



# CERTIFICATE OF ACCREDITATION

## ANSI National Accreditation Board

11617 Coldwater Road, Fort Wayne, IN 46845 USA

This is to certify that

**NSL Analytical Services, Inc.**  
**4450 Cranwood Parkway**  
**Cleveland, OH 44128**

has been assessed by ANAB and meets the requirements of international standard

**ISO/IEC 17025:2017**

while demonstrating technical competence in the field of

**TESTING**

Refer to the accompanying Scope of Accreditation for information regarding the types of activities to which this accreditation applies

AT-1354

Certificate Number

  
ANAB Approval

Certificate Valid Through: 11/23/2020  
Version No. 008 Issued: 09/24/2019



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017**

**NSL Analytical Services, Inc.**

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**TESTING**

Valid to: **November 23, 2020**

Certificate Number: **AT-1354**

**Chemical**

<b>Specific Tests and/or Properties Measured</b>	<b>Specification, Standard, Method, or Test Technique</b>	<b>Items, Materials or Product Tested</b>	<b>Key Equipment or Technology</b>
Wet Gravimetric Ni, Si, P, Cu, Ag, Re, S	WC-001M5 WC-001M7 ASTM E350 (WC defined) WC-001M11 WC-001M18 WC-001M23 WC-001M26	Metal Alloys	Wet Gravimetric
Wet Colorimetric P Wet Colorimetric Cr+6	WC-001M2 AC-006M1 ISO 3613 AC-012	All Metal Alloys, Ceramics, Chemicals, Plastics	GENESYS 5 & GENESYS 10S Spectrophotometer
Elemental Analysis	ICP-003 ASTM E1479	All Metal Alloys, Ceramics, Chemicals, Plastics	PE Optima 5300 PE Optima 7300
Elemental Analysis	ALY-008 ASTM E415 ASTM E1086	Al, Co, Fe, Ni, Ti Alloys	Spark OES SpectroLab M
C Analysis	ALY-005 ALY-011 ASTM E1019 ASTM E1941	Most Metal Alloys, Ceramics	Combustion LECO CS444-LS LECO 844
H Analysis	ALY-006 ASTM E1447	Metal Alloys, excluding Al, Mg	Fusion LECO RH404 LECO H836
N Analysis	ALY-002 ALY-003 ASTM E1019 ASTM E1409	All Metal Alloys, Oxides, Nitrides, Ceramics	Fusion LECO TC436 LECO TC436DR

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O Analysis	ALY-002 ALY-003 ASTM E1019 ASTM E1409	Most Metal Alloys (excluding Al), Oxides, Carbides, Nitrides, Ceramics	Fusion LECO TC436 LECO TC436DR
S Analysis	ALY-005 ALY-011 ASTM E1019	Most Metal Alloys, Ceramics, Graphite	Combustion LECO CS444LS LECO 844
Elemental Analysis	MS-003 MS-006	All Metal Alloys, Ceramics, Chemicals, Plastics	ICP-MS NEXION 300/350X PE ELAN DRCE PE ELAN DRCEB PE ELAN DRCII
Se, Te, Cd	AA-002 ASTM E1184	Co, Cr, Fe, Mo, Ni Alloys	AA-GF PE AAnalyst 600
Elemental Analysis	ALY-010 ALY-010M2 ASTM E572 ASTM E1172	Co, Fe, Ni, Ti Alloys Ceramics	XRF Analysis PanAlytical
Titration Method for Cr  Titration Method for B	WC-001M10 (ASTM E350, WC defined) WC-002  WC-001M1 (ASTM E371) WC-001M3 (ASTM C791 - WC defined); WC-002	Metal Alloys, Chemicals	Titration Metrohm 785 DMP
Total Pb per 16CFR Part 1303: Lead Paint Regulation  Lead in Non-Metal Children's Products  Lead in Children's Metal Products  Lead in Children's Metal Jewelry	CPSC-01 CPSC-CH-E1001-08.3 CPSC-CH-E1002-08.3 CPSC-CH-E1003-09.1	Children's Products Sample Preparation and Analysis	ICP-MS PE ELAN DRCE PE ELAN DRCEB PE ELAN DRCII NEXION 300/350X ICP-OES PE Optima 5300 PE Optima 7300 PE Avio 500

**Chemical**

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Soluble Heavy Metals	CPSC-01 ASTM F 963(Section 4 & Section 8)  ASTM F 963-16/-17, 4.3.5.1  ASTM F 963-16/-17, 4.3.5.2  EN 71-3 (section 4 through 10)	Children's Products Sample Preparation and Analysis  Surface Coating Materials – Soluble Test For Metals Toy Substrate Materials	ICP-MS PE ELAN DRCE PE ELAN DRCEB PE ELAN DRCEII NEXION 300/350X ICP-OES PE Optima 5300 PE Optima 7300 PE Avio 500  Cold Vapor AA Leeman Hydra
Br, Cl, F, I, S <sup>2-</sup>	AC-002 ASTM C791 ASTM D512 ASTM D808 ASTM D1179 ASTM D7359 BS EN 14582:2016	Metal Alloys, Ceramics, Chemicals, Plastics	Ion-Selective Electrode Orion EA 940
Hg Analysis	AC-009 ASTM D3223	Metal Alloys, Ceramics, Chemicals, Plastics	Cold Vapor AA Leeman Hydra II
Cl, F, Br, I, NO <sub>2</sub> , NO <sub>3</sub> , SO <sub>4</sub> , PO <sub>4</sub>	AC-008 ASTM D4327 ASTM D7359 BS EN 14582:2016	Metal Alloys, Ceramics, Chemicals, Plastics	Ion Chromatography ICS 2100, ICS 5000
Elemental Analysis	NSL-4010	Ceramics, Chemicals, Carbides, Nitrides	DC Arc Atom Comp 2000
Phthalates	ORG-003 ORG-004 ORG-007 ORG-003M1 CPSC-CH-C1001-09.3 CPSC-CH-C1001-09.4 (2018)	Polymers, Children's Product Analysis	Varian 4000 GC/MS PE Clarus 600 GC PE Clarus 680 SQ 8T GCMS
Qualitative Analysis, Polymer Identification	ORG-002	Polymers, other Organic Compounds	FTIR PE Spectrum 1
Formulation Identification	ORG-005 ASTM E1582 ASTM E2040 ASTM E1131	Polymers, other Organic Compounds	TGA (thermal gravimetric analysis) TA Instruments Q500
Determination of Thermal Characteristics	ORG-006 ASTM E967 ASTM E968	Polymers, other Organic Compounds	DSC (differential scanning calorimeter) TA Instruments Q20

