ISTA 7 Series Development Test Procedure

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For complete listing of Procedure Changes and Version Dates go to **www.ista.org**

Preface

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ISTA 7 Series tests are package development tests.

- Test elements may come from ISTA Series 1, 2 or 3 tests, and
- They may or may not evaluate the protection afforded packaged-products.

There are three sections: Overview, Testing and Report

- Overview provides the general knowledge required before going into the testing laboratory and
- Testing presents the specific instructions to do the testing in the laboratory and
- Report indicates what data shall be recorded to submit a test report to ISTA.

Two systems of weights and measures are presented in ISTA test procedures. They are the English system (Inch-Pound) and the international system (Metric). Inch-Pound units are shown first with Metric units in brackets, except in some tables where they are shown separately. In the case of temperatures, °C is shown first and °F is in brackets.

- Either system may be used as the unit of measure (standard units), but
- The standard units chosen shall be used consistently throughout the procedure.
- Units are converted to two significant figures and
- Not exact equivalents.

VERY IMPORTANT:

The entire document shall be read and understood before proceeding with a test.

OVERVIEW FOR PROCEDURE 7C

Test Procedure 7C is a development test for Reusable Intermediate Bulk Containers (RIBCs).

- It can be used for the development of RIBCs made of any material.
- It can be used to evaluate whether or not the container design can contain a specified load when subject to vibrations, shocks and other stresses normally encountered during handling and transportation.
- It is possible to perform cyclic tests by repeating a specific sequence of a portion of this test procedure.
- Only the container is considered.
- Some conditions of transit, such as moisture, pressure or unusual handling, may not be covered.
- This procedure is not applicable to hazardous materials/dangerous goods packaging testing.

Other ISTA Procedures may be appropriate for different conditions or to meet different objectives.

Refer to *Guidelines for Selecting and Using ISTA Procedures and Projects* for additional information.

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7C

OVERVIEW OF PROCEDURE 7C

Scope

Test Procedure 7C covers testing of RIBCs capable of holding a specific load when prepared for shipment. This test procedure confines its testing activities to the reusable container only and is not a product test.

Product Damage Tolerance and Package Degradation Allowance

Criteria should be considered specific for each application. The presence of damage that indicates the inability to reuse the container in a safe and damage free condition, such as:

- cracks or
- excessive axial deflections of the base or
- lateral deflections of the walls and/or
- hinge/latch failure.

Samples

Samples should be the untested RIBCs and actual product, but if one or both are not available, the substitutes shall be as identical as possible to actual items.

Number of samples required:
The test requires four samples (RIBCs) for the required tests and seven samples for all of the tests in this procedure.

Replicate Testing Recommended:
To permit an adequate determination of representative performance of the packaged-product, ISTA:

- Requires the procedure to be performed one time, but
- Recommends performing the procedure five or more times using new samples with each test.

NOTE:
Packages that have already been subjected to the rigors of transportation cannot be assumed to represent standard conditions. In order to insure testing in perfect condition, products and packages shipped to certified laboratories for testing must be:

- over-packaged for shipment to the laboratory

Test Sequence

The tests may be performed in any sequence or concurrently after completion of the required Atmospheric Preconditioning and, if performed, optional Atmospheric Conditioning.

Sequence #	Test Category	Test Type	For ISTA Certification
1	Atmospheric Preconditioning	Ambient Temperature and Humidity	Required
2	Atmospheric Conditioning	Controlled Temperature and Humidity	Optional
Optional	Compression	Machine	Required
Optional	Vibration	Random	Required
Optional	Shock	Drop	Required
Optional	Shock	Incline or Horizontal	Required

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EQUIPMENT REQUIRED FOR PROCEDURE 7C

Equipment Required Atmospheric Conditioning

Atmospheric Conditioning:

- Humidity recording apparatus complying with of the apparatus section of ASTM D 4332.
- Temperature recording apparatus complying with the apparatus section of ASTM D 4332.

Optional Atmospheric Conditioning

- Chamber and Control apparatus complying with the apparatus section of ASTM D 4332.

Equipment Required Compression

Apply and Release Compression Test:

- Fixed-Platen Compression Test System complying with the apparatus section of ASTM D 642.

Equipment Required Vibration

Random Vibration Test:

- Random Vibration Test System complying with the apparatus section of ASTM D 4728-95.

Equipment Required Shock

Rotational Edge Drop Test:

- Rotational Edge Drop Test System complying with the apparatus section of ASTM D 6179.

The following alternatives are acceptable for the equipment required for the Impact Test:

Type of Shock Test	Equipment	In compliance with the apparatus section of:
Incline Test	Incline impact tester (conbur)	ASTM D 880
Horizontal Test	Horizontal impact test system	ASTM D 4003

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