



**Pipeline and Hazardous  
Materials Safety Administration**

**APPROVAL CA2006080028**  
**(SEVENTEENTH REVISION)**

**ISSUED BY THE COMPETENT AUTHORITY OF THE UNITED STATES**  
**EXPIRATION DATE: October 31, 2020**

1. **APPROVAL HOLDER:** Advanced Packaging Technology  
Laboratories Inc.  
200 Larkin Drive, #H  
Wheeling, IL 60090  
United States
2. **REGULATORY AUTHORITY:** 49 C.F.R. § 107.403 Designation  
of Approval Agency - UN Third-Party Certification  
Agency.
3. **SYNOPSIS:** Advanced Packaging Technology Laboratories  
Inc. is designated as an Approval Agency for the  
Department of Transportation to test and certify  
packagings as meeting the performance requirements for  
certain UN standard and DOT specification packagings.  
The most recent revision supersedes all previous  
revisions.
4. **BASIS:** This approval is issued in response to  
Advanced Packaging Technology Laboratories Inc.'s  
modification application dated May 25, 2016 and  
additional information dated October 25, 2016 and  
January 18, 2017.
5. **PERIOD OF VALIDITY AND CONDITIONS OF APPROVAL:** This  
approval does not grant any additional authority or  
impose additional requirements except as expressly  
stated herein.

This approval shall remain valid as long as the  
following conditions are met:

- All operations are conducted prior to the posted expiration date;
- The approval has not been terminated by the Associate Administrator for Hazardous Materials Safety (AAHMS);
- The approval holder maintains technical personnel, test equipment, and any other capabilities necessary to conduct testing and certification of UN standard or DOT specification packagings;
- There has been no change in the certifying official(s) which has not been approved in writing by the AAHMS;
- The approval holder must provide packaging testing services at least once per calendar year, unless otherwise authorized by the AAHMS; and
- All requirements of this approval and its Appendices are met along with the record retention requirements of 49 C.F.R. Part 178.

a. **UN Third-Party Certification Agency:** The holder of this approval is hereby issued the identification code and symbol:

**"+BR"**

This code and symbol constitutes an approval designating the approval holder's company and location as a UN Third-Party Certification Agency.

b. **Certifying Official(s):** Only the people listed below may sign certifications under this approval.

Certifying Official(s)
Rafael Cameron
Kimberly Grumbos
Mark Hughes
Dzintars Petersons
Anthony White

If a certification official leaves the company or is no longer serving in the capacity of a certifying official, the approval holder must notify the AAHMS in writing within 20 days of the change.

c. **Packaging testing authorized:** The following packaging designs may be tested and certified:

Non-Bulk		Authorized Yes - No
Drums		
Metal		Yes
Plastic		Yes
Plywood		Yes
Fiber		Yes
Jerricans		
Metal		Yes
Plastic		Yes
Boxes		
Wood (All types)		Yes
Plastic		Yes
Metal		Yes
Fiberboard		Yes
Bags		
Plastic (All types)		Yes
Textile		Yes
Paper		Yes
Composite Packagings		
All types		Yes
Wooden Barrels		Yes
Infectious Substances*		No

Bulk		Authorized Yes - No
IBCs		
Metal		Yes
Plastic		Yes
Composite		Yes
Fiberboard		Yes
Wooden		Yes
Flexible		Yes
Large Packagings		
Metal		No
Plastic		No
Fiberboard		Yes
Wooden		No
Flexible		No

\*Infectious substances packagings must be tested in accordance with § 178.609.

Packaging design types not shown in the table above may only be tested and certified after being approved in writing by the AAHMS.

A portion of the testing may be conducted at a location other than the approval holder's facility. If a person other than the approval holder's certifying official conducts the testing, the approval holder's certifying official, must witness the testing. The approval holder maintains all responsibility for certifying the packaging meets the requirements of the Hazardous Materials Regulations.

