



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

METALLURGICAL SOLUTIONS, INC.  
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MECHANICAL

Valid To: February 28, 2027

Certificate Number 2037.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following types of tests on automotive components, metals, alloys, and coatings:

<b><u>Test</u></b>	<b><u>Test Method(s)</u></b>
Hardness: Rockwell (HRB, HRC, HR15T, HR30T, & HR30N) Brinell Hardness (10/500 and 10/3000) Kgf	ASTM E18, F606/F606M ASTM E10
Microindentation Hardness Vickers (50, 300, 500, and 1000) gf Knoop (50, 300, 500, and 1000) gf	ASTM E384, E92
Charpy Impact (Up to 240 ft·lbs/325 J/ (-40 to 95) °F)	ASTM E23
Tensile r-Value n-Value	ASTM A370, E8/8M, B557 ASTM E517 ASTM E646
Fastener Tensile (Axial – Load to 60,000 lbs)	ASTM F606/F606M
Bond Strength of Thermal Spray Coatings	ASTM C633
Bend Test	ASTM E190, E290
Coating Mass	ASTM A90
Case Depth	SAE J423
Microstructure	ASM Metals Handbook Vol. 9

**Test**

**Metallographic Evaluation:**

- Alpha Case
- Carbide Content
- Preparation
- Plating Thickness
- Inclusion Content
- Susceptibility to IGA of Austenitic Stainless Steel
- Intergranular Attack/Oxidation
- Depth of Decarburization
- Grain Size
- Microetch / Macroetch
- Replication
- SEM Performance

**Test Method(s)**

- MSI PWI #38
- ASTM A892
- ASTM E3
- ASTM B487
- ASTM E45 (Method A)
- ASTM A262 (Method A)
- MSI PWI #35
- ASTM E1077
- ASTM E112
- ASTM E340, E407
- ASTM E1351
- ASTM E986

**Chemical Analysis**

**Glow Discharge Optical Emission Spectroscopy**

- Low Alloy Steel (Al, C, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Si, Ti, V)
- Cast Iron (C, Cr, Cu, Mn, Mo, Ni, P, S, Si, Ti, V)
- High Alloy Steel (C, Co, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Ti, W, V)
- Aluminum (Cr, Cu, Fe, Mn, Ni, Si, Ti, V, Zn, Mg)
- Titanium (Al, Cr, Fe, Mo, V)

ASTM A751, E415, E1086, E1999, E1251, E2994

**Wavelength Dispersive X-ray Fluorescence Spectroscopy**

- Low Alloy Steel (Al, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Si, Ti, V)
- High Alloy Steel (Al, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Si, Ti, V, W)
- Nickel (Al, Co, Cr, Cu, Fe, Mn, Mo, Nb, Ti, P)
- Titanium (Al, Cr, Fe, Mn, Mo, Nb, Sn, V, Zr)

ASTM E1085, E572, E2465, E539

**Combustion Analysis (C, H, N, O, S)**

ASTM E1019, E1941, E1409, E1447

**Weld Examination (Operator & Procedure Qualification)**

ASME IX; AWS D1.1/D1.1M;  
AWS D1.2/D1.2M, AWS D1.6/D1.6M,  
AWS D1.9/D1.9M,  
AWS D17.1/D17.1M

**Failure Analysis**

ASME IX; AWS D1.1/D1.1M,  
AWS D1.2/D1.2M, AWS D1.6/D1.6M,  
AWS D1.9/D1.9M,  
AWS D17.1/D17.1M;  
ASM Metals Handbook Vol. 11;  
ASTM E620, E678, E860, E2332





# Accredited Laboratory

A2LA has accredited

## METALLURGICAL SOLUTIONS INC.

Dayton, OH

for technical competence in the field of

### Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. 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).



Presented this 6<sup>th</sup> day of November 2024.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 2037.01  
Valid to February 28, 2027

*For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.*