



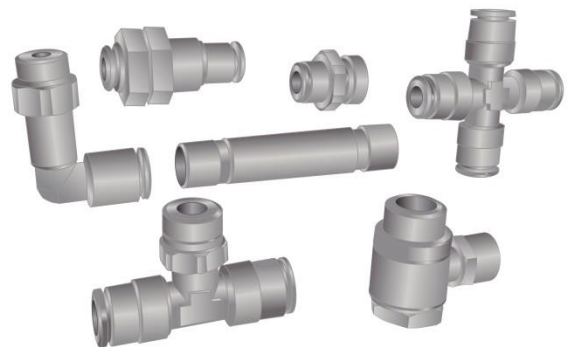
Our plastics and polymeric materials experts have experience with thermoplastic and thermoset materials. With extensive experience in the properties, processing, and applications of plastics and polymeric materials, our scientists and engineers provide technical expertise for failure analysis, intellectual property disputes, and product reliability and compliance. We have experience in the applications and failure of components, fibers, membranes, sealants, gaskets, adhesives, coatings, pipes and tubing, and composite structures. Our experiences span the entire lifecycle of the material, from the polymerization and forming process, to application, failure and disposal / recycling of the material.

Our investigations include materials characterization to identify and classify the chemical composition of the plastics or polymeric materials. We also perform mechanical, flammability, and environmental evaluations, and testing if required, to confirm the proper selection of the material for the application.

The team at Professional Analysis and Consulting also includes experts in mechanical engineering and electrical engineering to support our analysis of the failure mechanisms through critical assessment of the mechanical and electrical properties of the plastic and polymeric materials. Also, our certified fire investigation experts provide insights into the flammability characteristics of the materials.

Services

- Plastic and polymer identification and characterization
- Plastic component failure analysis
- Mechanical testing of plastics and polymers
- Electrical testing
- Weathering and aging
- Flammability analysis
- Product abuse and misuse
- Transparent plastics
- Plastic processing analysis
- Paints and polymeric coating
- Adhesives
- Gaskets and sealant materials



Practice Area Leaders

Plastics and Polymeric Materials

Michael G. Koehler, Ph.D. – Principal Scientist, Chemistry



Dr. Koehler performs investigations and failure analyses from a chemistry and materials science perspective. His experience crosses a broad range of polymers and plastics including plastic components, fibers, fabrics, coatings, adhesives, elastomers, filtration media, membranes, and plastic films / wraps. Dr. Koehler's technical expertise involves the complete cradle-to-grave life cycle of plastics and polymeric materials including the monomers, polymerization, plastic / polymer processing, service life, failure analysis, and disposal / recycle. His application experience includes polymers and plastics used in aerospace and transportation vehicles, commercial and home appliances, apparel and fabrics, paints and coatings, pipes and tubing, construction adhesives, and medical products.

Timothy M. Hicks, P.E. – Principal Engineer, Mechanical



Mr. Hicks performs engineering investigations and failure analysis of polymers from a mechanical engineering perspective. His projects have involved design analysis, product liability, intellectual property, manufacturing, accident investigation and reconstruction, fire cause and origin, testing, and project management. His vehicle experience includes commercial vehicles, automobiles, RVs, motorcycles, buses, railroad, agricultural, and construction equipment. He has also had non-vehicle related projects involving medical, athletic and wheelchair accessibility equipment, forklifts, elevators, wind energy systems, tires, bicycles, plumbing, consumer products, lawn equipment, plastics and polymers, and other mechanical systems.

Roch J. Shipley, Ph.D., FASM, P.E. – Principal Engineer, Materials/Metallurgical



Dr. Shipley performs engineering investigations and failure analysis from a materials engineering perspective. His evaluations involve design, manufacturing, materials, and operational factors. He specializes in complex issues involving multiple disciplines and/or accident reconstruction. He has experience with both ferrous and non-ferrous alloys, including aluminum, titanium, and nickel-base superalloys. Dr. Shipley is licensed by examination as a Professional Engineer and has testified in both State and Federal Courts.