6. **SPECIAL PROVISIONS:**

a. Each testing certificate issued by the holder of this approval must be prepared in accordance with § 107.404 and include the identification symbol shown in Paragraph 5.a. The identification symbol is to be followed by a number (four-digit minimum) which will refer to the specific packaging being certified as set forth in §§ 178.503(a)(8), 178.703(a)(1)(vi), and 178.910(a)(1)(vi), as applicable. All certifications must have a unique number.

b. In addition to the requirements in Paragraph 6.a., each approval certificate must be prepared in accordance with the format provided in Appendix A of this approval, and must contain at a minimum the information presented in Appendix B, Section I. Additionally, each approval certificate must contain the information in Appendix B, Section II, when required, for the applicable packaging design type tested.

c. Yearly activity reports (April 1 through March 31) must be submitted to the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD) by the last day of the month following the conclusion of the reporting period. Certifications may not be issued if a report has not been submitted to OHMSAPD. Activity reports must contain the information specified in Appendix C.

d. If no testing is conducted during the reporting period, a statement of inactivity must be submitted in lieu of the activity report. If a statement of inactivity is sent via e-mail, the title of the e-mail must contain "UN Third-Party Certification Agency" and the approval number.

e. In addition to the reports required in Paragraph 6.c., one representative certification report must be submitted with the activity report for each packaging design type tested during the reporting period in accordance with the tables shown in Appendix D.

f. The approval holder shall not issue a certification under the terms of this approval for any packaging manufactured by or containing a component fabricated by the holder.

g. Equipment used for the certification of packagings under this approval must have a traceable calibration system that can be verified upon request by PHMSA. Equipment must be calibrated at a minimum according to the manufacturer's recommendations or to the approval holder's internal quality system. The approval holder's internal quality system must be made available upon request of a DOT official. Instruments to be calibrated must include precision measurements such as torque wrenches, scales, temperature apparatus, pressure sensors, etc.

h. Failure of one of the required performance tests does not constitute a failure of the entire packaging design provided the approval holder can justify not repeating all performance tests (e.g., not repeating a stacking test on an empty outer packaging of a combination packaging if the failure occurred on an inner packaging(s)). The approval holder must assess the cause of the failure and determine if testing may continue. Required performance test failures due to an inadequate design must be halted and modified samples must be submitted for retesting.

i. If a previously certified packaging fails retesting and the cause of the failure cannot be resolved, the failure must be included in the annual activity report required by Paragraph 6.c.

j. Test samples may be reused if the results of the subsequent tests are not compromised. If test samples are reused the approval holder must indicate this in the test report.

k. Each individual packaging specimen tested must be assigned a unique identification number and must be identified in the test report by that number.

l. When the approval holder assembles and closes packaging for testing, the approval holder must document in the test report the closure method used.

m. Reports that are revised after issuance must identify the reason(s) for the revision(s), the revision version and revision date. Reports should be revised to reflect the terms of the approval in effect at the time of testing.

n. All test report pages must be consecutively numbered and indicate the total number of pages in the test report. The first page need not be numbered if there is a method to associate this page with the rest of the report. Pages may be manually numbered.

7. **GENERAL PROVISIONS:**

a. A current copy of this approval must be posted where testing is being conducted.

b. The approval application package and all supporting documents and reports must be kept on file and made available to DOT representatives upon request.

c. Failure by any person to comply with the terms and conditions of this approval and the HMR, 49 C.F.R Parts 171-180, may result in the suspension or revocation 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.

d. Each "Hazmat employee," as defined in § 171.8, who performs a function subject to this approval must receive training on the requirements and conditions of this approval in addition to the training required by §§ 172.700 through 172.704. All personnel performing a function related to this approval are "Hazmat employees."

e. This approval is non-transferable, and therefore, any change of majority ownership of the approval holder resulting in a new entity voids the CA approval unless submitted and acknowledged in writing by the AAHMS.

Issued in Washington, D.C.

Dated: 02/06/2017

A handwritten signature in blue ink, appearing to read "Dan By", is written over a faint circular stamp.

