



**CBU Package Test Lab is  
offering first time  
customers 10% OFF ALL ISTA  
package tests until December  
31, 2012.**

**Sign-up now & Save Big!**

Contact Larry Rutledge at (901) 827-6830 or  
[lrutledg@cbu.edu](mailto:lrutledg@cbu.edu) to activate your 10% savings.

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Become a member of the Healthcare Packaging Consortium at CBU  
and save even more!

For more information, visit the consortium website at:

<http://www.cbu.edu/healthcarepackgingconsortium>

or contact Pong Malasri at (901) 321-3419 or [pong@cbu.edu](mailto:pong@cbu.edu)

**ISTA Packaging Test Price List**  
(August 2011)

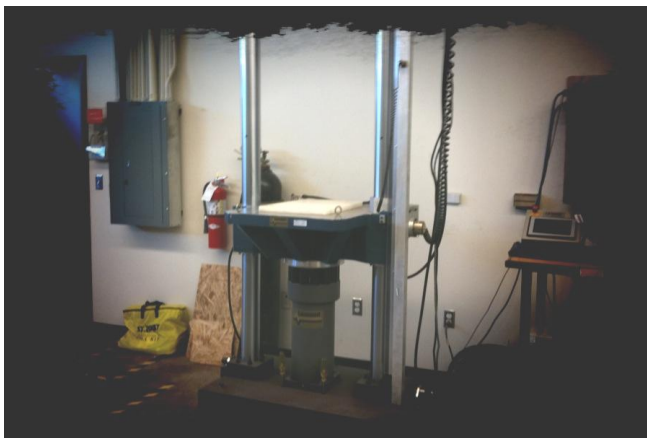
<b>Procedure</b>	<b>Description</b>	<b>Price</b>
Procedure 1A	<ul style="list-style-type: none"> <li>• Non-simulation integrity test</li> <li>• Packaged-products weighing 150 lbs or less</li> <li>• Fixed displacement vibration and shocking testing</li> </ul>	\$500 for first run + \$25 per additional run  Report included
Procedure 1C	<ul style="list-style-type: none"> <li>• Non-simulation integrity test</li> <li>• Packaged-products weighing 150 lbs or less</li> <li>• Random vibration, compression and shock testing</li> </ul>	\$500 for first run + \$25 per additional run  Report included
Procedure 2D	<ul style="list-style-type: none"> <li>• Partial simulation performance test</li> <li>• Packaged-products considered flat</li> <li>• Fixed displacement vibration and shock testing</li> </ul>	\$500 for first run + \$25 per additional run  Report included
Procedure 2E	<ul style="list-style-type: none"> <li>• Partial simulation performance test</li> <li>• Packaged-products considered elongated</li> <li>• Fixed displacement vibration and shock testing</li> </ul>	\$500 for first run + \$25 per additional run  Report included
Procedure 3A	<ul style="list-style-type: none"> <li>• General simulation performance test</li> <li>• Packaged-products for parcel delivery system shipments 150 lb or less (standard, small, flat or elongated)</li> <li>• Atmospheric pre-conditioning, random vibration with and without top load, and shock testing</li> </ul>	\$750 for first run + \$150 per additional run  Report included
Procedure 6- FEDEX-A	<ul style="list-style-type: none"> <li>• Performance test</li> <li>• FedEx procedures for testing packaged products weighing up to 150 lbs</li> </ul>	\$500 for first run + \$25 per additional run  Report included

Notes:

- CBU Packaging Lab is certified by ISTA to perform the above procedures as shown on [ISTA website](#).
- Corrective package re-testing will be standard rate less 30%. + regular \$25 per additional run. Healthcare Packaging Consortium member discounts will still apply for re-testing services.
- If recommendations are needed, add \$100/hr to the price above
- R&D is available at \$200/hr with a minimum of 5 hours
- For other tests not listed above, call Larry Rutledge at (901) 827-6830 or email him at [lrutledg@cbu.edu](mailto:lrutledg@cbu.edu)
- More info about CBU Packaging can be found at [www.cbu.edu/engineering/packaging](http://www.cbu.edu/engineering/packaging)

## Some Packaging Related Equipment at Christian Brothers University

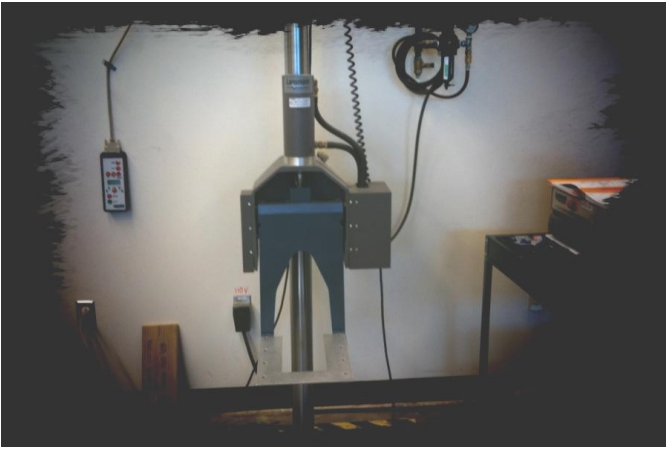
The Kongsberg XL22 Sample Table is a prototyping tool used to rapidly create physical samples of package designs using corrugated or plastic lined boards. It can also cut samples of complicated designs like a model ant, rocking chair, or anything that can be modeled using the ArtiosCAD software. Besides prototyping, the table can be used for small-scale production of cartons for computer and electronics use.



