SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ELEMENT MATERIALS TECHNOLOGY HOUSTON – REGAL ROW
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MECHANICAL

Valid To: January 31, 2020 Certificate Number: 1283.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on metals, plastics, and rubbers:

Test	Test Methods
Drop Weight Testing	ASTM E208
Ductility/Bend	ASTM A370; ASME Section IX; AWS D1.1/D1.1M; API 1104 5L; ABS Rules; DNV Rules; EN 910 (withdrawn, replaced by EN ISO 5173)[1]
Fillet Weld Break Test	ASME Section IX; AWS D1.1/D1.1M; EN 287-1 (withdrawn, replaced by EN ISO 9606-1)[1]
Fracture Mechanics (CTOD)	ASTM E399, E1290; BS 7448; ISO 15653, 12135
Fracture Mechanics (SENT) and DCPD SENT	BS 7448, BS 8571; DNV RP-F108
Fracture Mechanics (JR Test)	ASTM E1820; BS 7448; ISO 12135
Compression	ASTM E9
Hardness	
Rockwell (A, B, C)	ASTM E18; BS EN ISO 6508
Vickers (HV0.2, HV0.3, HV0.5, HV1, HV5, HV10)	ASTM E384; BS EN ISO 6507
Knoop (HK25, HK100, HK200, HK300, HK500)	ASTM E384
Brinell (500kg, 1500kg, 3000kg)	ASTM E10; BS EN ISO 6506
Impact (Charpy V-notch) (-320, -150 to 100) °F	ASTM A370, E23; BS EN ISO 148
Metallography (Macro)	ASTM E340, E381; ASME Section IX; AWS D1.1/D1.1M; API 1104; EN 287, 288, 1321

Test	Test Methods
Metallography (Micro) Preparation	ASTM E3; BS EN 3114-001
Volume Fraction Ferrite	ASTM E562
Inclusion Content	ASTM E45 (Method A)
Alpha Case	GEAE P3TF19
Grain Size (Comparison)	ASTM E112
Nick-Break Testing	API 1104; EN 287; BS EN ISO 9606-1
Ring Flattening	ASTM A53/A53M, A530/A530M, A999/A999M; API 5L; ASME SA530
Tensile Test	ASTM A370, A770/A770M, E8/E8M; ABS Rules; ASME Section IX; AWS D1.1; API 1104 5CT and 5L; BS 4515; DNV Rules; EN 10002-1 (withdrawn, replaced by EN ISO 6892-1)[1]
Scanning Electron Microscopy / EDS	Exova FAIL 01; ASTM E1508
Failure Analysis	Using the methods listed above and below in accordance with the ASM Metals Handbook, Volume 11
Chemical	
Combustion (C, N, O, S)	ASTM E1019
Inert Gas Fusion (Hydrogen)	ASTM E1447
Optical Emission Spectroscopy Carbon/Low Alloy Steels (Al, B, C, Co, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Si, Sn, Ti, V, W, Zr)	ASTM A751, E415
Stainless Steels (Al, B, C, Co, Cu, Mo, Mn, Nb, Ni, P, S, Si, Sn, Ti, V, W)	ASTM E1086
Ni Alloy (Al, B, C, Co, Cr, Cu, Fe, Mn, Mo, Nb, Ni, P, S, Si, Ti, W, Zr)	Exova CHEM 01
XRF (Al, As, Co, Cr, Cu, Fe, Mg, Mn, Mo, Nb, P, Pb, Si, Sn, Ti, W, Zn)	ASTM E322, E522, E1245
Coatings	
Cathodic Disbonding of Pipeline Coatings (Elevated Temperature)	NACE TM0104, TM0304

Test	Test Methods
Coatings (cont'd)	
Cathodic Disbondment Test of Pipeline Coatings (Attached Cell Method)	AFNOR NF-A 49.711, NF-A 49-716; ASTM G95; API RP 5L7; CSA Z245.20 Section 12.8; EN 10329; NF-A 49-710; ISO 21809-3; NACE RP0394, App F (withdrawn, replaced by NACE SP0394)[1]
Impact Flexibility of Organic Coatings	ASTM D6905, ASTM G14, D2794; CSA Z245.20 section 12.12; NACE RP0394: App I (withdrawn, replaced by NACE SP0394)[1]
Mandrel Bend Test of Attached Organic Coatings	ASTM D522/D522M; CSA Z245.20 section 12.11; NACE RP0394 App H (withdrawn, replaced by NACE SP0394)[1]; NACE TM0304 section 12
Pull-Off Strength of Coatings – Adhesion	ASTM D4541 (Type IV); ISO 4624
Rubber Property – Durometer Hardness	ASTM D2240 (Shore A)
Taber Abraser Testing	ASTM D4060
UV Exposure of Nonmetallic Materials	ASTM G154; ISO 2340
Water Absorption of Plastics	ASTM D570
DSC	Nace RP 0394; CSA Z245.20; ISO 11357-2
Corrosion	
Hydrogen Induced Cracking	NACE TM0284
Intergranular Corrosion in Stainless Steels	ASTM A262 (Method A, B, C, E), A923 (Methods A and C), G28, G48
Salt Spray	ASTM B117; BS EN ISO 9227
Slow Strain Rate Test Method for Screening Corrosion-Resistant Alloys (CRAs) for Stress Corrosion Cracking in Sour Oilfield Service	NACE TM0198
Sulfide Stress Cracking in H_2S	NACE TM0177

[1] 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 MATERIALS TECHNOLOGY HOUSTON – REGAL ROW

Houston, TX

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 22nd day of February 2018.

President and CEO
For the Accreditation Council
Certificate Number 1283.01
Valid to January 31, 2020

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