



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ELEMENT NEW BERLIN
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MECHANICAL

Valid To: August 31, 2020

Certificate Number: 0098.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform physical tests, welding qualification tests, investigative nondestructive testing, metallography and microscopy on metallic and non-metallic materials (including plastics, composites and rubber) and to perform laboratory corrosion and environmental exposure tests on metals, alloys, plastics, composites and rubber, fabricated assemblies or parts, tape and various coatings, using the following tests:

Table with 4 columns: Test Technology, Scale Range, Test Method(s), and Third Party Documents. It lists various mechanical tests such as Adhesive Bond Strength, Axial Tensile, Charpy Impact, Fatigue Testing, Hardness Testing, and Izod Impact.

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Test Technology	Scale Range	Test Method(s)	Third Party Documents
<u>Impact Testing Cont.</u>			
Unnotched Impact			ASTM D4812
High Speed Puncture Properties		PM-15	ASTM D3763
Tup/Falling Mass			ASTM D5628
<u>Microhardness</u>			
Knoop	100, 200, 300, 500 g		ASTM B578, E384; ISO 9015-1, 9015-2, 6507-1
Vickers	100, 200, 300, 500 g		ASTM B578, E384; ISO 9015-1, 9015-2
MacroVickers	5, 10, 30 kg		ASTM E92 (Withdrawn 2010) ² , E384; ISO 9015-1, 6507-1
Durometer	Shore A & D		ASTM D2240
<u>Portable Hardness</u>			
Leeb Hardness			ASTM A956
UCI Hardness (MC10)			ASTM A1038
<u>Tension Testing</u>			
Metals	120,000 lbs. Max.		ASTM A370, B557, B557M, E8/E8M; ISO 6892-1
Strain Ratio (r-value)	120,000 lbs. Max.		ASTM E517
Strain-Hardening (n-value)	120,000 lbs. Max.		ASTM E646
Plastics & Polymers	120,000 lbs. Max.	PM-09, PM-11	ASTM D638, D882, D1004
Rubber	120,000 lbs. Max.		ASTM D412
<u>Metallography</u>			
Preparation of Samples ¹			ASTM E3
Microstructure ¹			ASTM A247
Inclusion Content			ASTM E45 (Method A, B, D)
Grain Size ¹			ASTM E112, E883
Macroetching ¹			ASTM E340, E381
Microetching ¹			ASTM E407
Depth of Decarburization			ASTM E1077, E883, F2328, F2328M; ISO 898-1; SAE J121 (Superseded 2013) ² , J121M (Superseded 2013) ²
Case Depth			SAE J423
Coating Thickness			ASTM B244, B487, B499, D1005, D1186 (Withdrawn 2006) ² , D7091; ISO 1463, 2808
Hydrogen Embrittlement			ASTM F606/F606M; SAE J1237
Scanning Electron Microscopy (SEM) (Fracture Mode Characterization)		MA-14	
<u>Corrosion Tests</u>			
Accelerated Weathering Fluorescent (QUV)			ASTM G147, G151, G154, D4329, D4587, D4674, D5208; SAE J2020

Test Technology	Scale Range	Test Method(s)	Third Party Documents
<u>Corrosion Tests Cont.</u>			
Xenon Arc			ASTM D2565, D4355, D4459, D5071, D6551, D6695, D7869, G155; GM9327P (Superseded 2012) ² ; SAE J2412, J2527
Corrosion Resistance:			
Susceptibility, Dezincification Resistance			ISO 6509-1
Intergranular Corrosion Resistance			ASTM A262 (Practice A & E), A763, G28
Environmental Compatibility:			
Humidity			ASTM D1735, D2247, D4585; GMW14729
Salt Spray (Fog)			ASTM B117; ISO 9227
Modified Salt Spray (Fog)			ASTM G85 (A1, A2, A3, A5); ISO 9227
Cyclic Corrosion			ASTM D5894, G85 (A2, A3, A5); GM9540P (Superseded 2012) ² ; GM9505P (Superseded 2012) ² ; GMW14872; SAE J2334
Post-Exposure Evaluations:			
Rusting			ASTM D610
Blistering			ASTM D714
Scribed/Non-Scribed			ASTM D1654
<u>Coating Evaluation</u>			
Coating Adhesion:			
Paint & Plastic			ASTM D3359; Ford FLTM BI 106-01; GM9071P (Superseded 2012) ²
Plating			ASTM B571
Pull-off Strength			ASTM D4541
Coating Flexibility:			
T-Bend			ASTM D4145
Coating Impact			ASTM D2794
Conditioning of Plastics			ASTM D618
Chip Resistance (Gravelometer)			ASTM D3170; GMW14700; GM9508P (Superseded 2010) ² ; SAE J400
Gloss			ASTM D523, D2457
Pencil Hardness			ASTM D3363
Taber Abrasion Resistance			ASTM D3389, D4060, D6037; GM9515P (Cancelled 2013) ² ; ISO 9352

