

Laboratory	Inspectorate Griffith India Pvt. Ltd., Bhubaneswar Laboratory, Plot # 211, Ground Floor, Sector-A, Zone-B, Mancheswar Industrial Estate, Bhubaneswar. Odisha		
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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.	COAL, COKE & OTHER SOLID FUELS			
1.	Coal & Coke	Total Moisture	IS: 1350 (Part-1) 1984, ISO-579-2013, ISO-589-2008E, ASTM-D 3302/ D 3302 M: 2012, D 2961-11	0.1- 50%
		Moisture in analysis sample (IM) /Air-dried Moisture	IS: 1350 (Part -1) 1984 ISO 11722:1999E/ ISO 687-2010 ASTMD3173-11/ ASTM D 7582 -12	0.1-30%
		Volatile Matter	IS: 1350 (Part-1) 1984 ISO 562-2010 ASTM- D3175-11/ ASTM D 7582 -12	0.30 -50%
		Ash	IS: 1350 (Part-1) 1984, ISO 1171:2010 ASTM D3174- 12/ ASTM D 7582 -12	0.20 – 95%
		Gross Calorific Value (GCV) & Net Calorific Value (NCV)	ISO 1928: 2009 ASTM D 5865- 13 BBSR/LAB/TPM 17.1	100 – 9000 kcal/kg

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		Fixed Carbon	IS: 1350 (Part-1) 1984 ISO 17246:2010 ASTM D 3172-07a (By calculation)	5 -98%
		Phosphorous	IS: 1350 (Part-5) 1979 ASTM D 6349-13 BBSR/LAB/TPM/ 15.1	0.004 - 0.5%
		Total Sulphur	IS: 1350 (Part-3) 1969 ISO: 334: 2013/ ISO 351:1996/Cor1:1996/ ISO- 19579:2006 ASTM D 4239 – 13, Method – B / ASTM D 5016 –08e1	0.1 - 5%
		Chloride	IS: 1350 (Part-V) 1979 ISO 587:1997 ASTM D4208-13	0.012 – 1.00%
		Ultimate Analysis		
		Carbon	ASTM D 5373 – 08	10 -100.0 %
		Hydrogen	ASTM D 5373 – 08	0.2 -15.0 %
		Nitrogen	ASTM D 5373 – 08	0.2- 5.0%
		Sulphur	ASTM D 4239 –13, (Method – B)	0.05 -10.0%
		Oxygen	ASTM D 3176-09	0.04 -90.0%

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2.	Chemical Analysis of Ash of Coal & Coke	Ash Fusion Temperature		
		IDT	IS 12891 –1990	900° C - 1500°C
		ST	ISO: 540-2008	900° C - 1500°C
		HT	ASTM D 1857/	900° C - 1500°C
		FT	D1857M-04 (2010)	900° C - 1500°C
		Hardgrove Grindability Index	IS 4433–1979 ISO 5074:1994 ASTM D 409/ D409 M – 12	30 – 110
		Crucible Swelling Number/FSI	IS 1353 – 1993 ASTM D 720 – 91 (2010)	1 – 9
		LTGK	IS 1353 – 1993	A – G9
		SiO ₂	IS:1355-1984 ASTM D 6349 – 13	15.0 – 70.0 %
		Fe ₂ O ₃	IS: 1355-1984 ASTM D 6349 – 13	1 – 40%
		Al ₂ O ₃	IS: 1355-1984 ASTM D 6349 – 13	5.0 – 40.0 %
		CaO	IS: 1355-1984 ASTM D 6349 – 13/ ASTM D3682-01 (2006)	0.05- 25%
		MgO	IS: 1355-1984 ASTM D 6349 – 13/ ASTM D3682-01 (2006)	0.05- 20%

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		Na ₂ O	IS: 1355-1984/ IS: 9497:1980 ASTM D 6349 – 13	0.005 -5.0 %
		K ₂ O	IS: 1355-1984/ IS: 9497:1980 ASTM D 6349 – 013	0.005 -5.0 %
		TiO ₂	IS: 1355-1984 ASTM D 6349 – 13/ ASTM D3682-01 (2006), BBSR/LAB/TPM/15.4	0.05-20 %
		MnO /Mn ₃ O ₄	IS: 1355-1984 ASTM D 6349 – 13 BBSR/LAB/TPM/ 16.2,	0.01-2.5%
		P ₂ O ₅	IS: 1355-1984 ASTM D 6349 – 13	0.01-3.5 %
		SO ₃	IS: 1355-1984 ASTM D 5016-08e1 , ASTM D 6349 – 13	0.05 - 20 %

