


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	<b>Tata Steel (UK) Ltd</b>  <b>Issue No: 021 Issue date: 01 May 2012</b>	
	<b>Tata Steel (UK) Ltd</b> <b>Testing Solutions</b> <b>PO Box 1</b> <b>Brigg Road</b> <b>Scunthorpe</b> <b>North Lincolnshire</b> <b>DN16 1BP</b>	<b>Contact: Dr M Darby</b> <b>Tel: +44 (0)1724 402744</b> <b>Fax: +44 (0)1724 402941</b> <b>E-Mail: maxine.darby@tatasteel.com</b>
<b>Testing performed by the Organisation at the locations specified below</b>		

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

#### Laboratory locations:

Location details		Activity	Location code
<b>Location Address</b> Testing Solutions Scunthorpe Central laboratory PO Box 1 Scunthorpe North Lincolnshire DN16 1BP	<b>Local contact</b> Dr M Darby  Tel: +44 (0) 1724 402744 Fax: +44 (0) 1724 402941 Email: maxine.darby@tatasteel.com	Metals & Weldments - Chemical tests Metals & Weldments - Mechanical tests Leachates - Metals	A
<b>Location Address</b> Testing Solutions Lackenby Test House Redcar Teesside TS10 5QW	<b>Local contact</b> Mr L Sotheby  Tel: +44 (0) 1642 406900 Fax: +44 (0) 1642 406904 Email: lee.sotheby@tatasteel.com	Metals & Weldments - Chemical tests Metals & Weldments - Mechanical tests	B



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<b>FERROUS METALS and ALLOYS</b>	<u>Chemical Tests</u>		
Carbon and Low Alloy Steels, and Iron	Elemental analysis Cr, Mo, Ni, Co, Cu, Pb, Sn, Sol Al, V, Si, Mn, P, Zn.	Documented In-House Methods using Inductively Coupled Plasma Emission Spectrometry BASH-57AEVG	A
	Elemental analysis Fe, C, Si, Mn, P, S, Cr, Mo, Ni, Al, B, Co, Cu, Nb, Sn, Ti, V, Ca, N, As, Bi, Ce, Pb, Sb, W, Zn, Zr, Mg	Documented In-House Methods using Optical Emission Spectrometry	A & B
	C (0.001 to 0.40%)	Documented In-House Methods using Optical Emission Spectrometry	A
	Carbon, and sulphur content	Documented In-House Methods using combustion techniques	A
	Nitrogen content	Documented In-House Methods using inert gas fusion techniques	A
	Elemental analysis	Documented In-House Methods using X-ray fluorescence techniques	A
	Fe 0.05 - 70.0%		
	CaO 0.05 - 100.0%		
	SiO <sub>2</sub> 0.05 - 100.0%		
	MnO 0.02 - 35.0%		
	Al <sub>2</sub> O <sub>3</sub> 0.05 - 100.0%		
	MgO 0.05 - 100.0%		
	P <sub>2</sub> O <sub>5</sub> 0.02 - 4.0%		
	K <sub>2</sub> O 0.03 - 5.0%		
	TiO <sub>2</sub> 0.01 - 2.5%		
	Na <sub>2</sub> O 0.08 - 7.0%		
	Cr <sub>2</sub> O <sub>3</sub> 0.01 - 17.0%		
	BaO 0.02 - 6.0%		
	ZrO <sub>2</sub> 0.02 - 6.0%		
	Zn 0.01 - 5.0%		
	Pb 0.01 - 2.0%		
	V <sub>2</sub> O <sub>5</sub> 0.02 - 7.5%		
	Sr 0.01 - 1.0%		
	Ni 0.01 - 2.5%		
	Cu 0.02 - 2.5%		