For William Schoonover  
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-32

## **Appendix A - Detailed Test Report Requirements**

### **Section I**

- 1) Name and address of party to whom the symbol is issued
- 2) Testing laboratory's name and address
- 3) A unique test report identification
- 4) Full performance certification
- 5) Whether the report is issued for design qualification or periodic retesting
- 6) Symbol assigned
- 7) The statement: "Advanced Packaging Technology Laboratories Inc." is a current DOT UN Third-Party Certification Agency under § 107.403."
- 8) Date of the test report issuance
- 9) Manual or mechanical signature of certifier with printed name and title

### **Section II**

#### **Packaging Description**

Unless otherwise specified in this approval, for all packaging design types tested and certified with the symbol of the approval holder, a robust description must be provided which includes the following:

- 1) Packaging design standard (UN 1A1, UN 4G, UN 6HA1, UN 31HA1, etc.).
- 2) The specifications and description of all safety critical component parts of the tested design type (refer to Appendix B, Section I). The information required by Appendix B, Section I paragraphs 1) and 2) may be maintained in a supplementary document, which is not considered to be a part of the test report. If this information is maintained in a supplementary document, it must be made available to a government



## Appendix A - Detailed Test Report Requirements

official upon request; however, it does not need to be provided when the test report is provided to other entities.

- 3) Maximum capacity of single, composite and inner packagings in mass or volume, as appropriate for the packaging design type tested.
- 4) External dimensions and tare mass of complete packaging and each individual safety critical component part.
- 5) Net fill weight of inner packagings (if used) and the gross mass of the completed package as tested.
- 6) Package assembly and closure method as tested including the method and equipment used by the laboratory for assembling and closing the packaging for testing.

Additional optional and mandatory design-specific information is provided in the appropriate packaging design type standard in Appendix B, Section II.

### Section III

#### Test Description and Results

##### 1) Test Series Details

- a) Identify the orientation of the drop orientation in a manner that can be identified and repeated.
- b) For stack tests, when multiple non-bulk packaging stack tests are conducted with a single test load (static, guided, or dynamic), a geometric pattern that evenly distributes the load across all test samples must be used. The report must identify if multiple units have been tested simultaneously with a single load.
- c) For vibration tests for non-bulk packagings, large packagings, and IBCs intended for solids, the test must be conducted in accordance with ASTM D999-08. For vibration tests of IBCs intended for liquids, the

## Appendix A - Detailed Test Report Requirements

- test must be conducted in accordance with ASTM D7387-07. When more than one non-bulk packaging is subjected to the vibration test simultaneously, the test report must identify how many units were tested at the same time. The test report must document the motion of the test table (vertical linear or rotary motion) and the cycles to achieve liftoff.
- d) For hydrostatic pressure tests, the test must be conducted in accordance with ASTM D7660-10.
  - e) For leakproofness tests, the test must be conducted in accordance with ASTM D7660-10 except that air pressure shall be used in lieu of hydrostatic pressure in accordance with §§ 178.604 or 178.813, as applicable.
- 2) Conditioning (if required) -
- a) All packaging conditioned prior to drop testing must be fully assembled, filled and closed prior to the start of conditioning. No closures may be retightened during or after conditioning, prior to testing or during testing. Fiberboard combination packaging must be fully assembled and closed as for testing for conditioning.
  - b) For designs required to be subjected to cold temperature conditioning, the test samples are considered to be conditioned when the temperature of the test sample and its contents has been reduced to -18° C or lower before conducting the drop test. The laboratory must have procedures in place to verify conditioning has been conducted properly. This may be achieved by preparing and monitoring the temperature of an additional test sample, measuring and recording the temperature of the contents immediately after the drop test, or other suitable methods.
  - c) Test contents, material used, viscosity and relative density for liquids (if other than water and antifreeze) and particle size for solids.
- 3) Pass/fail criteria
- a) A statement of pass or fail for each tested specimen in relation to the applicable criteria. Noting "PASS" or "FAIL" for each tested specimen on the test report is not sufficient.

## **Appendix A - Detailed Test Report Requirements**

b) All non-bulk packagings, including combination packagings, must be turned on their side to determine that the containers (and inner packaging, receptacles or articles) have not leaked. The outer packaging of combination packaging must be opened to make a final determination of performance.

4) Results for each test series.

### **Section IV**

Mathematical Calculations performed to conduct and document testing.