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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
II. ORES & MINERALS				
1.	Iron Ore	Silica	IS: 1493 (Part-I) – 1981, ISO 2598 –1: 1992 BBSR/LAB/TPM/24.1	0.5 - 70%
		Total Iron	IS: 1493 (Part-I)-1981 ISO: 9507:1990 ASTM E246- 10 BBSR/LAB/TPM/24.1	2 -70%
		Ferrous Iron	IS: 1493:1959	0.1-35 %
		Alumina	IS: 1493 (Part-4)-1988 IS: 1493 (Part-1)-1981 ISO: 6830-1986/ ISO: 4688-1-2006 ASTM E507 09 BBSR/LAB/TPM/24.1	0.40 -30%
		Titania	IS: 1493 (Part-3)-1987; ISO: 4691:2009 ASTM E878- 12 BBSR/LAB/TPM/15.6 BBSR/LAB/TPM/24.1	0.05 - 20.0 %
		Manganese Oxide	IS: 1493 :1959 ISO 9682 –1: 2009 BBSR/LAB/TPM/16.1 BBSR/LAB/TPM/24.1	0.01 – 10 %

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	Calcium Oxide		IS: 1493 (Part-3)-1987; ISO: 10203-2006, BBSR/LAB/TPM/16.3 BBSR/LAB/TPM/24.1	0.01 –20 %
	Magnesium Oxide		IS: 1493 (Part-3)-1987 ISO: 10204-2006 BBSR/LAB/TPM/16.3 BBSR/LAB/TPM/24.1	0.01 – 20 %
	Sodium Oxide		IS: 9497: 1980 ISO 13313:2006 BBSR/LAB/TPM/24.1	0.01 – 1.0 %
	Potassium Oxide		IS: 9497: 1980, ISO 13312 :2006 BBSR/LAB/TPM/24.1	0.01 – 1.0%
	Phosphorous		ISO: 4687-1-1992	0.01 – 1%
	Sulphur		IS: 1493 -1959 ISO: 4689-3-2004 ASTM E 1915- 13 BBSR/LAB/TPM/14.4	0.002-0.5 %
	Copper		IS: 1493 (Part-5) 1990 ISO: 5418-2-2006. BBSR/LAB/TPM/24.1	0.003-1%

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		Lead	IS: 1493 (Part 7) 1993 ISO: 13311:1997 BBSR/LAB/TPM/24.1	0.003 – 0.5 %
		Zinc	IS: 1493 (Part 7) 1993 ISO: 13310:1997 BBSR/LAB/TPM/24.1	0.003 – 0.5 %
		Chromium	IS: 1493 (Part 3)-1987 BBSR/LAB/TPM/16.1 BBSR/LAB/TPM/24.1	0.003 -2 %
		Vanadium	IS: 1493 (Part 3)-1987 BBSR/LAB/TPM/ 16.1BBSR/LAB/TPM/24.1	0.003 - 2 %
		Nickel	BBSR/LAB/TPM/16.1 BBSR/LAB/TPM/24.1	0.003 - 2 %
		Cobalt	BBSR/LAB/TPM/16.1 BBSR/LAB/TPM/24.1	0.003 - 2 %
2.	Manganese Ore	Silica	IS: 1473-2004 ISO 5890:1981 BBSR/LAB/TPM/24.2 (ICP)	0.3 – 50%
		Manganese	IS: 1473-2004 ISO 4298:1984 ASTM E248-12, BBSR/LAB/TPM/24.2 (ICP)	2 - 65%

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	Manganese Dioxide		IS: 1473-2004 ISO 312:1986 ASTM E465 -11	15.0 – 95%
	Iron		IS: 1473-2004 ISO 9681:1990 ASTM E 316-11 BBSR/LAB/TPM/24.2 (ICP)	0.5 - 40.0%
	Alumina		IS: 1473-2004 ISO 5889: 1983 BBSR/LAB/TPM/24.2 (ICP)	0.3 – 25.0%
	Calcium Oxide		IS: 1473-2004 ISO 6233:1983 ISO 7953:1985 BBSR/LAB/TPM/24.2 (ICP)	0.01 –15%
	Magnesium Oxide		IS: 1473-2004 ISO 6233:1983; ISO 7953:1985 BBSR/LAB/TPM/24.2 (ICP)	0.01 – 15%
	Sulphur		IS: 1473-2004 ISO 320:1981 BBSR/LAB/TPM/14.7	0.002 -0.15%
	Phosphorous		BBSR/LAB/TPM/23.1 BBSR/LAB/TPM/24.2 (ICP)	0.005-1.0%