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FERROUS METALS and ALLOYS (cont'd)	<u>Chemical Tests</u> (cont'd)		
Carbon and Low Alloy Steels, and Iron	Determination of total carbon up to 100%	Documented In-House Method using combustion techniques	A
REFRACTORIES, AGGREGATES and CONSTRUCTION MATERIALS, FLUE DUSTS, IRON ORES AND SLAGS	Determination of Total Iron in Iron Ores	Documented In-House Method based on BS ISO 2597	A
	Determination of CO <sub>2</sub> content	Documented In-House Method YSNN-4T5JDH based on BS 196-2	A
GASES	Coke Oven Gas	Documented In-House Method using gas chromatography techniques	A
	H <sub>2</sub> (55% to 65%) O <sub>2</sub> (0.1% to 1.0%) N <sub>2</sub> (3% to 8%) CO <sub>2</sub> (1% to 3%) CO (3% to 9%) Ethylene (1% to 3%) Ethane (0.5% to 2.5%) Methane (20% to 26%) Acetylene (0.02% to 2.0%)		
	BOS (Basic Oxygen Steelmaking Gas)	Documented In-House method using Gas Chromatography Techniques	A
	H <sub>2</sub> (0.5% to 2.0%) O <sub>2</sub> (0.1% to 1.0%) N <sub>2</sub> (9% to 27%) CO <sub>2</sub> (9% to 19%) CO (51% to 81%)		
WATERS AND LEACHATES	Elemental analysis Ca, Cu, Cd, Pb, Co, Al, Cr, Mn, Mg, Mo, Ni, Na, K, Ti, P, V, Zn, Fe	Documented In-House Methods using Inductive Coupled Plasma Emission Spectrometry	A
	Alkalinity	Documented In-House Method W1 <sup>A</sup> and TSW096 <sup>B</sup> using titrimetric techniques	A



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WATERS AND LEACHATES (cont'd)	<u>Chemical Tests</u> (cont'd)		
	Ammonia	Documented In-House Method DIHM HSUD-8LXCR8Rev5 using Automated photometric system (Gallery)	A
	Biochemical Oxygen Demand	Documented In-House Method CSMN-69043N-using Oxygen Probe	A
	Chloride	Documented In-House Method W4	A
	Chemical Oxygen Demand	Documented In-House Method W5	A
	Conductivity	Documented In-House Methods TSW W6 <sup>A</sup> and 102 <sup>B</sup> using conductivity meter	A
	Dissolved Organic Carbon	Documented In-House Method W7 using TOC analyser	A
	Hardness	Documented In-House Method W8 using titrimetric techniques	A
	pH	Documented In-House Method Cyos-6X4KDB using pH meter	A
	Suspended solids	Documented In-House Method W11 using gravimetric techniques	A
Determination of anions in solution F, Cl, SO <sub>4</sub> , NO <sub>3</sub> , NO <sub>2</sub>	Documented In-House Method JW1Y-6XDBZA using Dionex	A	
METALS, ALLOYS and METAL PRODUCTS	<u>Mechanical Tests</u>		
	Bend	BS EN ISO 7438:2005	B
	Fracture toughness:  CTOD (Temperatures from 253K to ambient)	BS 7448:Part 1:1991	B



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METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)		
	Hardness:		
	Brinell (HBW 10/3000)	BS EN ISO 6506-1:1999 (withdrawn)	A & B
	Brinell (HBW 10/3000)	ASTM E10-08	B
	Impact:		
	Charpy (U- and V-notch) (Temperatures from 77K to 373K)	BS EN 10045-1:1990 ASTM A370-09a ASTM E23-07a	A & B
	Lateral expansion, percent shear fracture and crystallinity	BS 131:Part 5:1965 ASTM E23-07a	A & B
	Tensile (Ambient temperature) (Forces from 2.5 kN to 1000 kN)	ASTM A370-05 ASTM E8/E8M-08 BS EN ISO 6892-1:2009 Method B	A & B
	Tensile (Temperature range ambient to 1073K) (Forces up to 100 kN)	BS 4A 4-1.2:1967 BS EN 10002-5:1992 ASTM E21-09	B
	Through thickness tensile	BS EN 10164:2004 ASTM A770/A770M-03	B
Weldments	Tests in accordance with specified welding codes:		
	Bend, Impact and Tensile	ASME IX: 2010	B
	CTOD (Temperatures from 253K to ambient)	BS 7448-2:1997	B

END