- 1) Packaging filling limits to determine 98% or 95% full for testing
- 2) Drop height for high specific gravity liquids
- 3) Stacking test load
- 4) Other calculations as required

For calculations that are included in the package test report, calculations should reflect the precision of the instruments used to obtain the measurements used for the calculations.

*Note: Where maximum or minimum values are specified in the regulations, the tolerances must be one sided, e.g., minimum test pressure.*

### **Section V**

Test reports must include:

- 1) Drawings of each packaging component or photographs of each component of the packaging. All photographs must be inserted electronically in test reports.
- 2) Where photographs are used in lieu of design drawings, photographs of the following must be included, as applicable:

## Appendix A - Detailed Test Report Requirements

- a) All outside surfaces of outer packaging must be included in the test report so that all markings and labels are visible. All markings and labels must be visible and recognizable without magnification.
- b) All surfaces of inner components, pads, partitions, liners, ties, bottles, caps, dunnage, absorbent material. All packaging and component markings and labels must be visible and recognizable without magnification.
- c) The assembled and closed inner packagings, parts and pieces in the outer packaging in the orientations for testing, before the outer packaging is sealed. For tested packagings with multiple layers of inner containers or articles, each layer must be photographed.
- d) All sealed surfaces of the fully assembled packaging with closure (tape, staples, glue, tuck-in flaps, etc.) fully visible.

## Appendix B - Detailed Requirements by Packaging Type

### Section I

#### Identification and Description of Safety Critical Component Parts

For all packaging design types tested and certified with the symbol of the approval holder, a robust description must be provided that allows for identification of all safety critical component parts.

Safety critical component parts are those component parts that impact the performance of the packaging when subjected to the applicable tests in Part 178.

The information required by paragraphs 1) and 2) below may be maintained in a supplementary document, which is not considered to be a part of the test report. If this information is maintained in a supplementary document, it must be made available to a government official upon request; however, it does not need to be provided when the test report is provided to other entities.

The specifications and description of all safety critical component parts of the tested and certified design type must include, but are not limited, to the following:

1) Name of each safety critical component part fabricator.

*Note: For safety critical component parts sourced from suppliers that are not the fabricator, the supplier's name must be provided if the supplier will not disclose the fabricator.*

2) Part number or other method of identification (e.g., model number, part name, SKU number) to readily identify each safety critical component part.

3) The minimum specification information for each safety critical component part must include:

- a) Materials of Construction
- b) External Dimensions
- c) Tare Mass

## **Appendix B - Detailed Requirements by Packaging Type**

d) Thickness

e) Unique feature(s)

4) Photographs or drawings of each safety critical component part for illustration.

### **Appendix B, Section II -**

#### **Specifications and Descriptions for the Packaging Design Type**

In addition to the information required in Appendix B, Section I for design critical component parts, each packaging design type tested and certified with the symbol of the approval holder must include a description of the packaging design type including methods of manufacture (see § 178.601(1)(2)(vi), § 178.801(1)(2)(vi), and § 178.955(i)(2)(vi), as appropriate) in the test report.

Additionally, the following design-specific information may be included in the test report; however, when indicated as required, the information must be included in the test report:

#### **Material of Construction:**

The information below is suggested, except when indicated as being required, for documenting the material of construction for outer packagings, inner packagings, receptacles, and critical component parts in the test report.

#### **Corrugated / Fiberboard:**

- Mullen Burst or ECT Rating
- Flute Style\*
- Basis Weight (Specification or measured)\*
- Fabricator or Company assigned identification\*\*

#### **Plastic:**

- Grade of Material (e.g., LDPE, HDPE, PP, PET)\*
- Pigment or Color
- Fabricator or Company assigned identification\*\*

## Appendix B - Detailed Requirements by Packaging Type

### Metal:

- Grade of Material (e.g., Cold Rolled, Stainless, Galvanized)\*
- Fabricator or Company assigned identification\*\*

### Glass:

- Type: Amber or Flint
- Fabricator or Company assigned identification\*\*

### Paper / Cardboard:

- Basis Weight\*
- Caliper / Thickness\*
- Fabricator or Company assigned identification\*\*

### Porcelain / Stoneware:

- Density
- Hardness
- Fabricator or Company assigned identification\*\*

\*Required information.