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	Barium Oxide		IS: 1473-2004 ISO 548: 1981 BBSR/LAB/TPM/24.2 (ICP)	0.1 – 5.0%
	Nickel		IS: 1473-2004 ISO 315: 1984 BBSR/LAB/TPM/24.2 (ICP)	0.01 – 0.2 %
	Lead		IS: 1473-2004 ISO 5889:1983 BBSR/LAB/TPM/24.2(ICP)	30 –500 ppm
	Copper		IS: 1473-2004 ISO 5889:1983 BBSR/LAB/TPM/24.2 (ICP)	20 – 500 ppm
	Zinc		IS: 1473-2004 ISO 5889:1983 BBSR/LAB/TPM/24.2 (ICP)	5 – 500 ppm
	Combined Water		IS: 1473-2004 ISO 549:1981	0.5 – 8.0%
	Sodium Oxide		IS: 9497: 1980 BBSR/LAB/TPM/24.2 (ICP)	0.01– 1%
	Potassium Oxide		IS: 9497: 1980 BBSR/LAB/TPM/24.2 (ICP)	0.01– 2.5 %

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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.	Chromite Ore	Silica	IS: 4737-1982 ISO 5997:1984	0.3 – 35%
		Chromium Oxide	IS: 4737-1982 ISO 6331-1983 ASTM E34204	2.0 – 68.0%
		Total Iron	IS: 4737-1982 ISO 6130:1985	2.0 – 45.0%
		Alumina	IS: 4737-1982 ISO 8889:1988	1.0 – 30%
		Calcium Oxide	IS: 4737-1982 ISO 5975:1983	0.2 – 5.0%
		Sulphur	BBSR/LAB/TPM/14.8	0.004 – 0.15 %
		Magnesium Oxide	IS: 4737-1982 ISO 5975:1983	1.0 – 30%
		Titanium Dioxide	BBSR/LAB/TPM/15.9	0.01 – 1.5 %
		Phosphorous	BBSR/LAB/TPM/19.1	0.001 – 0.1 %

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4.	Bauxite	Loss On Ignition	IS: 2000 (P-1)-1985 ISO 806:2004	2.0 – 40 %
		Silica	IS: 2000 (P-2)-1985 ISO 6607:1985	0.5 – 50.0 %
		Alumina	IS: 2000 (P-3) 1985	0.50 – 75.0%
		Ferric Oxide	IS: 2000 (P-4) 1985 ISO 10213: 1991; 6609: 1985	0.5 – 40.0%
		Titania	IS: 2000 (P-5) 1985 ISO 6995:1985	0.50 – 20.0%
		Calcium Oxide	IS: 2000 (P-9) 1989 ISO 2070:1997/ ISO 2069:1976	0.03 – 5.0 %
		Magnesium Oxide	IS: 2000 (P-9) 1989 ISO 2297:1973/ ISO 3256:1977	0.03 – 5.0 %
5.	Limestone & Dolomite	Loss on Ignition	IS: 1760 (P-1) 1991	1.0 – 50 %
		Silica	IS: 1760 (P-2) 1991	0.05 – 45.0 %
		Ferric Oxide	IS: 1760 (P-3) 1992 ASTM: C 25 – 11	0.05 – 30.0 %
		Titania	BBSR/LAB/TPM/15.7	0.01 – 2.50%

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		Alumina	IS: 1760 (P-3) 1992	0.05 – 30.0 %
		Calcium Oxide	IS: 1760 (P-3) 1992	1.0 – 56 %
		Magnesium Oxide	IS: 1760 (P-3) 1992	0.2 – 35 %
		Sulphur	ASTM: C 25 – 11	0.002 – 0.1 %
		Phosphorous	ASTM: C 25 – 11	0.002– 0.1 %
6.	Hydrated Lime	Calcium Hydroxide	IS: 1514 - 1990	50.0 -95.0 %
7.	Quartz	Loss On Ignition	IS: 1917 (P-1) 1991	0.1 – 15.0%
		Silica	IS: 1917 (P-3) 1992	65.0 – 99.9 %
		Alumina	IS: 1917 (P-4) 1991, BBSR/LAB/TPM/24.3(ICP)	0.01 – 10.0 %
		Ferric Oxide	IS: 1917 (P-5) 1992 BBSR/LAB/TPM/24.3 (ICP)	0.01 –5.0 %
		Titania	IS: 1917 (P-7) 2001 BBSR/LAB/TPM/24.3 (ICP)	0.01 – 2.50 %
		Sodium Oxide	IS: 1917 (P-2) 1991/ IS: 9497 –1980 BBSR/LAB/TPM/24.3 (ICP)	0.002 – 1.0%

