This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D7790 – 19 (Reapproved 2023)

Standard Guide for Preparation of Plastic Packagings Containing Liquids for United Nations (UN) Drop Testing[1]

This standard is issued under the fixed designation D7790; 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 guide is intended to provide a standardized method and a set of basic instructions for special preparation conditioning of drop test samples being subjected to United Nations (UN) performance-oriented packaging certification as required by United States Department of Transportation Title 49 Code of Federal Regulations (49 CFR) and the United Nations Recommendations on the Transport of Dangerous Goods (UN).

1.2 This guide provides guidance on conditioning test samples for drop testing plastic Non-Bulk Packaging, Intermediate Bulk Container (IBC), and Large Packaging designs intended for liquid hazardous materials (dangerous goods) as required by 49 CFR §178.603(c)(1), §178.810(b)(4), and §178.965(c), respectively. This guide also provides the minimum information that should be documented when conducting special preparation conditioning.

1.3 The user of this guide shall be trained in accordance with 49 CFR §172.700 and other applicable hazardous materials regulations including: the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air, the International Maritime Dangerous Goods Code (IMDG Code), and carrier rules such as the International Air Transport Association (IATA) Dangerous Goods Regulations.

1.4 *Units*—The values stated in SI units are regarded as the standard. No other units of measurement are included in this standard.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4332 Practice for Conditioning Containers, Packages, or Packaging Components for Testing

D4919 Guide for Testing of Hazardous Materials (Dangerous Goods) Packagings

D7887 Guide for Selection of Substitute, Non-hazardous, Liquid Filling Substances for Packagings Subjected to the United Nations Performance Tests

D8135 Guide for Selection of Substitute, Non-hazardous, Particulate Solid Filling Substances for Packagings Subjected to the United Nations Performance Tests

2.2 *Federal Standard:*

U.S. Department of Transportation Code of Federal Regulations Title 49 (49 CFR) Parts 100-185[3]

2.3 *UN Standard:*

United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations (UN Orange Book)[4]

2.4 *IATA Standard:*

International Air Transport Association (IATA) Dangerous Goods Regulations[5]

2.5 *ICAO Standard:*

International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air[6]

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[1] This guide is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.22 on Hazardous Materials.

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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 20402-9371 (www.phmsa.dot.gov/phmsa-regulations).

[4] Available from the UN Economic Commission for Europe, Information Service, Palais des Nations, CH-1211 Geneva 10 Switzerland (website: http://www.unece.org/trans/danger/danger.htm).

[5] Available from the International Air Transport Association (IATA), 800 Place Victoria, PO Box 113, Montreal, Quebec H4Z 1M1 Canada (website: http://www.iata.org).

[6] Available from the International Civil Aviation Organization, (ICAO), 999 University St., Montreal, Quebec H3C 5H7 Canada (website: http://www.icao.org).

***A Summary of Changes section appears at the end of this standard**

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