

A photograph of a laboratory machine, possibly a compression or tensile tester. On the left side of the machine, there are four circular safety icons: a book, a person wearing safety glasses, a hand wearing a glove, and a hand holding a tool. In the foreground, there is a stack of white, circular, disc-like samples. A metal rod and a small yellow tool are also visible on the machine's surface. The background is slightly blurred, showing more of the laboratory environment.

## Materials Science Analytical Services

The Polymers Center laboratory has testing and analytical resources to assist with materials identification, new product development and troubleshooting. The Center has the capability to identify polymers and additives, determine flow properties, and establish the mechanical and thermal properties of polymers and compounds using calibrated instrumentation following ASTM and ISO standards. Further, only at The Center can customers compound, mold, and test prospective materials under one roof, greatly streamlining the time to market for their products.

We offer a wide variety of **mechanical testing and material characterization testing**, including:

- Material composition identification
- Mechanical properties determination
- Third-party verification of material properties
- Failure analysis
- Quality assurance testing
- Finished part performance evaluation



## Materials Testing

The Polymers Center's material testing lab functions as an integral part of the mission to support the polymers industry here in the Carolinas. Our customers are looking for answers to their materials question. Whether a DSC, FTIR, Melt Flow, Capillary Rheology or Izod Impact test is required, in each case The Polymers Center can help. We can also act as a disinterested third party when questions arise regarding the exact nature of a polymer sample or disputes arise between vendor and customer.



TEST DESCRIPTION	TEST METHOD	MIN. SPECIMENS	FORMS OF SAMPLE
Custom Testing	Discuss with Test Lab		
Ash Content	ASTM D5630	30g	Any
Density/Specific Gravity	ASTM D792	7g	Pellets/sample part
Flexural Test	ASTM 790	5g	ASTM bar
Gardner Impact Test	ASTM D5240	40	ASTM disc or flat sample parts
Shore Hardness	ASTM D2240	1 (2mm thickness min.)	Plaque, bar, sample part
HDT/DTUL	ASTM D648	3	ASTM .11-.52" min width
Izod Impact	ASTM D256	6	ASTM .49-.53" min thickness
Melt Flow Rate	ASTM D1238	1	Pellets, sample part
Capillary Rheology	ASTM D3835	100g	Pellets, runners
Melt Strength – Rheotens		1	Pellets, runners
Melting Point and Tg by DSC	ASTM D3418	1	Any
Moisture Content via Weight Loss		2	Pellets
Tensile Test	ASTM D638, D882, D412 ISO 527	5-7	Test bars
Vicat Softening Point	ASTM D1525	3	Test bars, flat sample part
Circulating Air Oven Aging	ASTM D5510, D3045	5	Sample part/test bar
Thermal Conductivity	ASTM D5930	100g	100 g Pellets
PvT	Isothermal & Isobar (ISO 17744)	100g	100 g Pellets
Sesotec Flake Scan	Sensor-Based Analysis of Plastic Flakes	5lbs	Min. 5 lbs. of Plastic Flakes Like PET, PP/PE-Flakes
FTIR		5mg 5-7g/run	Any

### Express Service

If time is of the essence, we can expedite some of the runs so that you can get results within 48 hours for an additional fee.

*Notes: Many tests are required by the ASTM standard to allow a conditioning time of 40 hours; therefore, we cannot offer express turnaround for these tests. Number of specimens required for testing is material dependent.*

### Volume Service

If you have a series of tests or repetitive samples that require frequent runs, we can develop a volume contract. Please call to discuss how we can better meet your needs.

Our test lab maintains working relationships with several outside laboratories to provide additional testing capabilities, including:

- NMR Spectroscopy
- GC/Mass Spectroscopy
- ICP/AES Compositional Analysis
- EDS/SEM Microscopy

Call The Polymers Center or visit our website to register for classes or to learn more:

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