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		Potassium Oxide	IS: 1917 (P-2) 1991/ IS: 9497 –1980 BBSR/LAB/TPM/24.3 (ICP)	0.002 – 1.0%
		Calcium Oxide	BBSR/LAB/TPM/24.3 (ICP)	0.01 – 2.5%
		Magnesium Oxide	BBSR/LAB/TPM/24.3 (ICP)	0.01 – 2.5%
		Thermal Stability	IS 13054:1991	0-100% (+19mm) 0-100% (- 5 mm)
III. METAL & ALLOYS				
1.	Ferrochrome	Carbon (LCFC)	IS: 1559-1961 ASTM E 1915- 11 BBSR/LAB/TPM/14.3	0.05 – 2.0 %
		Carbon (HCFC)	IS: 1559-1961 ASTM E 1915 – 11 BBSR/LAB/TPM/14.2	5 – 10 %
		Silicon	IS: 1559-1961/ IS: 13452 (P-1) 1992	0.2 – 10.0 %
		Chromium (LCFC)	IS: 13452 (P- 6) –1997	45 – 80 %
		Chromium (HCFC)	IS: 13452 (P-5) 2003	40 – 66%
		Sulphur	IS: 1559-1961 ASTM E 1915- 13 BBSR/LAB/TPM/14.2/ BBSR/LAB/TPM/14.3	0.005 – 0.75%

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		Phosphorous	IS: 1559-1961 BBSR/LAB/TPM/19.1	0.005 – 0.1 %
		Manganese	IS: 1559-1961	0.02 – 1.5 %
		Titanium	BBSR/LAB/TPM/15.3	0.02 – 1.5 %
		Aluminium	BBSR/LAB/TPM/16.7	0.02 – 10.0%
		Nickel	BBSR/LAB/TPM/16.7	0.02 – 1.0%
		Vanadium	ASTM E 1915- 13 BBSR/LAB/TPM/14.6	0.02 – 1.0
2.	Ferro Manganese	Carbon	ASTM E 1915- 13 BBSR/LAB/TPM/14.6	0.01 – 8.0 %
		Silicon	IS: 1559-1961, ISO 4158: 1978	0.1 – 6.0 %
		Sulphur	IS: 1559-1961, ASTM E 1915- 13 BBSR/LAB/TPM/14.6	0.005 – 0.5 %
		Phosphorous	IS: 1559-1961, BBSR/LAB/TPM/23.2	0.01 – 1.0 %
		Manganese	IS: 1559-1961 ISO 4159 : 1978	25 – 90 %

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3.	Silico Manganese	Carbon	ASTM E 1915- 13 BBSR/LAB/TPM/14.5	0.05 - 3.0%
		Silicon	IS: 1559-1961, ISO 4158:1978	5 – 35%
		Sulphur	IS: 1559: 1961, ASTM E 1915- 13 BBSR/LAB/TPM/14.5	0.005 - 0.2%
		Phosphorous	IS: 1559-1961, BBSR/LAB/TPM/23.2	0.01 – 1.0 %
		Manganese	IS: 1559 -1961 ISO 4159:1978	25 – 85 %
4.	Ferro Silicon	Silicon	IS: 1559-1961/ IS: 1559 (P-1) 1988 ISO 4158:1978	30 – 80 %
		Aluminium	IS: 1559 (P-5) 2003 ISO 4139:1979 BBSR/LAB/TPM/16.4	0.05 – 6.0 %
		Sulphur	IS: 1559 (P-3) 1982 ASTM E 1915- 13 BBSR/LAB/TPM/14.9	0.005 – 0.5 %
		Phosphorous	IS: 1559-1961 BBSR/LAB/TPM/23.3	0.01 – 0.3%

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5.	Pig Iron / Cast Iron	Manganese	BBSR/LAB/TPM/16.4	0.05 – 5 %
		Calcium	BBSR/LAB/TPM/16.4	0.05 - 2.5%
		Carbon	BBSR/LAB/TPM/14.9	0.05 –1.0 %
		Carbon	ASTM E 1915-13 BBSR/LAB/TPM/14.1	1.5 -6.0%
		Manganese	IS: 12308 (P-10) 1991 BBSR/LAB/TPM/16.5	0.05 - 3%
		Silicon	IS: 12308 (P-6) 1991	0.5 – 5.0 %
		Sulphur	IS: 12308 (P-2) 1987 ASTM E 1915- 13 BBSR/LAB/TPM/14.1	0.005 – 0.25 %
		Phosphorous	IS: 12308 (P-5) 1991 BBSR/LAB/TPM/23.2	0.01 – 0.5 %
		Nickel	IS: 12308 (P-7) 1991 BBSR/LAB/TPM/16.5	0.05 – 5 %
		Chromium	IS: 12308 (P-8) 1997 BBSR/LAB/TPM/16.5	0.1 – 15.0%