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<b>Specific Tests and/or Properties Measured</b>	<b>Specification, Standard, Method, or Test Technique</b>	<b>Items, Materials or Product Tested</b>	<b>Key Equipment or Technology</b>
Particle size distribution, wet or dry delivery	PS-01 ISO 13320	Particle Size Analysis	Malvern Mastersizer 3000 Particle Size Analyzer
Qualitative screening of RoHS elements and Alloy Identification	IEC 62321-3-1 ALY-009	RoHS Screening: Metal Alloys, Ceramics, Plastics	Portable XRF XL3t gun
Quantitative screening for Halogens, Sulfur, Br in RoHS	IEC 62321-3-2 AC-008 AC-001M2 AC-001M6 BS EN 14582 :2007 ASTM D7359	RoHS Screening: Metal Alloys, Ceramics, Plastics	Ion Chromatography ICS 2100, ICS 5000
Mercury in polymers, metals and electronics by CV-AAS, ICP-OES	IEC 62321-4	RoHS Testing: Electronics and Consumer Products (All Metals, Alloys, Ceramics, Chemicals, Plastics, Polymers, Coatings)	ICP-OES PE Avio 500 PE Optima 5300 Cold Vapor AA Leeman Hydra II
Cd, Cr and Pb in Polymers  Cd and Pb in Metals  Cd, Cr and Pb in Electronics	IEC 62321-5	RoHS Testing: Electronics and Consumer Products (All Metals, Alloys, Ceramics, Chemicals, Plastics, Polymers, Coatings)	ICP-OES PE Avio 500 Leeman Profile PE Optima 5300 PE Optima 7300 ICP-MS Nexion 300/350X PE ELAN DRCE PE ELAN DRCEB PE ELAN DRCEII
PBB and PBDE in Polymers by GC-MS	IEC 62321-6 ORG-008	RoHS Testing: Electronics and Consumer Products (All Metals, Alloys, Ceramics, Chemicals, Plastics, Polymers, Coatings)	GC-MS Varian 4000 PE Clarus 680 SQ 8T GCMS
Colorimetric Cr+6 on Surface Coatings	IEC 62321-7-1 AC-012 AC-006	RoHS Testing: Electronics and Consumer Products (All Metals, Alloys, Ceramics, Chemicals, Plastics, Polymers, Coatings)	Genesys 5 Genesys 10S Spectrophotometer
Colorimetric Cr+6 on Polymers and Electronics	IEC 62321-7-2 AC-012 AC-006	RoHS Testing: Electronics and Consumer Products (All Metals, Alloys, Ceramics, Chemicals, Plastics, Polymers, Coatings)	Genesys 5 Genesys 10S Spectrophotometer

**Chemical**

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Phthalates	IEC 62321-8 ORG-007	RoHS Testing: Electronics and Consumer Products (All Metals, Alloys, Ceramics, Chemicals, Plastics, Polymers, Coatings)	Varian 4000 GC/MS PE Clarus 680 SQ 8CT GCMS
pH	ASTM D1293 AC-011 WC-005	Aqueous Solutions, Chemicals, Water	pH/Ion Meter
Conductivity & Resistivity	ASTM D1293 AC-010	Aqueous Solutions, Chemicals, Water	Fisher Traceable Bench Conductivity Meter

**Mechanical (Powders)**

Flow Rate	ASTM B-213 PC-01	Metal Powders	Hall Flow Meter Carney Funnel
Apparent Density	ASTM B-212 ASTM B-964 PC-02 ASTM B-417 PC-03	Free Flowing Metal Powders Non- Free-Flowing Metal Powders	Hall Flowmeter Funnel Carney Funnel
Tap Density	ASTM B-527 PC-05	Metal Powders	Quantachrome Auto-Tap
Sieve Testing	ASTM B214 PC-004	Sieve Analysis-Metal & Other Powders	Rotap Sieves
Surface Area - BET Analysis	ASTM B922 ASTM C1247 ISO9277 PC-006 PC-007	Powders	Quadratorb BET/FloVac Degasser
Skeletal Volume & Density By Helium or Nitrogen Pycnometry	ASTM B923 ISO12154 MPIF 63 PC-008	Powders Components	Quantachrome Ultrapyc 1200e
Material Flow Parameters	PC-009	Powders	Mercury Revolution Powder Rheometer
Bulk Density	ASTM D7481 PC-012	Powders	Graduated Cylinder

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. AT-1354.



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Vice President

