



Designation: E921 – 97 (Reapproved2010)

Standard Specification for Export Packaged Laboratory Apparatus¹

This standard is issued under the fixed designation E921; 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.

INTRODUCTION

This specification is proposed as a performance standard to be met for items that will be exported. The standard would apply only when requested by the buyer.

1. Scope

1.1 This specification covers the procedures for testing loaded shipping containers. Drop, vibration and compression tests are performed to measure the ability of the shipping container to protect the product from shock, vibration and compressive forces encountered during normal export handling and shipping conditions. This specification is not intended to supplant material specifications or existing preshipment test procedures. This specification is not intended for use with hazardous materials.

1.2 These procedures are suitable for all types of laboratory apparatus, including reusable and disposable macro and micro products.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 The following precautionary caveat pertains only to the test method portion, Section 4, of this specification: *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:²

[D642 Test Method for Determining Compressive Resistance](#)

¹ This specification is under the jurisdiction of ASTM Committee E41 on Laboratory Apparatus and is the direct responsibility of Subcommittee E41.01 on Apparatus.

Current edition approved May 15, 2010. Published May 2010. Originally approved in 1983. Last previous edition approved in 2003 as E921 – 97 (2003). DOI: 10.1520/E0921-97R10.

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.

[of Shipping Containers, Components, and Unit Loads](#)
[D685 Practice for Conditioning Paper and Paper Products for Testing \(Withdrawn 2010\)](#)³
[D999 Test Methods for Vibration Testing of Shipping Containers](#)
[D1083 Test Methods for Mechanical Handling of Unitized Loads and Large Shipping Cases and Crates \(Withdrawn 2001\)](#)³
[D3951 Practice for Commercial Packaging](#)
[D4169 Practice for Performance Testing of Shipping Containers and Systems](#)
[D5276 Test Method for Drop Test of Loaded Containers by Free Fall](#)

3. Requirements

3.1 Three individual shipping containers, or one unit consisting of two or more overpackaged individual units are required. Each specimen shall be run through the sequence of tests, in the order given.

3.2 Condition test specimens in accordance with Practice [D685](#). Standard conditions must be maintained throughout the test sequence.

3.3 The packaging shall comply with Practice [D3951](#) except cleanliness of laboratory apparatus shall be as required by the Product Standard, the Quality Assurance Standard, or as agreed upon between the manufacturer and the purchaser.

4. Procedure

4.1 Determine the test levels in accordance with Practice [D4169](#).

4.2 For items less than 100 lb, perform drop test in accordance with Test Method [D5276](#).

4.2.1 Determine the drop test levels of the specimen from the following:

³ The last approved version of this historical standard is referenced on www.astm.org.