U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

East Building, PHH – 32
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

APPROVAL CA1999030022
ISSUED BY THE COMPETENT AUTHORITY OF THE UNITED STATES
EXPIRATION DATE: January 31, 2015
First Revision

1. **APPROVAL HOLDER:** Members of the Reusable Industrial Packaging Association (RIPA) as individual grantees on file with the Office of Hazardous Materials Special Permits and Approvals
Landover MD 20785-2244

2. **REGULATORY AUTHORITY:** 49 CFR § 178.601(h), Approval of equivalent packaging.

3. **SYNOPSIS:** This approval authorizes the use of recycled plastic materials in the manufacture of UN1H1 and UN1H2 plastic drums at the Packing Group II and III performance levels.

4. **BASIS:** This approval is issued in response to the Reusable Industrial Packaging Association's (RIPA) application dated March 17, 1999 and additional information provided on September 26, 2002.

5. **PERIOD OF VALIDITY AND CONDITIONS OF APPROVAL:** This approval shall remain valid until terminated by the Associate Administrator for Hazardous Materials Safety. This approval does not provide relief from any requirements of the Hazardous Materials Regulations (49 CFR Parts 171-180) except the provision in 49 CFR 178.509(b)(1) which states that: "No used material other than production residues or regrind from the same manufacturing process may be used." This approval is subject to the following conditions and limitations:

a. Applicability: This approval applies to the manufacture in the U.S. of UN1H1 and UN1H2 plastic drums at the Packing Group II and III performance levels, by drum manufacturers that are members of the Plastic Container Institute as listed in Attachment A.

b. Packaging: Packaging must be UN1H1 and UN1H2 plastic drums as described in the approval application and any additional information submitted therewith. The minimum thickness of a plastic drum must be in accordance with 49 CFR 173.28(b)(4).

c. Quality Assurance Program: Each manufacturer shall employ a quality assurance program for evaluating and controlling recycled plastic material used in the manufacture of plastic drums to ensure the following:

(1) Sorting and cleaning used plastic material and identification of resins. Only resins prepared and evaluated under the manufacturer's quality assurance program and determined to be suitable for use may be used in drum manufacture. All recycled material selected for use must be cleaned in a manner that removes residue from prior lading.

(2) Batching. For purposes of this approval, a batch of resin from recycled material is not more than 50,000 pounds of resin that has been sorted and selected as detailed in the manufacturer's quality assurance program and is identified regard to –

(a) Source of the recycled material (e.g., drums, intermediate bulk containers, etc.) and description of the sorting process;

(b) Previous lading of recycled containers, including identification of hazardous materials, if applicable;

(c) Results of the resin specifications set forth in paragraph c.(4) below.

(3) Rejection of unsuitable material. The manufacturer may not use a resin from recycled material which –

(a) Is made from containers which previously contained a Division 6.1 material;

(b) Does not conform to the resin specifications set forth in paragraph c.(4) below;

(c) Is otherwise determined to be unsuitable under the manufacturer's quality assurance program.

(4) Resin Specifications

(a) Each manufacturer shall verify that each batch of recycled plastics material has the proper melt flow rate, density, and tensile strength, consistent with that of the design type manufactured from such recycled material. This evaluation shall be conducted in accordance with the following standards:

- Melt Flow Rate – ASTM D-123 8-95, Standard Test Method for Flow Rate of Thermoplastics by Extrusion Plastometer.

- Density – ASTM DI 505-85, Standard Test Method for Density of Plastics by Density-Gradient Technique; or ASTM D 792-91, Standard Test Method for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

- Tensile Yield Strength – ASTM D 638-95, Standard Test Method for Tensile Properties of Plastics.

(b) Each batch of resin must demonstrate –

(i) A melt index (HMLI), when tested in accordance with ASTM D-1238 at 21.6 kg. and 190°C, that does not exceed the ranges specified below:

- Recycled resin with an HLMI range of < 4 must be within ± 1.5 grams per 10 minutes,

- Recycled resin with an HLMI range of ≥ 4 < 8 must be within ±2 grams per 10 minutes, or

- Recycled resin with an HLMI range of > 8 ≤ 12 must be within ±2.5 grams per 10 minutes;

(ii) A density, when tested in accordance with either ASTM D1505-85 or D-792-91, within the range of .96 ± 0.02 g/cc.

