

Laboratory **Quality Assurance Laboratory, Plant-II, Bharat Aluminium Company Limited, Korba, Chhattisgarh**

Accreditation Standard **ISO/IEC 17025: 2005**

Discipline **Chemical Testing**

Issue Date **07.08.2015**

Certificate Number **T-1967**

Valid Until **06.08.2017**

Last Amended on **-**

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	METALS & ALLOYS			
1.	Aluminium Metal and Alloys	Silicon	ASTM E 1251: 11	0.020 % to 8.5 %
		Iron		0.018 % to 1.60 %
		Copper		0.0021 % to 0.73 %
		Manganese		0.0056 % to 1.1 %
		Zinc		0.002 % to 7 %
		Titanium		0.0006 % to 0.17 %
		Chromium		0.0001 % to 0.22 %
		Nickel		0.001 % to 0.037 %
		Lead		0.001 % to 0.029 %
		Zirconium		0.001 % to 0.007 %
		Vanadium		0.0006 % to 0.024 %
		Gallium		0.0006 % to 0.032 %
		Phosphorus		0.001 % to 0.005 %
		Magnesium		0.0015 % to 3.46 %
		Sodium		0.0002 % to 0.0083 %
		Calcium		0.0001 % to 0.032 %

Rini Narayan
Convenor

N. Venkateswaran
Program Manager

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Aluminium Metal and Alloys	Boron	ASTM E 1251: 11	0.0001 % to 0.0115 %
		Tin		0.001 % to 0.036 %
		Beryllium		0.00024 % to 0.0013 %
		Cobalt		0.0013 % to 0.018 %
		Lithium		0.0014 % to 0.002 %
2.	Aluminium oxide/ Alumina	Silicon	ISO 1232: 1976	0.005 % to 0.050 %
		Iron	ISO 805: 1976	0.005 % to 0.10 %
		Titanium	ISO 900: 1977	0.001 % to 0.05 %
		Phosphorus	ISO 2829: 1973	0.0005 % to 0.05 %
		Vanadium	ISO 1618: 1976	0.0003 % to 0.016 %
		Sodium	ISO 1617: 1976	0.05 % to 1.0 %
		Zinc	ISO 2071: 1976	0.0001 % to 0.02 %
		Moisture (MOI) at 300 °C	ISO 806: 2004	0.20 % to 5 %
		Loss on Ignition (LOI) at 1000 °C		0.10 % to 2.0 %
		Bulk Density	ISO 903:1976	900 kg/m ³ to 1100 kg/m ³
	BET Surface Area	ISO 8008: 2005	50 m ² /g to 100 m ² /g	
	Size analysis (45 µm to 150 µm)	ISO 2926: 2005	0.5 % to 100 %	

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	Aluminium Trifluoride	Fluorine	IS 4129: 1967	88 % to 95 %
		Silicon	QA&TECH/QALAB/WI/SM/RM/002, Issue Date – 08.04.2013, Issue No. 01	0.005 % to 0.280 %
		Iron	QA&TECH/QALAB/WI/SM/RM/002, Issue Date – 08.04.2013, Issue No. 01	0.005 % to 0.050 %
		Phosphorus	IS 4129: 1967	0.0010 % to 0.0500 %
		Sodium	QA&TECH/QALAB/WI/SM/RM/002, Issue Date – 08.04.2013, Issue No. 01	0.10 % to 0.67 %
		Calcium	QA&TECH/QALAB/WI/SM/RM/002, Issue Date – 08.04.2013, Issue No. 01	0.001 % to 0.10 %
		Sulphur	IS 4129: 1967	0.040 % to 0.70 %
		Moisture on Ignition (MOI) at 0-110 °C	ISO 3393: 1976	0.05 % to 1.0 %
	Loss on Ignition (LOI) at 550 °C for 1/2 hr	IS 4129: 1967	0.10 % to 2.0 %	

II. PETROLEUM PRODUCTS

1.	Coal Tar Pitch	Insoluble in Quinoline	ASTM D 2318: 98 Reapproved 2013	4.00 % to 15.00 %
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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Coal Tar Pitch	Insoluble in Toluene	ISO 6376: 1980(E)	25.00 % to 37.00 %
		Softening point	ISO 5940-2: 2007(E)/ ASTM D3104: 99 Reapproved 2010 / ISO 5940: 1981	104.0 °C to 115.0 °C
		Lump Density	ASTM D71: 94 Reapproved 2009	1.29 g/cc to 1.35 g/cc
		Ash	ISO 8006: 1985	0.10 % to 1.00 %
		Iron	QA & Tech/QA LAB/WI/CA/RM/003, Issue date: 09.04.2013, Issue No. 01	0.010 % to 0.060 %
		Silica		0.0009 % to 0.050 %
		Sodium		0.005 % to 0.030 %
		Viscosity at 160 °C	ISO 8003: 1985	1500 cps to 3000 cps
		Viscosity at 180 °C	ISO 8003: 1985	350 cps to 800 cps
		Sulphur	QA & Tech/QA LAB/WI/CA/RM/003 Issue date: 09.04.2013, Issue No. 01	0.20 % to 0.60 %
		Coking Value	ISO 6998: 1997/Corr.1	53 % to 60 %
2.	Calcined Petroleum Coke	Ash	ASTM D 4422: 13/ ISO 8005: 2005	0.10 % to 0.55 %
		Moisture	ASTM D 3173: 11	0.05 % to 1.0 %

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	Calcined Petroleum Coke	Volatile Matter	ASTM D 3175: 11 / IS 1448 (Part 134): 1989	0.25 % to 0.50 %
		Sulphur	IS 1350 (Part 3): 1969 / ISO 5931: 2000	0.59 % to 3.67 %
		Iron	QA & Tech/QA LAB/WI/CA/RM/002, Issue Date:09.04.2013 , Issue No. 01	0.010 % to 0.060 %
		Silica	QA & Tech/QA LAB/WI/CA/RM/002, Issue Date: 09.04.2013 , Issue No. 01	0.010 % to 0.040 %
		Titanium	QA & Tech/QA LAB/WI/CA/RM/002, Issue Date:09.04.2013 , Issue No. 01	0.0005 % to 0.0032 %
		Vanadium	ISO 8658: 1997	0.0052 % to 0.0450 %
		Nickel	ISO 8658: 1997	0.0051 % to 0.0250 %
		Sodium	QA & Tech/QA LAB/WI/CA/RM/002, Issue Date:09.04.2013, Issue No. 01	0.0035 % to 0.0100 %
		Calcium	ISO 8658: 1997	0.005 % to 0.0350 %
		Real Density	ASTM D 2638: 10/ IS 1448 (Part 133): 1989	2.040 gm/cc to 2.090 gm/cc

