Manufacturer’s prepreg designation
  - k. Nominal width and length per sheet
  - l. Net linear feet per shipment
  - m. Gross weight
  - n. Limited–calendar–life control marking per Paragraph 3.5.1.1.
  - o. Precautionary handling/storage restrictions and markings as required; e.g., “This side UP,” “Wear Gloves if Handling Dry Ice,” “Material Must be Maintained at 40°F or Colder, Do not Store in Direct Sunlight,” etc.
  - p. Special markings required for shipments by air, “ORM–A, DRY ICE” (include weight of dry ice). For compliance with Department of Transportation (DOT).

## **4.0 QUALITY ASSURANCE**

- 4.1 Packaging shall be accomplished in such a manner as to prevent physical damage to, or degradation of, the packaged items during delivery to the using activity. It shall be the prerogative of LMSC to return damaged goods or packages in which the temperature and/or humidity shows noncompliance with Paragraphs 3.1.2 and 3.1.3, or when damage or degradation is attributable to improper or inadequate packaging. Return of such goods shall be at the supplier’s expense.

**5.0 NOTES**

5.1 The following information is intended as a guide or aid to suppliers in meeting the requirements of this specification.

5.1.1 Material Specifications

<b><u>Commodity</u></b>	<b><u>Military/Federal Specifications</u></b>
Bags	MIL-B-117, Type II
Barrier Material, Waterproof	MIL-B-131, Class 1 or 3
Box, Fiberboard	PPP-B-636
Cushioning, Polyethylene	MIL-C-46842
Desiccant, Bagged	MIL-D-3464
Fiberboard, Corrugated/Solid	PPP-F-320
Polystyrene Expanded	PPP-C-850, Type I, Class 2 or 3 Grade R
Sheet, Plastic	L-P-378, Type I Flexible
Tape, Pressure-Sensitive Adhesive, Filament-Reinforced	PPP-T-97