(iii) The following tensile properties when tested in accordance with ATSM D-638:

- A tensile yield strength of at least 2800 psi; and
- An elongation at break of at least 75%.

(5) Manufacture of drums using recycled material

(a) Performance Testing

Performance testing must be conducted as required by Part 178, Subpart M at the appropriate packing group level. In addition to the design testing and periodic retesting that is currently performed on all drums, drums made with recycled resin must be subjected to and pass the tests as detailed in Table I at a frequency of one drum, per mold, per shift:

TABLE I

Drum Type	Drop Test[1]	Dynamic Compression Test[2]	Hydrostatic Pressure Test[3]	Leakproof-ness Test[4]
Non-liquid service	Yes	Yes	No	No
Liquid Service	Yes	Yes	Yes	Yes

Notes:

[1] Drop test would be performed on the top and bottom chime at -18°C, with the drop height dictated

by the packing group and specific gravity marking on the drum, as specified in 49 CFR 178.603. Drops may be performed on the same drum.

[2] Dynamic compression test shall be conducted in accordance with 49 CFR 178.606.

[3] Drums used in the dynamic compression test also can be used for the hydrostatic pressure test.

[4] Drums intended to contain liquids must be production leakproofness tested in accordance with 49 CFR 178.604.

(b) Marking. In addition to the marking requirements of 49 CFR 178.503, each drum shall be marked in a permanent manner (e.g., embossed) in a lettering size conforming to 49 CFR 178.3(a) with the following:

(i) The statement "Not for food or drink", unless otherwise authorized by a Federal Governmental agency;

(ii) The letters "REC" which indicates the drum is manufactured from recycled material.

d. Documentation and Record Retention: In addition to the record retention requirements of 49 CFR 178.601(l), each manufacturer shall maintain for as long as a drum is produced and for two years thereafter, and make available upon request by DOT representatives at the manufacturing facility, the following information:

(1) A copy of the manufacturer's quality assurance program.

(2) For each resin used in the manufacture of a drum –

(a) The source of the recycled material (e.g., drums, intermediate bulk containers, etc.) and description of the sorting process;

(b) Previous lading of recycled containers, including identification of hazardous materials, if applicable;

(c) Results of resin specifications set forth in paragraph c.(4) above.

6. **SPECIAL PROVISIONS:**

a. A copy of this approval must be maintained and made available for examination at each location where manufacturing, testing, or marking of packaging is conducted in accordance with this approval.

b. Notwithstanding the provisions of this approval, a UN marking placed on a packaging constitutes the manufacturer's certification that the packaging is capable of meeting all applicable UN performance testing requirements of 49 CFR Part 178, Subpart M.

c. The manufacturer must report any incident involving loss of packaging contents or packaging failure to the Director, Office of Hazardous Materials Exemptions and Approvals, in writing, as soon as practicable.

7. **GENERAL PROVISIONS:**

a. Failure by any person to comply with the terms and conditions of this approval and the Hazardous Materials Regulations, 49 CFR Parts 171-180, may result in the modification, suspension or termination of that person's authority to use this approval. Failure to comply may also subject that person to penalties prescribed by 49 U.S.C. §§ 5123 and 5124. This approval may be modified, suspended or terminated in its entirety if that action is justified in light of changes in circumstances or additional information not available when this approval was issued. Unless immediate modification, suspension or termination is necessary to avoid a risk of significant harm to persons or property, before action is taken, that person will be notified and provided with an opportunity to show why the proposed action should not be taken.

b. As hazmat employees, manufacturers of hazardous materials packaging are subject to the training requirements of 49 CFR 172.700 et seq. A manufacturer operating under the conditions of this approval must provide training on its provisions as part of the hazardous materials training of affected hazmat employees.

Issued in Washington, D.C.

Dated: 01/15/2010

For Dr. Magdy El-Sibaie
Acting Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-30.