



DEVCOM
ARMAMENTS
CENTER

CHEMISTRY LABORATORY

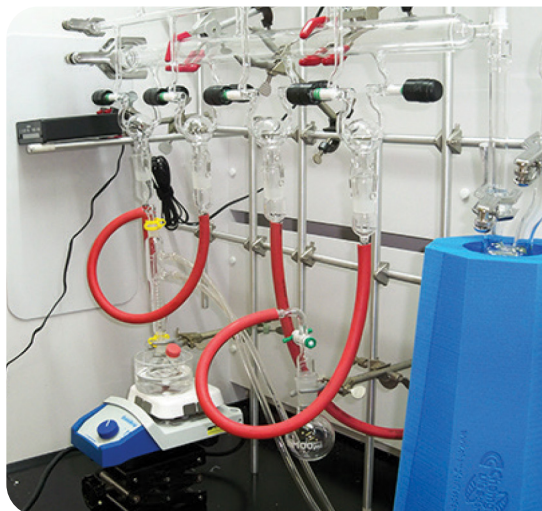
LABORATORY INFORMATION FACT SHEET

CONTACT US:

Technology Transfer Office

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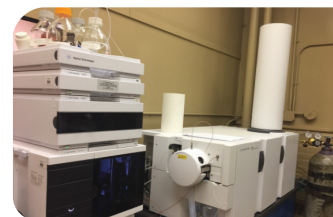
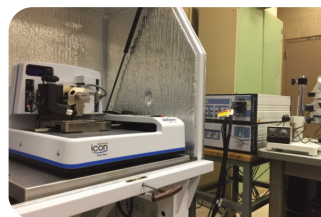


The Chemistry Laboratory within DEVCOM's Benét Laboratories has extensive experience in new materials design and development, basic and applied biotechnology, and analytical abilities to support existing industrial processes, new process development, and molecular level materials failure analysis.

TECHNOLOGY/FACILITY DESCRIPTION:

The laboratory's research bridges inorganic and organic synthesis, synthetic biology, analytical methods development, and applied physical

chemistry and biochemistry. Research efforts include the synthesis and characterization of novel nanomaterials, bioinspired and biomimetic chemistry, generation and characterization of biomaterials for additive manufacturing and industrial applications, development of new coatings for the prevention of corrosion and wear, polymer and composite synthesis, and electrochemical deposition and synthesis. The laboratory also provides molecular level failure analysis for a range of materials from alloys and composites to polymers, grease, and cleaning solutions. Additionally, the laboratory is actively developing new analytical techniques and modern high-throughput analysis methodology for basic research, applied research, and industrial process monitoring.



EQUIPMENT AND EXPERTISE AVAILABLE:

- Elemental Analysis: Mass Spectrometry (DI/LCICP-MS), Optical Spectroscopy (Arc-OES, AA, TC/TOC, Mapping-XRF)
- Molecular Analysis: Mass Spectrometry (LCqTOF-MS, DI/HS/SPME-GC-El/CI-MS, MALDITOF-MS), Optical Spectroscopy (FTIR with Surface and In Situ Analysis, Solid UV/Vis/NIR with Variable Angle and Integrating Sphere, Solution UV/VIS, Fluorescence, UV/Vis, Fluorescence/Luminescence Plate Reader, Raman, XRD), Magnetic Resonance (EPR with Electrochemistry, Multinuclear NMR)
- Thin Film and Surface Analysis: Microscopy (SPM/AFM/Nanomechanics/Electrical Analysis, Hyperspectral Imaging, Multispectral Imaging, Fluorescence, Darkfield, Brightfield),

- Property Analysis (SPR, QCM, Contact Angle, Tensiometer, L-B Trough)
- Thermal Analysis: STA, DTA, TGA, DSC, Dilatometer, DMA, Thermal Conductivity
- Industrial Process Analysis: Autotitrators, IC, Liquid Handlers, Weathering Tester, Microwave Digester, Refractometer, Viscometer
- Mobile Analysis: XRF, LIBS, Raman, FTIR, Colorimeter, Multispectral Cameras
- Electrochemical Analysis and Synthesis: Potentiostats, Galvanostats, High Voltage/Current Boosters, Rectifiers, RDE, RCE, eQCM, Electrochemical Synthesizer, Spectroelectrochemistry (IR, UV/Vis, EPR), Scanning Electrochemistry (SCM, SCCM)
- Chemical and Materials Synthesis:

- Microwave Synthesizer, Glove Box, Atmospheric CVD, Schlenck Line, Rotary Evaporators, Spin Coater, Spray Coater, Sonicators (Probe/Bath), Furnaces, Presses, 2D/3D Materials printers (Piezo, Extrusion, Filament, SLA, SLS), Cutters (Laser, Blade), Particle Analyzers, Photopatterning Projector, Plasma Oxidizer, Ozone Generator, Ball Mill, Microtome
- Synthetic Biology: Thermocyclers, RT-PCR, Incubators (Bacterial and Mammalian), Autoclave, Centrifuges, Electrophoresis, Electroporator, Gel Imagers, Purification Systems, Automated Counters (Cell/Colony), Shakers, BSC, Lyophilizer, High-Throughput Screening (96/384 Format), Osmometer