\*\*Required information in either the test report or the supplementary document (see Appendix B, Section I).

### Non-Bulk Packaging

- 1) **Drums, Jerricans, and Wooden Barrels** - Sections 178.504 - 178.511

<b>Container</b>
Style / Type / Shape of Container
Material of Construction*
Method of Construction*
Capacity*
Number and Size of Openings
External Dimensions*:
Diameter (if round)*
Height (Outside)*
Length (if not round) (Outside)*
Width (if not round) (Outside)*
Tare Weight*
Thickness of Heads and Sidewall*
Markings
Description of unique feature(s) of the safety critical component part(s)*

**Appendix B - Detailed Requirements by Packaging Type**

<b>Closures / Opening</b>
Style*
Material of Construction*
Thread Size and Type (if Threaded)
Gasket Material*
External Dimensions*:
Diameter*
Height*
Tare Weight*
Markings
Description of unique feature(s) of the safety critical component part(s) *

\*Required information.

2) **Boxes** - Sections 178.512 - 178.517

Style / Type
Material of Construction*
Dimensions*:
Length (ID or OD) *
Width (ID or OD) *
Height (ID or OD) *
Tare Weight*
Markings
Description of unique feature(s) of the safety critical component part(s) *

\*Required information.

3) **Bags** - Sections 178.518 - 178.521

Style / Type*
Material of Construction (inside to outside) *
Dimensions (Lay Flat)*:
Length*
Width*
Gusset (if Applicable) *
Tare Weight*
Thickness*
Description of unique feature(s) of the safety critical component part(s) *

\*Required information.

4) **Composite Packagings** - Sections 178.522 and 178.523

Describe and document the outer packaging and inner receptacle in accordance with Appendix A, Section II, Appendix B, Section I, and Appendix B, Section II. For



## Appendix B - Detailed Requirements by Packaging Type

example, a 6HA1 plastic receptacle within a protective steel drum must be described and documented as a plastic drum within a steel drum in accordance with Appendix A, Section II, Appendix B, Section I, and Appendix B, Section II.

### 5) Inner packagings

Describe and document inner packagings of non-bulk combination packagings in accordance with Appendix B, Section I, at a minimum. Additionally, describe and document UN standard certified inner packagings within non-bulk combination packagings in accordance with Appendix A, Section II and Appendix B, Section II.

### Intermediate Bulk Containers (IBCs)

**Metal, Rigid plastic, and Composite IBCs** - Sections 178.705 - 178.707

<b>Outer Packaging &amp; Receptacle</b>
Style / Type / Shape of Container
Material of Construction*
Method of Construction*
Capacity or Volume*
Number and Size of Openings
External Dimensions*:
Diameter (if round)*
Height*
Length (if not round)*
Width (if not round)*
Tare Weight*
Thickness*
Markings
Description of unique feature(s) of the safety critical component part(s) *
<b>Closure/Fittings/Service Equipment</b>
Style
Material of Construction*
Thread Size and Type (if Threaded)
Gasket Material*
External Dimensions*:
Diameter*
Height*

**Appendix B - Detailed Requirements by Packaging Type**

Tare Weight*
Markings
Description of unique feature(s) of the safety critical component part(s)*
<b>Pallet</b>
Material of Construction*
External Dimensions*
Tare Weight*
Description of unique feature(s) of the safety critical component part(s)*

\*Required information.

**Fiberboard and Wooden IBCs - Sections 178.708 and 178.709**

<b>Outer Packaging &amp; Receptacle</b>
Style / Type / Shape of Container
Material of Construction*
Method of Construction*
Capacity or Volume*
External Dimensions*:
Height*
Length*
Width*
Tare Weight*
Thickness*
Markings
Description of unique feature(s) of the safety critical component part(s)*
<b>Closure/Fittings/Service Equipment</b>
Style
Material of Construction*
Thread Size and Type (if Threaded)
Gasket Material*
External Dimensions*:
Diameter*
Height*
Tare Weight*
Markings
Description of unique feature(s) of the safety critical component part(s)*
<b>Pallet</b>
Material of Construction*
External Dimensions*

**Appendix B - Detailed Requirements by Packaging Type**

Tare Weight*
Description of unique feature(s) of the safety critical component part(s) *

\*Required information.