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6.	Steel	Manganese	IS :228 (Part-2) -1987 BBSR/LAB/TPM/16.6	0.05 - 20.0%
		Silicon	IS :228 (Part-11) -1990	0.01 - 0.05 %
			IS :228 (Part-8) -1989	0.05 - 5.00 %
		Phosphorous	IS :228 (Part-3) -1987	0.005 - 0.1%
		Carbon	IS :228 (Part-20) -2003	0.005 - 2.00 %
		Sulphur	IS :228 (Part-20) -2003	0.001 - 0.35 %
		Chromium	IS :228 (Part-6) -1987 BBSR/LAB/TPM/16.6	0.002 - 25.00 %
		Nickel	IS :228 (Part-5) -1987 BBSR/LAB/TPM/16.6	0.002 - 30.00 %
		Molybdenum	IS :228 (Part-7) -1990 BBSR/LAB/TPM/16.6	0.002 - 2.00 %
		Vanadium	BBSR/LAB/TPM/16.6	0.002 - 2.00 %
		Titanium	BBSR/LAB/TPM/15.10	0.002 - 2.00%
		Copper	BBSR/LAB/TPM/16.6	0.002 - 2.00%
		Aluminium	BBSR/LAB/TPM/16.6	0.002 - 2.00%
		Cobalt	BBSR/LAB/TPM/16.6	0.002 - 2.00%

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7.	Ferro Molybdenum	Molybdenum	IS 12614 (Part 1) -1988	52 - 65%
		Silicon	IS 1559-1961	0.1 - 2.0%
		Carbon	BBSR/LAB/TPM/14.10	0.01 - 1.0%
		Sulphur	BBSR/LAB/TPM/14.10	0.01 - 2.0%
		Phosphorous	BBSR/LAB/TPM/23.3	0.025 - 0.25 %
		Copper	BBSR/LAB/TPM/16.8	0.01 - 2.0%
8.	Fluorspar	CaCO ₃	IS : 2411 – 1963, ASTM : E 815 – 04	0.1- 5 %
		CaF ₂	IS : 2411 – 1963 / IS : 8587 -1993; ASTM : E 815 – 11	65 - 99 %
		SiO ₂	IS : 2411 – 1963 / IS : 8587 -1993 ASTM: E 815 – 11/ 463 – 09	0.1 – 20 %
		Fe ₂ O ₃	IS : 2411 – 1963	0.2 – 1.5 %
		Al ₂ O ₃	IS : 2411 – 1963	0.2 – 15 %

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IV	FERTILIZER			
1.	MOP (Muriate of Potash)	Moisture	Method of Analysis as per the Fertiliser (Control) Order-1985, Schedule – II, Part – B , 2(i)	0.1 - 3 %
		K ₂ O	Method of Analysis as per the Fertiliser (Control) Order-1985, Schedule – II, Part – B , 5(ii)	1 – 61.5 %
		NaCl	IS 6092 (Part 6) – 1985	0.1 - 5%
		KCl	Method of Analysis as per the Fertiliser (Control) Order-1985, Schedule – II, Part – B , 5(ii)	-
		MgCl ₂	Method of Analysis as per the Fertiliser (Control) Order-1985- Schedule – II, Part – B , 8(iii)	0.1 - 2%
2.	Urea	Moisture	Method of Analysis as per the Fertiliser (Control) Order-1985, Schedule – II, Part – B, 2(i) c	0.1 - 5%
		Total Nitrogen	Method of Analysis as per the Fertiliser (Control) Order-1985- Schedule – II, Part – B , 3(ii).	1 – 46.5 %
3.	DAP	Moisture	The Fertiliser (Control) Order, 1985, Schedule – II, Part – B , 2(ii) a	0.01 - 1.5 %

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		Water Soluble P2O5	Method of Analysis as per the Fertiliser (Control) Order-1985-Schedule – II, Part – B ,4 (iii)	1 - 46 %
		Neutral Ammonia-citrate soluble P2O5	Method of Analysis as per the Fertiliser (Control) Order-1985-Schedule – II, Part – B ,4(ii),(iv) & (v)	1 - 48 %
		Total Nitrogen	Method of Analysis as per the Fertiliser (Control) Order-1985-Schedule – II, Part – B , 3(iv)	1 - 20 %
		Ammoniacal Nitrogen	Method of Analysis as per the Fertiliser (Control) Order-1985-Schedule – II, Part – B , 3(vii)	1 - 18 %
V.	WATER			
1.	Drinking Water	Colour	IS 3025 (Part-4) 1983	(1– 100)Hazen
		Odour	IS 3025 (Part-5) –1983	Unobjectionable /Agreeable
		Turbidity	IS 3025 (Part -10) – 1984	0.02 - 800 NTU
		Total Dissolved Solids	IS 3025 (Part - 16) 1984 (Gravimetric Method)	5 – 2000 mg/l
		pH Value	IS 3025 (Part - 11) – 1983 (Electrometric method)	1 – 13
		Total Hardness (as CaCO ₃)	IS 3025 (Part - 21) – 2009	2.0 – 500 mg/l