Test Technology	Scale Range	Test Method(s)	Third Party Documents
<u>Welding and Brazing Performance (Operator) and Procedure Qualification Tests</u>			
Bend			API STD 1104; AWS B2.1, B2.2, B4.0, D1.1, D1.2, D1.5, D3.6M, D14.1, D14.3, D14.4, D14.5, D14.6, D17.1/17.1M, D18.1; ASME Sec. IX; ISO 5173, 9606-1, 9606-2, 15614-1, 15614-12, 15614-13; 15614-2; MIL-STD-248D (Superseded 1997) ² ; NAVSEA S9074-AQ-GIB-010/248
Break (Fillet Weld)			API STD 1104; ASME Sec. IX; AWS B4.0, D1.1, D1.2, D3.6M, D14.1, D14.3, D14.4, D14.5, D14.6, D17.1/17.1M; ISO 9606-1, 9606-2; MIL-STD-248D (Superseded 1997) ² ; NAVSEA S9074-AQ-GIB-010/248
Hardness			API STD 1104; AWS B4.0, D3.6M, D8.9M, D14.3; BS EN ISO 14271, 15614-1, 15614-12; MIL-STD-248D (Superseded 1997) ² ; NAVSEA S9074-AQ-GIB-010/248
Impact			AASHTO/AWS D1.5, D14.1, D14.6; ASME Sec. IX; AWS D1.1, D3.6M, D17.1/17.1M; BS EN ISO 9016; DIN EN 1992-1-1/NA; MIL-STD-248D (Superseded 1997) ² ; NAVSEA S9074-AQ-GIB-010/248
Macroetch			ANSI/AASHTO/AWS D1.5; ANSI/AWS D1.2, D1.4, D14.1, D14.4, D14.5, D14.6, D15.1; API STD 1104; ASME Sec. IX; AWS B2.1, B2.2, D1.1, D3.6M, D14.3, D17.1/D17.1M; BS EN ISO 15614-1; DIN EN ISO 17639; ISO 9606-1, 15614-2; MIL-STD-248D (Superseded 1997) ² ; NAVSEA S9074-AQ-GIB-010/248
Metallographic			ASME Sec. IX; AWS D1.1, D8.9M, D17.1/D17.1M, D17.2/17.2M; BS EN ISO 15614-1, 15614-2, 15614-12; DIN EN ISO 17639
Shear			AWS B2.1, B2.2, B3.6M, B4.0, D8.9M, D17.2/17.2M; ASME Sec. IX; EN ISO 14273; ANSI/AWS C3.2, D1.2, D1.3

Test Technology	Scale Range	Test Method(s)	Third Party Documents
<u>Welding and Brazing Performance (Operator) and Procedure Qualification Tests Cont.</u>			
Tensile			ANSI/AASHTO/AWS D1.5; ANSI/AWS D1.4, D14.1, D14.4, D14.5, D14.6, D15.1; API STD 1104; ASME Sec. IX; ASTM A488; AWS B2.1, B2.2, B4.0, D1.1, D3.6M, D8.9M, D14.3, D17.1/D17.1M, D18.1; DIN EN ISO 8496; ISO 1002, 4136, 15614-1, 15614-2, 15614-12; MIL-STD-248D (Superseded 1997) ² ; NAVSEA S9074-AQ-GIB-010/248
Peel & Chisel			ISO 10447
<u>Miscellaneous Testing</u>			
Failure Analysis			Using the methods listed above in accordance with ASM Handbook Volume 11.
Additive Manufacturing			ASTM F2971, F3122

¹ This laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these tests.

² This laboratory’s scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered “historical” and not that the laboratory’s accreditation for the method has been withdrawn.



Accredited Laboratory

A2LA has accredited

ELEMENT NEW BERLIN

New Berlin, WI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 26th day of October 2018.

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President and CEO
For the Accreditation Council
Certificate Number 0098.02
Valid to August 31, 2020

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