Chemical analysis

Identify unknown materials; determine a sample's structure, compound, phase, or morphology

Raman microscopy

The Renishaw Invia allows chemical identification of small volumes of many organic and inorganic compounds (and a few elements) and can be applied with minimal specimen preparation to any liquid or solid specimen that would be compatible with a conventional reflection optical microscope.

X-ray diffraction

The **Rigaku SmartLab** is capable of a variety of different analyses from identification of powder materials to analysis of thin films. Phase identification of bulk samples with irregular surfaces. Thin film thickness determinations, crystallographic and in-plane orientation. Various sample stages allow stress analysis, X-Y mapping, and high temperature scans in air, vacuum or nitrogen up to 1200C.

Micro and surface analysis

Obtain images of your sample's surface, and analyze its composition at the nanoscale

The Tescan Mira3 Scanning Electron Microscopy is used for imaging and analyzing the microstructures of materials. The Mira SEM can image structures less than 10 nm in size and can work at low beam voltages meaning materials that can be damaged by higher voltages typically used in SEMs can be imaged without destroying them. The Mira is equipped with Energy-dispersive spectroscopy (EDS) is a small probe analytical technique that can identify elements in a sample down to the submicron scale.

Scanning Electron Microscopy (SEM) and Elemental Analysis by Energy Dispersive Spectroscopy (EDS)

Physical properties analysis

Measure magnetic, electronic transport, and thermal properties.
Determine the viscosity or shear strength of a material

Quantum Design Physical Property Measurement System is available for magnetic moment vs. field (M vs. H) measurements at room temperature using a vibrating sample magnetometer (VSM). The instrument is also capable of performing a variety of magnetic, electronic transport, and thermal transport measurements under a wide range of temperatures and magnetic fields.

Physical Property Measurement System

The **TA Instruments DHR3** rheometer measures how a liquid, suspension or slurry flows in response to applied forces. A rheometer can also determine viscoelastic properties, cure kinetics, fluid recovery, yield stress, and transition temperatures. The rheometer offers several geometries to confine the material: cone and plate; parallel plate; and for low viscosity fluids, concentric cylinders. Low viscosities (water) to higher viscosities (soft rubbers, foams, polymers in the melt) over temperatures from -50 C to 500 C are accessible. The viscous response during UV curing can also be determined.

Rheometry