

Phillips Plastics Corporation®

INTERFACE

An Ounce of Prevention ...



Phillips Plastics performs product and material testing at all phases, from concept through product realization

Since 1964, Phillips Plastics has partnered with customers to develop new and innovative products for all market segments. Here, we listen to our customers, who have increasingly asked us to be involved in the development process. To further meet customers' needs, we've been evolving our in-house analysis and testing capabilities.

For years, we've performed in-house analysis of designs to confirm proper design for manufacturing using Moldflow® and structural analysis via FEA analysis. On your behalf, we're now able to perform even more design support using our in-house testing capabilities.



Phillips Plastics Testing Types

While early collaboration with Phillips Plastics can help you achieve optimal savings of resources, costs and time, we're also available to perform a wide variety of standardized product tests on your behalf.

Mechanical Testing: Use of instrumented testing equipment measures the response of a material or product to imposed forces or displacements. From basic material analysis to product testing, mechanical testing aids in the characterization of mechanical properties to actuation forces and potential failure modes. Knowledge acquired during mechanical testing helps optimize the success of engineers during material selection, product design and determination of specifications.

Testing Expertise Gives You the Edge

When you work with us, you benefit from our product development philosophy, which centers on understanding the product requirements, creating manufacturable designs and verifying that your designs will meet the required specifications. You also gain access to our in-house analysis and testing capabilities, which allow us to perform design support activities in a streamlined manner, while helping you reduce overall time to market. As we help you identify and test key design specifications, you gain designs created to withstand the environments in which they are intended to be used.

Additional benefits of aligning with Phillips Plastics

Cost Savings: Performing material and product testing early on in the development phase can help ensure your designs and materials are appropriate prior to producing expensive prototypes or market-entry products.

Speed to Market: By identifying appropriate specifications and a verification plan, you can seamlessly move from design through verification and into product launch with Phillips Plastics more efficiently than when trying to manage these activities across multiple companies.

Risk Mitigation: No design is perfect at the concept phase. Our experience in manufacturing, design and product testing can help identify potential product risks, while verifying that the design is appropriate to reduce or eliminate risks.

Failure Analysis: Even if we don't participate in creating the product design, our testing and analysis capabilities make it possible for us to analyze field failures and determine such issues as material degradation, crack formation, chemical or environmental attack, and improper loading.

Environmental Weathering:

Weathering chambers impose thermal and hygroscopic stresses on materials to simulate the effects of temperature and humidity extremes, as well as the often more harsh effects of cyclic conditions. Simulated environmental testing allows accelerated evaluation of the effects of environmental stresses.

Chemical Testing: The chemistry and structure of plastics define the material performance and are a function of material selection, supplied raw material, processing conditions and stresses imposed on the product. The ability to monitor material chemistry and morphology is a necessary and valuable capability to help ensure quality throughout the life of the product. Chemical testing types include:

Fourier Transform Infrared Spectroscopy (FTIR) identifies polymer chemistry to verify proper material usage. It also allows observation of changes in material chemistry that is often an effect of processing or aging of polymers.

Differential Scanning Calorimetry (DSC) measures the softening and melt temperatures of polymers. Proper utilization of DSC further allows processing parameters to be understood and often allows observation of aging and weathering effects.

Thermogravimetric Analysis

(TGA) measures the decomposition of a material as it is heated. The sensitivity of this technique allows evaluation of the thermal-stability characterization of even minor material constituents, such as plasticizers or flexibilizers that are crucial to long-term material performance. TGA also enables highly accurate determination of relative-material ratios in material blends, such as the ratio of polycarbonate to ABS and the amount of inorganic filler.

Microscopy: Optical and electron microscopy methods are used to observe microscopic material features that are crucial to the aesthetics and the performance of a product. Microscopy is also an invaluable tool in the failure analysis process to aid in determination of the initiation point and the mode of failure.

Custom Testing: In addition to offering standardized tests, we can custom-design and build fixtures and equipment required to test and refine your unique program. Some examples of custom testing designed to support projects in the past include a drop impact force visualizer test stand, ballistic testing and drug injection delivery tests.



Partner with Phillips Plastics

Phillips Plastics draws upon its rich manufacturing history and product development expertise to help ensure the success of your program. For your benefit, we continue to improve our capabilities. As a result, you receive single-source support of your product development initiatives, with full and expanded testing services.