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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
		Chlorides	IS 3025 (Part-32) 1988 (Argentometric Method)	1 – 500 mg / l
		Residual Free Chlorine	IS 3025 (Part - 26) – 1986 (Iodometric Method)	0.1 – 50 mg/l
		Sulphate as SO ₄	IS 3025 (Part - 24) 1986	1 - 400 mg/l
		Fluoride as F	IS 3025 (Part - 60) 2008 (Zirconium Alizarin Method)	0.2 – 2 mg/l
		Calcium as Ca	IS 3025 (Part - 2) -2004 (ICP)	5 – 300 mg/l
		Iron	IS 3025 (Part - 53) - 2003 (AAS)	0.075 – 50 mg/l
		Lead as Pb	IS 3025 (part - 2) – 2004(ICP)	0.07 – 5 mg/l
		Zinc as Zn	IS 3025 (Part - 49) – 1994 (ICP)	0.02 – 5 mg/l
		Chromium as Cr ⁺⁶	IS 3025 (Part - 52)– 2003 (Spectrophotometric Method)	0.03 - 20 mg/l
		Total Alkanity	IS 3025 (Part - 23) – 1986	2.0 –500 mg/l
		Aluminum as Al	IS 3025 (Part - 2) – 2004	0.04 – 5 mg/l
		Boron	IS 3025 (Part - 2) – 2004	0.01 – 10.0 mg/l
		Barium	IS 3025 (part - 2) – 2004	0.005 – 10.0 mg/l

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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
		Cadmium	IS 3025 (Part - 41) – 1992	0.01 – 5.0 mg/l
		Copper as Cu	IS 3025 (Part - 2) – 2004	0.01 – 50 mg/l
		Magnesium	IS 3025 (Part - 2) – 2004	0.5 – 200 mg/l
		Manganese	IS 3025 (Part - 59) 2006	0.01 – 5.0 mg/l
		Molybdenum	IS3025 (Part - 2) – 2004	0.03 – 0.5 mg/l
		Nickel	IS3025 (Part - 54) – 2003	0.3 - 10.0 mg/l
		Mercury as Hg	IS 3025 (Part - 48) – 1994	0.0002 – 2 mg/l
		Selenium	IS 3025 (Part - 56) – 2003	0.1 – 1 mg/l
		Arsenic	IS 3025 (Part - 37) – 1988	0.1 – 2.0 mg/l
		Nitrate (NO3)	IS 3025 (Part - 34) - 1988	0.1 – 50.0 mg/l
2.	Package Natural Mineral Water	Colour	IS 3025 (Part-4) 1983	(1– 100) Hazen
		Odour	IS 3025 (Part-5) –1983	Unobjectionable /Agreeable
		Turbidity	IS 3025 (Part -10) – 1984	0.02 - 800 NTU
		Total Dissolved Solids	IS 3025 (Part - 16) 1984 (Gravimetric Method)	5 – 2000 mg/l
		pH Value	IS 3025 (Part - 11) – 1983	1 – 13

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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
			(Electrometric method)	
	Chlorides		IS 3025 (Part-32) 1988 (Argentometric Method)	1 – 500 mg / l
	Sulphate as SO ₄		IS 3025 (Part - 24) 1986	1 - 400 mg/l
	Fluoride as F		IS 3025 (Part - 60) 2008 (Zirconium Alizarin Method)	0.2 – 2 mg/l
	Calcium as Ca		IS 3025 (Part - 2) -2004 (ICP)	5 – 300 mg/l
	Zinc as Zn		IS 3025 (Part - 49) – 1994 (ICP)	0.02 – 5 mg/l
	Total Alkalinity		IS 3025 (Part - 23) – 1986	2.0 –500 mg/l
	Barium		IS 3025 (part - 2) – 2004	0.005 – 10.0 mg/l
	Copper as Cu		IS 3025 (Part - 2) – 2004	0.01 – 50 mg/l
	Magnesium		IS 3025 (Part - 2) – 2004	0.5 – 200 mg/l
	Manganese		IS 3025 (Part - 59) 2006	0.01 – 5.0 mg/l
	Sodium		IS 3025(Part - 45) – 1993	0.5 – 200.0 mg/l
	Selenium		IS 3025 (Part - 56) – 2003	0.1 – 1 mg/l
	Antimony		IS 3025 (Part - 2) – 2004	0.1 – 1.0 mg/l

