



ISTA 6 Series
General
Simulation
Performance
Test
PROJECT*

ISTA, Distributing Confidence, Worldwide™

ISTA® 6-Series *Member Performance Tests* are protocols created by ISTA members to suit their own particular purposes and applications. This 6-SAMSClub test was developed by ISTA in cooperation with Sam's Club, and is designed as a General Simulation protocol. General Simulation tests

- Challenge the capability of the package and product to withstand transport hazards, but
- Utilize general simulation of actual transport hazards, and
- Do not necessarily comply with carrier packaging regulations.

When properly executed, ISTA procedures will provide tangible benefits of:

- Product to market time reduction
- Confidence in product launch
- Reduction in damage and product loss
- Balanced distribution costs
- Customer satisfaction contributing to increased market share

There are three sections to this procedure: Overview, Testing, and Reporting

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

Two systems of weights and measures are presented in ISTA test procedures: English system (Inch-Pound) or SI (Metric). Inch-Pound units are shown first followed by the Metric units in parentheses; there may be exceptions in some tables (when shown separately).

Familiarity with the following units and symbols used in this document is required:

For measuring	English units and symbols	Metric units and symbols
Weight	pounds (lb)	kilograms (kg) or grams (gm)
Force	pounds force (lbf)	newtons (N)
Distance	feet (ft) or inches (in)	meters (m) or millimeters (mm)
Velocity	inches per second (in/sec)	meters per second (m/sec) or millimeters per second (mm/sec)
Volume	cubic inches (in ³)	cubic centimeters (cm ³) or cubic meters (m ³)
Density	pounds per cubic inch (lb/in ³)	kilograms per cubic meter (kg/m ³)
Temperature	Fahrenheit (°F)	Celsius (°C)

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

VERY IMPORTANT:

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

* Notes Regarding ISTA "Projects" and "Procedures"

- ISTA® 6-SAMSClub is currently an ISTA "Project", first released in September 2010. New ISTA test protocols are given the designation "Project" during their implementation phase. After a minimum one-year period and required evaluation, a "Project" will either be adopted as an established "Procedure", revised and kept as a "Project" for another period of time, or be dropped. Therefore, a "Project" is potentially subject to greater and more frequent revision than a "Procedure".
- ISTA members may use either Procedures or Projects for package certification.
- Comments regarding this Project and its use are encouraged and welcome. Please contact ista@ista.org.

VERSION
DATE
September
2010
Initial Release

Last
TECHNICAL
Change:
SEPTEMBER
2010

Last
EDITORIAL
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JANUARY
2012

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

Project 6-SAMSClub is a general simulation test for packaged-products shipped through the Sam's Club distribution system to final destinations in the U.S. It was developed from an extensive survey, observation, and field measurement program of the actual Sam's Club system. The program involved personal visits to various Distribution Centers, overseas suppliers and ports, and U.S. Club stores. Ocean containers, trucks, and fork lifts were instrumented for acceleration and other data. Industry experts translated this information, observation, and data into the 6-SAMSClub Project laboratory tests specified here.

Users should be aware of other packaging requirements (configurations, materials, weight and height limits, etc.) for the Sam's Club system.

Project 6-SAMSClub is appropriate for four different types of packaged-products, designated Types A through D below, commonly shipped through the Sam's distribution system to U.S. destinations. For Type A non-perishable products which are initially shipped as palletized loads, there are two sub-types based on the club (store) quantity. For Floor-Loaded products there are two types based on size and weight. See Definitions below for an explanation of club (store) quantity, large/small floor-loaded products, and other terms used in this document.

Packaged-Product Types

- **Type A: Non-Perishable, initially shipped palletized** (on standard or custom pallet)
 - Club (store) quantity is the unchanged palletized load
 - Club (store) quantity is *other* than the unchanged palletized load, including elongated and flat package-products
- **Types B and C: Non-Perishable, initially shipped floor-loaded**, including elongated and flat packaged-products
 - **Type B:** Large floor-loaded packaged-products
 - **Type C:** Small floor-loaded packaged-products
- **Type D: Perishable, initially shipped palletized**

