

MDI specializes in manufacturing quality corrugated plastic products that help businesses push, pull, store and transport products across the country. Whether you need a reusable container for closed loop distribution or a custom packaging application, MDI has a competitively priced solution that will keep your business moving forward.



Mullen Burst Test

Test Procedure

Testing was conducted in accordance with applicable sections of TAPPI T810, Bursting Strength of Corrugated and Solid Fiberboard. Ten (10) bursts were performed on each face. Upon testing PP Carton material, specimen exceeded Mullen Burst Tester's capabilities resulting in a ruptured diaphragm. APTL notified client and suggested TAPPI T803, Beach Puncture Test as an alternative. Client asked for Mullen Burst Testing to be suspended and not to perform Beach Puncture Test.

Test Explanation

The amount of pressure required to cause a corrugated board to rupture.

Equipment Used

Mullen Burst Tester

Results

Mullen Burst Test Results and Statistics (psi). The higher the value the more resistant the material is to damage.



Polypropylene	Polyethylene	Kraft Cardboard
300+ psi.	218.2 psi.	116.8 psi.

Edgewise Crush

Test Procedure

Testing was conducted in accordance with applicable sections of TAPPI T839, Edgewise Compressive Strength of Corrugated Fiberboard (Clamp Method).

Test Explanation

Force is applied perpendicular to the flutes and maximum force is recorded. (Compressive strength of small sample).

Equipment Used

L&W Crush Tester, Model S-3, with Emerson Clamp Fixture

Results

ECT Results and Statistics (lbs/inch). Higher values equate to better stacking strength.



Polypropylene	Polyethylene	Kraft Cardboard
86.9 lbs/inch	55.5 lbs/inch	37 lbs/inch

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Impact Resistance

Test Procedure

Testing was conducted in accordance with applicable sections of ASTM D5420, Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact). Test Geometry GE was used. Testing was conducted on both HDPE and Kraft materials after Refrigerated conditioning at 20°F for 24 hours.

Test Explanation

A weight is dropped from different heights to determine the energy needed to crack or break a sample.

Equipment Used

Gardner Heavy Duty Impact Tester

Results

Gardner Impact Testing Results (in.lbs). The higher the value the more resistant the material is to damage.



Polypropylene	Polyethylene	Kraft Cardboard
14 in.lbs	19.2 in.lbs	5.6 in.lbs

Water Absorptiveness

Test Procedure

Testing was conducted in accordance with applicable sections of TAPPI T441, Water Absorptiveness of Sized Paper, Paperboard and Corrugated Fiberboard (Cobb test).

Test Explanation

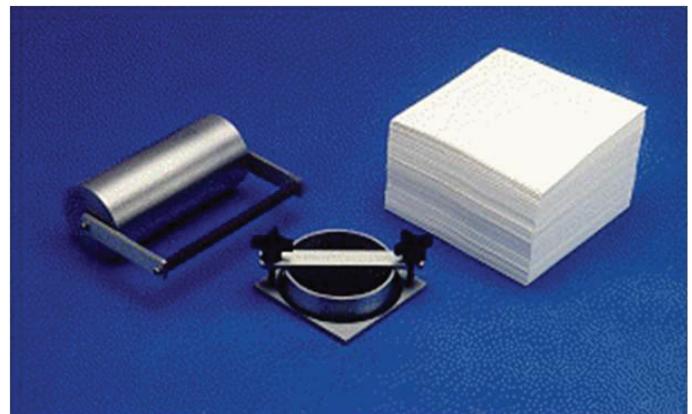
Measures the amount of water absorbed by material after a specified time of submersion.

Equipment Used

Gurley Precision Instruments Cobb Sizing Tester

Results

Absorptiveness (g/m²). Lower values mean the material is more water resistant.



Polypropylene	Polyethylene	Kraft Cardboard
7.7 g/m ²	1.6 g/m ²	75.8 g/m ²

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Box Compression

Test Procedure

Testing was conducted in accordance with applicable sections of TAPPI T804, Compression Test of Fiberboard Shipping Containers. Five (5) empty cartons were compressed in a top-to-bottom orientation until a 10% drop in load from peak was detected. Due to the condition of the corrugated samples after drop and vibration testing, five (5) untested cartons from each material set were compressed in a top-to-bottom orientation, and five (5) untested cartons from each material set were compressed in a side-to-side orientation.

Test Explanation

Empty boxes were compressed until failure began, max force was recorded.
Side load - empty boxes were compressed until failure began, max force was recorded.

Equipment Used

Lansmont Compression Test System

Results

Compression Test Results and Statistics - PP, HDPE, Kraft. Higher values mean higher strength box. Deflection is the distance a box compresses before failing.

	Polypropylene	Polyethylene	Kraft Cardboard
Vertical Flutes	980.8 lbs.	472.9 lbs.	529 lbs.
Deflection	0.682 in	0.495 in	0.485 in
Horizontal Flutes	841 lbs.	139.9 lbs.	162 lbs.
Deflection	1.553 in	0.306 in	0.342 in



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