

Laboratories

Research at Milliken

Analytical Chemistry

Focused on improvements in experimental design, chemometrics, and the creation of new measurement tools to provide better chemical information, the Analytical Chemistry Lab's efforts have applications in competitive product analysis, intellectual property protection, and problem-solving for both manufacturing and our customers.

The Analytical Chemistry Lab at Milliken obtains, processes, and communicates critically important information about the composition and structure of the materials being investigated. It examines the properties that define what matter is, and in what quantity it exists.

Qualitative and quantitative chemical analysis of materials are a specialized focus. In addition to standard methods, we offer customized solutions to support product development, new applications and evaluation of competitive products.

The lab facilitates analytical method development for new products, and the optimization of existing methods to improve data quality and reduce analysis costs. Evaluation, selection and implementation of measurement technologies for on-line analysis of critical process parameters is another of the crucial functions provided.

Physical Testing

Milliken's Physical Testing Laboratory provides information on the physical properties of textile materials, with most of the evaluations following standard procedures, e.g. ASTM, AATCC standards.

The accuracy and reproducibility of data obtained is crucial to the process of scientific investigation, exploration, and innovation. The laboratory is meticulously maintains a conditioned area at 65% RH and 70°F for following procedures that require testing at "standard conditions."



Critically-important services offered by Physical Testing include:

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| Abrasion Testing and Special Testing | Strength Test |
| CFR 1610 and other flammability tests | Thermal Analysis |
| Colorfastness (other than light exposure) | Wash and Wear Performance |
| Construction Test | Weathering |
| Light Exposure | Water Effects |
| Low Stress Evaluation (Kawabata) | |

Milliken™

Pyro Analytical Testing

Critical testing services include:

- TPP (Thermal Protective Performance)
- MCC (Microscale Combustion Calorimetry)
- LOI (Limiting Oxygen Index)
- DSC-TGA (Differential Scanning Calorimetry-Thermo Gravimetric Analysis)
- Vertical & Horizontal Flammability Testing

Every combustion event is comprised of many variables and effects. Milliken's suite of analytical and physical tests enables us to identify, understand and predict these variables — a critical arsenal of information that leads to innovative efforts to resist or retard the destructive power of fire.

Milliken operates a Pyro Analytical Center, a certified burn lab for 16 CFR 1633 mattress burn testing. Each of tests analyzes specific characteristics of the combustion cycle or the physical and thermal effects to articles during the burning process.

Prototype Machine Shop

Our materials scientists and engineers search for knowledge, explore potentials, and propose innovations. But unless a product can be manufactured for widespread use, its value is limited. That's why with the establishment of Milliken's research group in 1945 we also started our first machine shop. Today, Milliken's Prototype Machine Shop operates on the corporate headquarters campus in Spartanburg, SC.

Our capabilities include:

3D Profiling

Using programming through CAD/CAM software we are able to produce complex concave and convex milling in 3D.

Computer Numeric Control (CNC)

Three and four axis computer numerical control lathes and milling machines capable of multiple operations and procedures using computer aided manufacturing software or manual inputs from the craftsman.

Micro-Drilling

Drilling small holes down to 0.004 (four thousandths), or the size of a human hair.

Micro-Machining

Micro-machining small slots down to 0.002 (two thousandths) and milling procedures within tight tolerances.

Welding / Sheet Metal / Fabrication

Complete sheet metal and welding capabilities.