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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.	Packaged Drinking Water	Nitrate (NO ₃)	IS 3025 (Part - 34) – 1988	0.1 – 50.0 mg/l
		Nitrite (NO ₂)	IS 3025 (Part - 34) – 1988	0.18 – 50 mg/l
		Arsenic	IS 3025 (Part - 37) – 2004	0.1 – 2.0 mg/l
		Cadmium	IS 3025 (Part - 41) – 1992	0.01 – 5.0 mg/l
		Chromium	IS 3025 (Part-52) – 2003	0.03 – 20.0 mg/l
		Mercury as Hg	IS 3025 (Part - 48) – 1994	0.0002 – 2 mg/l
		Lead as Pb	IS 3025 (part - 2) – 2004(ICP)	0.07 – 5 mg/l
		Nickel	IS3025 (Part - 54) - 2003	0.3 - 10.0 mg/l
		Colour	IS 3025 (Part-4) 1983	(1– 100)Hazen
		Odour	IS 3025 (Part-5) –1983	Unobjectionable /Agreeable
		Turbidity	IS 3025 (Part -10) – 1984	0.02 - 800 NTU
		Total Dissolved Solids	IS 3025 (Part - 16) 1984 (Gravimetric Method)	5 – 2000 mg/l
		pH Value	IS 3025 (Part - 11) – 1983 (Electrometric method)	1 – 13
		Chlorides	IS 3025 (Part-32) 1988	1 – 500 mg / l

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			(Argentometric Method)	
	Residual Free Chlorine		IS 3025 (Part - 26) – 1986 (Iodometric Method)	0.1 – 50 mg/l
	Sulphate as SO ₄		IS 3025 (Part - 24) 1986	1 - 400 mg/l
	Fluoride as F		IS 3025 (Part - 60) 2008 (Zirconium Alizarin Method)	0.2 – 2 mg/l
	Calcium as Ca		IS 3025 (Part - 2) -2004 (ICP)	5 – 300 mg/l
	Zinc as Zn		IS 3025 (Part - 49) – 1994 (ICP)	0.02 – 5 mg/l
	Aluminum as Al		IS 3025 (Part - 2) – 2004	0.04 – 5 mg/l
	Total Alkanity		IS 3025 (Part - 23) – 1986	2.0 –500 mg/l
	Barium		IS 3025 (part - 2) – 2004	0.005 – 10.0 mg/l
	Copper as Cu		IS 3025 (Part - 2) – 2004	0.01 – 50 mg/l
	Iron		IS 3025 (Part - 53) - 2003 (AAS)	0.075 – 50 mg/l
	Magnesium		IS 3025 (Part - 2) – 2004	0.5 – 200 mg/l
	Manganese		IS 3025 (Part - 59) 2006	0.01 – 5.0 mg/l
	Sodium		IS 3025(Part - 45) – 1993	0.5 – 200.0 mg/l

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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
		Selenium	IS 3025 (Part - 56) – 2003	0.1 – 1 mg/l
		Antimony	IS 3025 (Part - 2) – 2004	0.1 – 1.0 mg/l
		Nitrate (NO3)	IS 3025 (Part - 34) – 1988	0.1 – 50.0 mg/l
		Nitrite (NO2)	IS 3025 (Part - 34) – 1988	0.18 – 50 mg/l
		Arsenic	IS 3025 (Part - 37) – 2004	0.1 – 2.0 mg/l
		Cadmium	IS 3025 (Part - 41) – 1992	0.01 – 5.0 mg/l
		Chromium	IS 3025 (Part-52) – 2003	0.03 – 20.0 mg/l
		Mercury as Hg	IS 3025 (Part - 48) – 1994	0.0002 – 2 mg/l
		Lead as Pb	IS 3025 (part - 2) – 2004(ICP)	0.07 – 5 mg/l
		Nickel	IS3025 (Part - 54) - 2003	0.3 - 10.0 mg/l
4.	Waste Water	Colour	IS 3025 (Part-4) 1983	(1– 100)Hazen
		Odour	IS 3025 (Part-5) –1983	Unobjectionable /Agreeable
		pH Value	IS 3025 (Part - 11) – 1983 (Electrometric method)	1 – 13
		Oil & Grease	IS 3025 (Part - 39) – 1991	1 – 500 mg / l
		Residual Free Chlorine	IS 3025 (Part - 26) – 1986	0.1 – 50 mg/l