Definitions

- **Perishable.** Typically products such as foods, beverages, fresh flowers, etc. which may be susceptible to deterioration or spoilage if not maintained at prescribed temperature, humidity, or other conditions.
- **Non-Perishable.** Typically products which are not harmed by extremes of temperature, humidity, etc.
- **Floor-Loaded.** Products which are initially shipped without being unitized or palletized, initially loaded directly into a transport vehicle or ocean container, where the club (store) quantity is a case or unit.
 - A floor-loaded packaged-product is considered Large if it
 - Weighs 50 lb (23 kg) or more or
 - The longest dimension is 24 in (610 mm) or greater and the next-longest dimension is 20 in (510 mm) or greater and the shortest dimension is 20 in (510 mm) or greater or
 - Any of the length, width, or height dimensions are 30 in (760 mm) or greater
 - A floor-loaded packaged-product is considered Small if it does not meet the definition of Large above.
- **Club (Store) Quantity**
 - The club or store quantity is the number of packaged-products typically shipped at any one time to an individual club or store to replenish its stock.
 - A group of packaged-products may be shipped from the manufacturer or producer in a unitized load, but the load may subsequently be disassembled into smaller groups or individual packaged-products for shipment to the clubs or stores to meet their replenishment requirements.
- **Domestic Shipment**, where the initial point of origin is within the U.S.
- **International Shipment**, where the initial point of origin is outside the U.S.
- **Unitized Load.** Multiple articles or packages bound together (with straps, shrink- or stretch-film, etc.) for handling and transportation as one unit.
- **Standard and Custom Pallet.** A standard pallet is a design which is in wide industry use, with published specifications, quality, and applications, used within those specifications and in a typical application. Standard pallets have information, provided by their manufacturers or distributors, available on the internet. A custom pallet is one designed for a specific product or narrow range of products, and with its design and performance characteristics not widely known or published.
- **Elongated Packaged-Product**
 - A packaged-product where the longest dimension is 36 in (910 mm) or greater and
 - both of the other dimensions are each 20 percent or less of the longest dimension
- **Flat Packaged-Product**
 - A packaged-product where the shortest dimension is 8 in (200 mm) or less and
 - the next longest dimension is four (4) or more times larger than the shortest dimension, and
 - the volume is 800 in³ (13,000 cm³) or greater

NOTE: If a packaged-product is both Elongated and Flat in accordance with the above definitions, it should be tested as Elongated.

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- Slip Sheet
 - A flat sheet of material with tabs on one or more sides, used as a base upon which to assemble, store, handle and transport goods and materials as a unit load.

General

- Testing can be used to evaluate the protective performance of a packaged-product related to vibrations, shocks and other stresses normally encountered during handling and transportation in the Sam's Club distribution system.
- Tests and levels are generally based on the survey, observation, and measurement program described above.
- The package and product are considered together and not separately.
- Some conditions of transit, such as moisture, pressure, or unusual handling may not be covered.

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

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

NOTE:

Hazardous Material (Dangerous Goods) packaging that passes this test procedure may not meet international, national or other regulatory requirements for the transport of Hazardous Materials (Dangerous Goods). This test is not a substitute for United Nations and/or any other required test standards for the transport of Hazardous Materials (Dangerous Goods), but may be used as an additional test in conjunction with them.

SAMS CLUB

Scope

Project 6-SAMSClub covers the testing of packaged-products prepared for shipment via the Sam's distribution system to U.S. destinations. In this system, packaged-products are typically shipped from the manufacturer or producer through one or more Distribution Centers (DCs), and then to the clubs (stores). Various types of handling may occur in the DCs, including manual, fork lift, clamp truck, etc. The original shipment configuration may be altered at a DC to fit the needs of the system and the requirements of the clubs (stores). Final shipment to the club (store) is typically on a pallet.

Product Damage Tolerance and Package Degradation Allowance

The shipper, manufacturer, Sam's Club buyer, and/or other stakeholders shall determine the following prior to testing, to permit the determination of pass or fail at the conclusion of the tests:

- what constitutes damage to the product and
- what damage tolerance level is allowable, if any, and
- the correct methodology to determine product condition at the conclusion of the test and
- the acceptable package condition at the conclusion of the test.

For additional information on these determinations refer to *Guidelines for Selecting and Using ISTA Test Procedures and Projects*.

Additional Information, IMPORTANT

The shipper, manufacturer, Sam's Club buyer and/or other stakeholders shall also provide information regarding the club (store) quantity, pallet type, initial shipment configuration, approved container loading diagram, details of shipment and configurations within the distribution system, typical atmospheric conditions, etc. as required to determine proper testing parameters. Many of the TEST BLOCKS require such information for proper implementation; see the individual TEST BLOCKS for specific details.

Samples

Both products and packages should be as close as possible to actual production items. Pre-production prototypes such as hand-made samples, CAD-generated one-of-a-kind or short run samples, etc. are usually not sufficiently representative of production items to yield meaningful test results. It may be appropriate to conduct preliminary tests of a product and package early in the development cycle, but final official testing should be performed with actual production items.

One sample is required for this test procedure. If the sample is a palletized or unitized load, it may be required to select individual case or unit samples from that load for further testing as directed.

When multiple identical specimens are tested, all specimens must pass all tests.

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

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

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

NOTE:

In order to ensure testing in perfect condition, products and packages shipped to an ISTA Certified Laboratory for testing shall be:

- Adequately over-packaged for shipment or
- Repackaged in new packaging at the laboratory.

NOTE:

Any pallet or skid used in this procedure should be of a type and condition which is typical of what is in actual field use for the packaged-product being tested.

NOTE:

It is important to thoroughly document the configuration, materials, and construction of the tested product and package. Significant variations in performance can sometimes be caused by seemingly insignificant differences. Photo documentation is strongly recommended to supplement detailed written descriptions.

Basis Weight

Basis Weights of Corrugated Board

When the outer package is a corrugated box, it is strongly recommended that the basis weights of the papers/paperboards used to make the box be determined and documented. Basis weights are likely to be better indicators of box construction and equivalence for comparison purposes than ECT or Burst performance ratings.

Refer to *Guidelines for Selecting and Using ISTA Procedures and Projects* for additional information on documentation and basis weight determination.