

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p><b>0377</b></p> <p>Accredited to <b>ISO/IEC 17025:2005</b></p>	<h3>Element Materials Technology Aberdeen Ltd</h3> <p><b>Issue No: 042    Issue date: 20 March 2019</b></p>	
	<p><b>Hareness Circle</b>  <b>Altens Industrial Estate</b>  <b>Aberdeen</b>  <b>Scotland</b>  <b>AB12 3LY</b></p>	<p><b>Contact: Mrs D McAdam</b>  <b>Tel: +44 (0)1224-890020</b>  <b>Fax: +44 (0)1224-890220</b>  <b>E-Mail: info.aberdeen@element.com</b>  <b>Website: www.element.com</b></p>
<p><b>Testing performed by the organisation at the locations specified below</b></p>		

### Locations covered by the organisation and their relevant activities

#### Laboratory locations:

Location details	Activity	Location code
<p><b>Location Address</b>  Hareness Circle  Altens Industrial Estate  Aberdeen  Scotland  AB12 3LY</p> <p><b>Local contact</b>  Mrs D McAdam    Tel: +44 (0)1224-890020  Fax: +44 (0)1224-890220  Email :  info.aberdeen@element.com</p>	<p>Metals &amp; Weldments - Chemical tests  Metals &amp; Weldments - Corrosion tests  Metals &amp; Weldments - Mechanical tests  Metals &amp; Weldments - Metallurgical tests</p>	<p>Altens</p>

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
<p>Commercial and industrial premises and sites</p>	<p>Metals &amp; Weldments – Metallurgical Tests  Metals &amp; Weldments - Positive Material Identification</p>	<p>C&amp;I</p>



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DETAIL OF ACCREDITATION

Element Materials Technology Aberdeen Ltd, UKAS reference 0377, is accredited for a flexible scope that enables them to conduct accredited testing through the update of currently accredited test methods to the latest versions of those test methods, and to technically equivalent test methods, for the activities detailed below, in accordance with their documented in-house procedure MSP-20: – Management of Flexible Scope

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location code
METALS, ALLOYS and METAL PRODUCTS	<u>Mechanical Tests</u>		
	<u>Fracture toughness</u>		
	K <sub>1c</sub>	BS 7448:Part 1 BS7448-4	Altens
	J <sub>critical</sub>	BS EN ISO 15653 ISO 12135	
	J <sub>0.2BL</sub>	DNV OS F101 ASTM E1820	
	J <sub>1c</sub>	BS 8571 DNV RP F108	
	CTOD	ASTM E1921 ASTM E399	
	R-Curve		
	T <sub>0</sub>	Documented In-House Method 5.13 – Fracture Standards Overview	
	<u>Fatigue and Crack Propagation</u>		
Fatigue Crack Growth Rate at ambient temperature	ASTM E647 BS ISO 12108	Altens	
Load Controlled Low Cycle Fatigue at ambient temperature	ASTM E466 BS 3518-1 BS 3518-3	Altens	
<u>Tensile</u>			
Tensile (Forces up to 2000 kN)	BS EN ISO 6892-1 ASTM E8-/E8M ASTM A370 Documented In-House Method Test Proc No 2.4	Altens	



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location code
METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)		
	Tensile (temperature range ambient to 600°C) (Forces up to 100 kN)	BS EN ISO 6892-2 ASTM E21	Altens
	Charpy impact at temperatures between ambient and -130°C and at -196°C	BS EN ISO 148-1 ASTM E23 ASTM A370	Altens
	Crystallinity	BS 131:Part 5	Altens
	<u>Hardness</u>		
	Vickers hardness (HV 5 & 10)	BS EN ISO 6507-1 ASTM E92	Altens
	Brinell hardness (1/30 HBW)	BS EN ISO 6506-1 ASTM E10	Altens
Rockwell hardness (HRBW and HRC scales)	BS EN ISO 6508-1 ASTM E18	Altens	
Equotip hardness (Comparative)	Documented In-House Method Tech Proc No 3.2	Altens	
Weldments	Tensile, Impact, Bend, Hardness, Macro / Micro-examination	BS EN ISO 15614-1 BS EN ISO 15614-2 BS EN 287:Part 1 BS EN ISO 9606-1 BS EN ISO 9606-2 BS EN ISO 4136 BS EN ISO 9016 BS EN ISO 5173 BS EN ISO 5178 BS EN ISO 9015-1 BS EN ISO 9017 BS EN ISO 17639 BS 4872:Part 1 BS 4872:Part 2 BS 4515-1 BS 4515-2 API 1104 API 6A	Altens



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METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)		
Weldments (cont'd)	Tensile, Impact, Bend, Hardness, Macro / Micro-examination	AWS D1.1/D1.1M ASME IX	Altens
	<u>Metallurgical Tests</u>		
	Grain size (Comparison method)	ASTM E112	Altens
	Volume fraction	ASTM E562	Altens
	Micro-examination - to determine microstructural constituents	Documented In-House Method Method No. 4.14	Altens
	Identification of Surface Structure and Modes of Failure	Documented In-House Method No.4.12 using scanning electron microscopy	Altens
	%Ferrite by Feritscope	Documented In-House Method Method No. 4.18	Altens / C&I
	Surface examination using metallographic replica techniques	Documented In-House Method Method No. 4.17	Altens / C&I
	<u>Corrosion Tests</u>		
Duplex stainless steels	Detecting detrimental intermetallic phases	ASTM A923 (Method C)	Altens
Iron, Steels and other ferrous metals	Intergranular corrosion	ASTM A262 Practice C ASTM A262 Practice E BS EN ISO 3651-2 ASTM G28 Method A	Altens
	Pitting and crevice corrosion resistance of stainless steels	ASTM G48 Method A BS 4515-2 (Annex C)	Altens



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METALS, ALLOYS and METAL PRODUCTS (cont'd)  Plain carbon, low alloy and stainless steels  Nickel and Nickel alloys	Corrosion Tests (cont'd)		
	Hydrogen induced cracking (HIC)	NACE TM0284	Altens
	Sulphide stress corrosion cracking (SSCC)	NACE TM0177 (Method A) NACE TM0316 ASTM G36	Altens
	<u>Chemical Tests</u>		
	Quantitative elemental analysis for: C, Si, Mn, P, S, Cr, Mo, N, Ni, Cu, V, Ti, Nb, Co, Zr, Pb, B and W	Documented In-House Method 1.15 using optical emission spectroscopy	Altens
	Quantitative elemental analysis for: C, Si, Mn, P, S, Cu, N, Fe, Cr, Mo, Ti, Al and Nb	Documented In-House Method 1.15 using optical emission spectroscopy	Altens
	Positive Material Identification by Hand Held XRF	Documented In-House Method Method No. 1.18	Altens / C&I
<b>END</b>			