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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
			(Iodometric Method)	
	Suspended Solids		IS 3025 (Part - 17) 1984	5 – 2000 mg/l
	Phosphate		IS 3025 (Part - 31) 1988 (Vanadomolybdo Method)	0.1 – 10 mg/l
	Fluoride as F		IS 3025 (Part - 60) 2008 (Zirconium Alizarin Method)	0.2 – 2 mg/l
	Iron		IS 3025 (Part - 53) - 2003 (AAS)	0.075 – 50 mg/l
	Lead as Pb		IS 3025 (part - 2) – 2004(ICP)	0.07 – 5 mg/l
	Zinc as Zn		IS 3025 (Part - 49) – 1994 (ICP)	0.02 – 5 mg/l
	Chromium as Cr ⁺⁶		IS 3025 (Part - 52)– 2003 (Spectrophotometric Method)	0.03 - 20 mg/l
	Aluminum as Al		IS 3025 (Part - 2) – 2004	0.04 – 5 mg/l
	Cadmium		IS 3025 (Part - 41) – 2008	0.01 – 5.0 mg/l
	Copper as Cu		IS 3025 (Part - 2) – 2004	0.01 – 50 mg/l
	Chromium		IS 3025 (Part-52) – 2003	0.03 – 20.0 mg/l
	Silica (SiO ₂)		IS 3025 (Part - 35) – 1988	0.4 – 2.5 mg/l
	Reactive Silica		IS 3025 (Part - 35) – 1988	0.5 – 10 mg/l

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		Colloidal Silica	IS 3025 (Part - 35) – 1988	0.5– 10 mg/l
		Titanium	IS 3025(Part - 2) – 2004	0.01 – 0.2 mg/l
		Manganese	IS 3025 (Part - 59) 2006	0.01 – 5.0 mg/l
		Sodium	IS 3025(Part - 45) – 1993	0.5 – 200.0 mg/l
		Potassium	IS 3025 (Part - 45) – 1993	0.1 – 10.0 mg/l
		Nickel	IS3025 (Part - 54) – 2003	0.3 - 10.0 mg/l
		Mercury as Hg	IS 3025 (Part - 48) – 1994	0.0002 – 2 mg/l
		Selenium	IS 3025 (Part - 56) – 2003	0.1 – 1 mg/l
		Vanadium	IS 3025 (Part - 2) – 2004	0.01 – 2.0 mg/l
		Arsenic	IS 3025 (Part - 37) – 2004	0.1 – 2.0 mg/l
		Ammonical Nitrogen	IS 3025 (Part - 34) – 1988	5.0 – 10.0 mg/l
		Dissolved Oxygen	IS 3025 (Part - 38) – 1989	1.0 – 500 mg/l
		Electrical Conductivity	IS 3025 (Part - 14) – 1984	1.0 – 1000 µs/cm
		COD	IS 3025(Part - 58) – 2006	5 – 1000 mg/l
	Waste Water	BOD (3 days)	IS 3025 (Part - 44) - 1993	1 – 1000 mg/l

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		Temperature	IS 3025 (Part - 9) - 1984	(0 – 200) Deg.cel
		Nitrate (NO3)	IS 3025 (Part - 34) - 1988	0.1 – 50.0 mg/l
		Nitrite (NO2)	IS 3025 (Part - 34) - 1988	0.18 – 50 mg/l
		T. Kjeldal Nitrogen	IS 3025 (Part - 34) - 1988	5 – 200 mg/l
5.	Reagent Grade Water	pH Value	IS 3025 (Part - 11) – 1983 (Electrometric method)	1 – 13
		Total Dissolved Solids	IS 3025 (Part - 16) 1984 (Gravimetric Method)	5 – 2000 mg/l
		Total Suspended Solids	IS 3025 (Part - 17) 1984	5 – 2000 mg/l
		Silica (SiO2)	IS 3025 (Part - 35) - 1988	0.4 – 2.5 mg/l
		Conductivity	IS 3025 (Part - 14) – 1984	1.0 – 1000 µs/cm
6.	Water for Irrigation	Colour	IS 3025 (Part-4) 1983	(1– 100)Hazen
		Odour	IS 3025 (Part-5) –1983	Unobjectionable /Agreeable
		pH Value	IS 3025 (Part - 11) – 1983 (Electrometric method)	1 – 13
		Oil & Grease	IS 3025 (Part - 39) – 1991	1 – 500 mg / l
		Total Suspended Solids	IS 3025 (Part - 17) 1984	5 – 2000 mg/l

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	Arsenic	IS 3025 (Part - 37) – 2004	0.1 – 2.0 mg/l
	BOD (3 days)	IS 3025 (Part - 44) - 1993	1 – 1000 mg/l

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***NOTE:** The Laboratory has demonstrated competence for the stated scope for **WATER**. This however does not fully cover the specification requirements of **BIS for the Packaged Drinking Water as per IS:14543 and the Packaged Natural Mineral Water IS:13428**.