

Trust • Technology • Turnaround

TESTING SERVICES



Providing Accurate and Timely Testing Solutions

NSL Analytical Services, Inc. is an Independent Materials Testing Laboratory.

- ▶ Trace Element and Compositional Analysis
- ▶ Metallurgical Evaluations and Failure Analysis
- ▶ Mechanical Testing
- ▶ Powder Characterization / Additive Manufacturing
- ▶ Optical / Scanning Electron Microscopy (SEM)
- ▶ Organic Compound / Polymer Analysis
- ▶ Prop 65 / CPSIA Product Safety / PFOA / RoHS Compliance Testing
- ▶ Method Development and Validation
- ▶ Consulting and Materials Support
- ▶ Litigation / Legal Testing Support

Chemistry and Analytical Capabilities and Instrumentation

Spectroscopy

- ▶ FTIR (Solution, Pellet, Pyro, ATR)
- ▶ UV-Vis-Near IR
- ▶ X-Ray Diffraction (XRD)
- ▶ X-Ray Florescence (XRF)
- ▶ Energy Dispersive X-Ray (EDX/EDS)
- ▶ Spark Atomic Emission (Spark-AES)
- ▶ Inductively Coupled Plasma (ICP-OES)

Thermal Analysis

- ▶ Thermogravimetric Analysis (TGA)
- ▶ Differential Scanning Calorimetry (DSC)

Ophthalmic

- ▶ Optical Properties
- ▶ UV-Vis Spectroscopy
- ▶ Coating Properties: Abrasion, Adhesion, Surface Quality
- ▶ Photochromic & Sunglass Testing
- ▶ Contact Angle Goniometry, Hydrophobic
- ▶ Environmental Simulation & QUV Accelerated Weathering
- ▶ BYK-Gardner Haze Gard Plus
- ▶ Blue Light Testing
- ▶ VSP Testing Protocols
- ▶ ESWT (Enhanced Simulated Wear Testing)

Mass Spectrometry

- ▶ Gas Chromatography (GC/MS)
- ▶ Inductively Coupled Plasma (ICP-MS)
- ▶ Isotopic Boron determination

Chromatography

- ▶ Gas Chromatography
- ▶ Ion Chromatography
- ▶ Solutions and Solids (Soluble, Pyrohydrolysis)
- ▶ Parr Bomb / Oxygen Combustion
- ▶ Liquid Chromatography LC-MS / MS
- ▶ High Pressure - HPLC

Powder Characterization

- ▶ Laser Diffraction - Wet or Dry
- ▶ Sieve Analysis (Dry)
- ▶ Density - Apparent, Tap, True, Skeletal, Bulk
- ▶ Static Flow Rate - Hall and Carney Funnels
- ▶ Dynamic Flow - Powder Rheometer
- ▶ BET Surface Area
- ▶ Particle Morphology

Other Analytical Methods

- ▶ Classical Wet Chemistry
- ▶ Bulk Chemical Analysis
- ▶ Karl Fisher Titration
- ▶ Flash Point
- ▶ Combustion and Fusion - (LECO) (C, S, O, N, H)
- ▶ Extractables and Leachables
- ▶ Cold Vapor Atomic Absorption Spectroscopy (CVAA - Hg)



NSL Analytical Services, Inc.

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Learn how NSL can work with you to verify your raw materials, stay in compliance, keep your processes in control, and help solve your product performance challenges.



Visit us at NSLanalytical.com or call us at **800.497.6752**

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Mechanical and Metallurgical Capabilities and Instrumentation

Advanced Microscopy

- ▶ Optical with Digital Imaging
- ▶ Scanning Electron Microscopy (SE / BSE / EDS / EDX)

Mechanical Testing

- ▶ Room Temperature Tensile Testing
- ▶ Elevated Temperature Tensile Testing
- ▶ Fastener Testing
- ▶ Bend Testing
- ▶ Stress Rupture
- ▶ Charpy Impact – up to 400 ft.-lb.
- ▶ Hardness/ Microhardness Testing
 - ▶ Rockwell
 - ▶ Vickers – 0.5kg to 30 kg.
 - ▶ Brinell
 - ▶ Knoop

Metallurgical / Failure Analysis

- ▶ Grain Size
- ▶ Microstructure
- ▶ Inclusion Rating
- ▶ Intergranular Attack / Oxidation (IGA / IGO)
- ▶ Macro / Microstructure Evaluations
- ▶ Corrosion Testing
- ▶ Surface Roughness
- ▶ Alpha Case
- ▶ Decarburization / Carburization
- ▶ Case Depth
- ▶ Delta Ferrite
- ▶ Alloy Depletion
- ▶ Coating Thickness
- ▶ Porosity

Quality Assurance

Chemistry Accreditations

- ▶ ISO/IEC 17025 IANAB / ILACI
- ▶ Nadcap-MTL IPRII

Chemistry Approvals

- ▶ 10 CFR 50 Appendix B and 10 CFR Part 21 compliant (Nuclear)
- ▶ ASME NQA-1 compliant (Nuclear)
- ▶ Boeing D1-4426 (801,808)
- ▶ BWXT Nuclear Operations Group
- ▶ CPSC (Lead, Heavy Metals, Phthalates)
- ▶ Eaton Aerospace
- ▶ Framatone
- ▶ GE Aerospace (S-400)
- ▶ GE Verona
- ▶ GE Healthcare Technologies
- ▶ Honeywell
- ▶ Lockheed Martin
- ▶ Medtronic
- ▶ National Labs
- ▶ NIAC audited (Nuclear)
- ▶ Parker Hannifin
- ▶ Pratt and Whitney (F-23)
- ▶ SAFRAN
- ▶ US Government and Military Organizations (DDTC Registered)
- ▶ Westinghouse Nuclear

Mechanical/Metallurgical Accreditations

- ▶ ISO/IEC 17025 IANAB / ILACI
- ▶ Nadcap-MTL IPRII

Mechanical/Metallurgical Approvals

- ▶ 10 CFR 50 Appendix B and 10 CFR Part 21 compliant (Nuclear)
- ▶ ASME NQA-1 compliant (Nuclear)
- ▶ Boeing D1-4426 (802, 803)
- ▶ BWXT Nuclear Operations Group
- ▶ Eaton Aerospace
- ▶ Framatone
- ▶ GE Aerospace (S-400)
- ▶ MD Helicopter
- ▶ NIAC audited (Nuclear)
- ▶ Parker / Meggitt
- ▶ Pratt and Whitney (F-23)
- ▶ Rolled Alloys
- ▶ SAFRAN
- ▶ US Government and Military Organizations (DDTC Registered)



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About NSL Analytical Services, Inc.

A recognized leader in analytical testing, NSL is an Independent Commercial Testing Laboratory providing **Inorganic Elemental and Organic Compound Chemical Analysis, Mechanical Testing and Metallurgical Evaluations, Optical Microscopy and SEM Imaging, and Polymer Materials Testing**. NSL Analytical helps customers achieve the highest standards of product quality from design to launch by providing accurate, reliable and repeatable materials testing results.