**Flexible IBCs - Section 178.710**

<b>Body:</b>
Style / Type
Material of Construction including coating and Fabric Weight*
Capacity or Volume*
Overall Dimensions (Length / Width / Height) *
Tare Weight*
Safe Working Load
Description of unique feature(s) of the safety critical component part(s) *
<b>Fill &amp; Discharge Spouts</b>
Style
Material of Construction*
Dimensions (Diameter / Height or Length) *
Description of unique feature(s) of the safety critical component part(s) *
<b>Lifting Loops</b>
Style
Material of Construction*
External Dimensions*
Description of unique feature(s) of the safety critical component part(s) *
<b>Liner</b>
Style
Material of Construction*
External Dimensions*
Thickness*
Description of unique feature(s) of the safety critical component part(s) *

\*Required information.

## **Appendix B - Detailed Requirements by Packaging Type**

### **Large Packaging - Sections 178.920 - 178.940**

Describe and document the outer packaging of a Large Packaging based on the IBC provisions in Appendix A, Section II, Appendix B, Section I, and Appendix B, Section II for metal, rigid plastic, fiberboard, flexible and wooden IBCs as listed above.

Describe and document inner packagings within Large Packagings in accordance with Appendix B, Section I, at a minimum. Additionally, describe and document UN standard certified inner packagings within Large Packagings in accordance with Appendix A, Section II and Appendix B, Section II.

**Appendix C - Example Annual Activity Report Spreadsheet**

Activity report spreadsheets must follow the format below:

Reporting Period (e.g., from October 1, 2010 through September 30, 2011):

Symbol Issued	Certification Agency Symbol	Name of the Approval Agency	Street Address of the Approval Agency	City of the Approval Agency	State of the Approval Agency	Zip code of the Approval Agency	Name of Party to Whom the Symbol is Issued	Street Address of Party to Whom the Symbol is Issued	City of Party to Whom the Symbol is Issued	State of Party to Whom the Symbol is Issued	Zip Code of Party to Whom the Symbol is Issued	Report Date	UN Code	Full Performance Certification	DQ	SP or CA Number (Alternative Packaging or Alternative Testing)
XX0001	+XX	Package Test Lab, The	123 East Street	New York	NY	12345	Chemical Blenders, LLC, The	981 West Street	East Harbortown	IN	54321	1/01/2001	4G	1A1/Y1.2/100/10/USA+XX0001	X	CA2009010101
None	+XX	Package Test Lab, The	123 East Street	New York	NY	12345	Smith Manufacturing Inc.	567 North Street	Milwaukee	WI	54321	1/10/2001		None (If a previously certified packaging fails retesting and the cause of the failure cannot be resolved)		SP15300

Notes: The first row denotes a tested and certified packaging (i.e., the packaging passes all tests and is certified).

The second row denotes a previously certified packaging that fails retesting and the cause of the failure cannot be resolved (see Paragraph 6.i.).

**Appendix D – Required Representative Certification Reports**

<b>Non-Bulk</b>	<b>Number of Representative Certification Reports to be Submitted</b>
<b>Drums</b>	
Metal	1
Plastic	1
Plywood	1
Fiber	1
<b>Jerricans</b>	
Metal	1
Plastic	1
<b>Boxes</b>	
Wood (All types)	1
Plastic	1
Metal	1
Fiberboard	1
<b>Bags</b>	
Plastic (All types)	1
Textile	1
Paper	1
<b>Composite Packagings</b>	
All types	1
Wooden Barrels	1
Infectious Substances	N/A

<b>Bulk</b>	<b>Number of Representative Certification Reports to be Submitted</b>
<b>IBCs</b>	
Metal	1
Plastic	1
Composite	1
Fiberboard	1
Wooden	1
Flexible	1
<b>Large Packagings</b>	
Metal	N/A
Plastic	N/A
Fiberboard	1
Wooden	N/A
Flexible	N/A