



Materials Science Analytical Services

The Polymers Center laboratory has testing and analytical resources to assist with materials identification, new product development and trouble-shooting. 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, standardized ASTM tests. Further, only at The Center can customers compound, mold, and test prospective materials under one roof, greatly enhancing the time to market for their products.

We offer a wide variety of **mechanical and chemical analysis 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. Some of our customers are looking for answers to their materials questions, such as why one lot of resin runs differently from another. Other customers need flow information, and still others are interested in mechanical or thermal properties of their polymers. Whether a DSC, FTIR, Melt Flow, Capillary Rheometry 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	2	Open
Density/Specific Gravity	ASTM D792	5	Pellets. Sample Part
Flexural Test	ASTM 790	5	ASTM bar
Gardner Impact Test	ASTM D5240	20 Minimum	ASTM disk or Flat Sample Parts
Shore Hardness	ASTM D2240	5 Readings	Min. Thickness
HDT/DTUL	ASTM D648	3	ASTM bar
Izod Impact	ASTM D256	5	ASTM bar
Melt Flow Rate	ASTM D1238	1	Pellets Sample Part
Capillary Rheology	ASTM D3835	1	Pellets Runners
Melt Strength – Rheotens		1	Pellets Runners
Melting Point and Tg by DSC	ASTM D3418	1	Open
Moisture Content via Weight Loss		2	Pellets
Tensile Test	ASTM D638, D882, D412 ISO 527	5	Test Bars
Vicat Softening Point	ASTM D1525	3	Test Bars Flat Sample Part
Circulating Air Oven Aging	ASTM D5510, D3045	5	Sample Part
Thermal Conductivity	ASTM D5930	1	100 g Pellets
pVT	Isothermal & Isobar (ISO 17744)	1	100 g Pellets
Quality Control of Plastic Flakes	Sensor-Based Analysis of Plastic Flakes		Min. 5 lbs. of Plastic Flakes Like PET, PP/PE-Flakes
FTIR			Open

Express Service

Some tests, including melt flow, ash content or specific gravity, require more than 48 hours to run. If time is of the essence, we can expedite some of the runs so that you can get results within 48 hours.

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:

- Polymer IV
- 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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