

Chemistry Technology

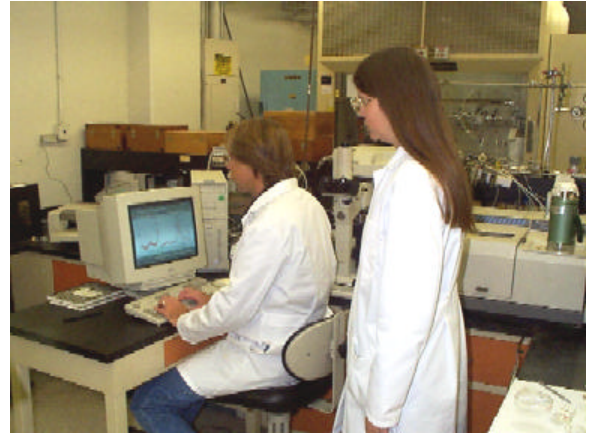
Service and Facilities

- Propulsion & Spacecraft Systems Support
 - Gel Propellant Development
 - Liquid Propellant Analysis
 - Azide Propellant Analysis
 - Propellant Material Compatibility and Rheology Testing
 - Failure/Contamination Analysis on Spacecraft and Propulsion Systems Hardware
 - Solar Cell Analysis
 - Thermal Properties Characterization (CTE, Tg, etc.)
- Analytical Chemistry & Environmental Analysis
 - Failure/Contamination Analysis on Electronics
 - Hazardous Materials Analysis
 - Analysis of Wastewater
 - Evaluation of Methods for Aqueous and Atmospheric Discharge Monitoring
 - Launch Vehicle Exhaust and Environmental Assessment
 - Assessment and Development of Chem/Bio Detection Methods
 - Polymers and Elastomers Analysis
 - Chemical Research and Chemical Consulting
- Laser Systems Chemistry
 - Compatibility Studies for Chemical Lasers
 - Analysis of Laser Effluent Composition
 - Failure/Contamination Analysis on Laser Systems



Organic Materials Laboratory

- Equipped with: FTIR (including IR Microscopes and accessories), UV/VIS/NIR, and Thermal Analysis. Used in:
 - Identification and Quantitation of Compounds in Gases, Liquids and Solids
 - Measurement of Chemical and Physical Changes caused by Thermal Exposure
- Provides for:
 - Identification of Unknowns
 - Validation of Material Composition and/or Structure
 - Evaluation of State of Cure
 - Assessment of Material Thermal Stability
 - Measurement of Thermal Parameters such as CTE, Tg, Modulus, Enthalpy
- Supporting:
 - Failure and Contamination Analysis
 - New Product Development
 - Spacecraft and Electronics Systems



Inorganic Materials Laboratory

- Equipped with: ICP-MS, AA, IC, Metal Analyzer and XRD. Used in:
 - Identification and Quantitation (to the ppb level) of Elements, Cations and Anions in Gases, Liquids, and Solids
 - Determination of Metal Content and Alloys
 - Determination of Crystallinity and Structure in Solids
- Provides for:
 - Identification of Unknown Materials
 - Validation of Material Composition
 - Monitoring Processes by Analysis of Key Species
 - Characterization of Novel Materials
 - Deformulation of Inorganic Matrices
- Supporting:
 - Propellant Analysis
 - Environmental Analysis
 - Failure and Contamination Analysis
 - Laser Fluid Analysis



Chromatography/Mass Spectrometry Laboratory

- Equipped with: gas chromatographs, gas chromatograph/mass spectrometers, high performance liquid chromatograph. Used in:
 - Separation, identification and quantitation of mixture of organic compounds in gases, liquids and solids
 - Determination of molecular weight distribution of polymeric plastics, resins and high technology coatings
- Provides for:
 - Identification of unknown materials
 - Validation of material composition
 - Characterization of novel materials
 - Failure and contamination analysis
 - Deformulation of organic matrices
- Supporting:
 - Propellant analysis
 - Environmental analysis
 - Spacecraft and electronics systems



Surface Analysis Laboratory

- Equipped with: secondary ion mass spectrometer, scanning electron microscope (EDX, WDX), auger, XPS. Used in:
 - Characterization of metal surfaces and surface contamination
 - Characterization of metal layer thickness and identity
- Provides for:
 - Failure and contamination analysis
 - Depth profiling of semiconductors
 - Monitoring of processes by identification of key species
 - Assessing coatings on propulsion systems
 - Evaluating passivation layers on propulsion and laser systems
- Supporting:
 - Spacecraft and propulsion systems
 - Semiconductor technology development



Capistrano Chemical Facilities

- Analyze, test and evaluate propellants
- Manufacture of small quantities of development propellants
- Evaluate chemical compatibility among materials and propellants