The Lansmont Shock Tester Model 65/81 is used to evaluate if a package and its contents are capable of withstanding shocks during the distribution process and to determine the shock fragility of a product. The system can handle large items up to 500 lb, with a footprint up to 25.6" x 32" and maximum acceleration of 600 g. A device at the steel base can generate both half sine and trapezoidal shock pulses. Also, the hydro-pneumatic brakes prevent secondary impacts as the shock table rebounds.

The Temperature & Humidity Chamber Model ZP-32 from CSZ Industrial is used to create and simulate various temperature environments encountered in distribution. It can be used to test and evaluate the thermal performance of insulated shipping containers under these environments, which is critical for perishable items, medicines, medical devices, biological/life science samples, and other chemicals. The glue joints of cardboard and corrugated box containers can be tested in the chamber. The chamber can also be used to test the brittleness of some plastics under extremely low temperatures, and for aging tests of materials and devices in other engineering fields.





The Lansmont PDT-56ED Drop Tester features an electric hoist capable of dropping packages up to 175 lbs (79 kg) from a height of 11 to 72 inches. The machine utilizes a high-velocity pneumatic cylinder and unique brake system for accurate flat drop testing. The handheld controller is microprocessor based, giving the user the ability to set drop heights, to move the hoist up and down, and to return to the set drop height.

The Lansmont's Model 1000 Vibration Test System is a servo-hydraulic machine that performs random vibration, field-to-lab simulations, resonance search and dwell, sine sweep, and repetitive tests. With a capacity of 75 lbs, it consists of a 25.8" x 25.8" cast aluminum table and an actuator with 2.5" of piston stroke. The machine comes with a computer-based TouchTest control, data acquisition, and data analysis system.



The Dimension 3D Printer from Stratasys, Inc., is a rapid prototyping machine. It can be used to print an ABS plastic model of an object created in a 3D modeling software package such as Pro/Engineer, greatly speeding up the design process of small containers from conceptual design to prototype. For example, we can design and produce a real salt-shaker within an hour. The maximum container dimensions are 8" x 8" x 10".



The Toshiba EC45N Injection Molding Machine can be used to mold plastic into various shapes for different applications, including packaging. It provides a high level of dimensional accuracy and part repeatability. Key features include high speed, high cycle molding; total machine system integration; five point clamping mechanism; less stress on the injection mechanism; automatic lubrication; wear resistant barrel; INJECTVISOR V21 numerical control system; absolute position sensing; and Six Sigma capabilities.



The Materials Tester Model H5KS from Hounsfield is capable of testing various packaging materials such as plastic and paper in tension, compression, shear, tear, flexural, and peel. It works with contacting and noncontacting Hounsfield extensometers. When connected to a PC with the QMAT software, statistical data analysis can also be performed. Load capacity is 5kN with a speed range from 0.001 to 1000 mm/min. Force measurement conforms to ASTM E4. Dimensions are 1140 mm (H) x 490 mm (W) x 450 mm (D).

The MTS 810 Material Test System is a completely integrated solution for obtaining information about the mechanical properties of materials or components. With a load capacity of 22 kips and the FlexTest SE Plus controller, the system can be used to perform tests such as fatigue life studies; crack propagation and fracture mechanics studies; tensile, compression, and bending tests; and other specific procedures like asphalt, soil, and geomechanics tests. Using the pictured compression fixture, the machine can perform compression tests on small packages.





The Fadal VMC-15 Vertical Machining Center is a 15 hp CNC machining center with 5-axis capability, maximum spindle speed of 7500 rpm, 20"x16"x16" work area, and 21 tool stations.

The Romi M-17 Combination Lathes are extremely versatile machines that can be used for machining many different types of parts. They offer the user superior productivity and precision. The interactive numerical control of the M-Series provides the ease of operation of an engine lathe with the productivity of a CNC lathe. These features are combined with high rates of metal removal, rapid positioning, and excellent machining precision. The M-17 equips with GE-Fanuc control Series 21i-T with Manual Guide software system, automatic lubrication system with line filter, 8 - station disk type automatic turret, electrically driven, etc.



Thermoformer is used to make semi-rigid packages for healthcare, medical devices and pharmaceuticals in the form of trays and blisters. It is estimated that more than 75% of thermoforming applications are dedicated to packaging. The CBU thermoformer is a Bel-O-Vac Vacuum model BV-1815 former refurbished and donated by Plastics Ingenuity, Madison Wisconsin. There are five separate top oven zones. It can accommodate any combinations of male, female and plug-assisted molds. Preferred materials for use are PET, PETG, PVC, ABS and HIPS. Maximum part dimensions are 15inch (length), 12inch (width), 2inch (depth). It has a production capacity of 8 to 12 parts/minute depending on the size of the design.