

Laboratory	Quality Services & Solutions (QSS), Plot No. 32, Sector-9, Gandhidham, Kachchh, Gujarat		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	28.11.2013
Certificate Number	T-1706	Valid Until	27.11.2015
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I. FOOD AND AGRICULTURAL PRODUCTS

1.	Feeding Stuff, Meals, Oil Cakes (Soya, Rape seed, Rice Bran, Castor, Groundnut, Cotton, Guar Korma)	Moisture	GAFTA 130:2.1:2003	2 to 25%
		Protein	GAFTA 130:4.0:2003	1 to 75 %
		Oil	GAFTA 130:3.0:2003	0.10 to 20%
		Ash insoluble in Hydrochloric Acid (Sand and/or Silica)	GAFTA 130:13.0:2003	0.1 to 10 %
		Fibre	GAFTA 130:10.0:2003	1 to 20 %
	Ash	GAFTA 130:12.0:2003	0.1 to 15%	
2.	Spices, Condiments (Cumin, Corriander, Fenugreek, Fennel, Dill)	Moisture	ISO:939:1980 IS 1797 : 1985 (Rf Jan 2009)	2 to 25%
		Extraneous Matter	ISO:927:2009	Upto 1% 1 to 25%
		Foreign Matter	ISO:927:2009	Up to 1% 1 to 25%
3.	Food Grains (Wheat, Rice, Jowar, Barley, Sunhemp, Maize, Millet, Sorghum, Chick Peas, Soyabean)	Moisture (except Maize)	IS 4333 (Part-2) 2002	2 to 25%
		Moisture (Maize)	ISO:6540:1984 (Section - 1)	2 to 25%

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	Food Grains (Wheat, Rice, Jowar, Barley, Sunhemp, Maize, Millet, Sorghum, Chick Peas, Soyabean)	<u>Physical Analysis</u>		
		Foreign Matter	SOP QSS/LAB/SOP/02 based on	Upto 1% 1 to 25%
		Other Foodgrains	IS 4333 (Part-1):1996 (2001) & IS 2813:1995 (2005)	Upto 1% 1 to 25%
		Damaged		
		Discoloured		
		Insect Damaged		
		Fragments		
		Broken		
		Slightly Damaged or Touched		
		Chalky (in rice)		
		Red Grains		
		Kernels with husk		
		Shrivelled or immature		
		Varietal Admixture		
	Protein	GAFTA 130:4.0	1 to 20 %	
	<u>Physical Analysis For Wheat</u>			
	Damaged wheat Grains	ISO 7970 : 2000 (E)	Upto 1% 1 to 25%	
	Broken Grains			
	Shrivelled Grains			
	Unsound Grains			
	Grain attacked by Pests			
	Mouldy Grains			
	Heat Damaged Grains			
	Extraneous Matter -			
	Organic Extraneous Matter,			
	Inorganic Extraneous Matter			
	Harmful and / or Toxic Seeds,			
	Burnted Grains and Ergot			

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4.	Oil Seeds (Sesame, HPS/ Groundnut, Soya, Castor, Safflower/ Sunflower, Mustard, Nigella)	Moisture	IS 3579-1966 (2000)	2% to 20%	
		Moisture and Volatiles	AOCS (5th Ed) Aa 3-38; Ab 2-49; Ac 2-41; Ae 2-52; Ai 2-75	2% to 20%	
		<u>Physical Analysis</u>			
		Impurities	QSS/LAB/SOP/01	Up to 1%	
		Damaged Seeds		1% to 25%	
		Discoloured			
		Broken			
		Split			
		Shrivelled or immature			
		Sprouted			
		Insect Damaged			
		Admixture	QSS/LAB/SOP/01	Up to 1%	
		Purity		1% to 25%	
		Dark Colour Seeds			
Other Colour Seeds					
Whitish Seeds					
Rain Damaged Seeds					
Light(Immature/Dead)					
Oil Content	IS 3579-1966 (2000)	10% to 60%			
Free Fatty Acid	AOCS Ab 5-49 (5 th Ed)	0.1% to 10%			
Acid Value	IS 3579-1966 (2000)	0.2 to 20 mg KOH/gm			
Counts per Ounce	QSS/LAB/SOP/01	40 to 150			

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5.	Oils & Fats (Palm, Soya, Castor, Rape seed)	Moisture and Volatiles	AOCS Ca 2c-25 (5 th Ed) MPOB p2.1 Part 1:2004	0.05% to 2%
		Free Fatty Acid	AOCS Ca 5a-40 (5 th Ed) MPOB p2.5:2004	0.1% to 10%
		Acid Value	AOCS Cd 3d-63 (5 th Ed) MPOB p2.5:2004	0.2 to 20 mg KOH/gm
		Iodine Value	AOCS Cd 1-25 (5 th Ed), AOCS Cd 1d-92 (5 th Ed) MPOB p3.2:2004	50 to 180
6.	Food Additives Salt (Industrial, Common, Iodised)	Moisture	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	0.1 to 10%
		Purity as NaCl	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	By Calculation
		Chloride as NaCl	IS 253:1985 (2004) IS 7224:2006	75 to 99.90%
		Acid Insoluble Matter	IS 253:1985 (2004)	0.01 to 1.5%
		Calcium	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	0.005 to 1%

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	Food Additives Salt (Industrial, Common, Iodised)	Magnesium	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	0.005 to 1%
		Alkalinity as Na ₂ CO ₃	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	0.05 to 0.5%
		Potassium	IS 253:1985(2004)	0.1 to 2.5%
		Iodine Content	IS 7224:2006	Upto 100 ppm
		Sulphates as SO ₄	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	0.05 to 2.5%
		Water Insoluble Matter (Matter Insoluble in Water)	IS 253:1985 (2004), IS 797:1982 (1997) IS 7224:2006	0.02 to 2%
		Matter Soluble in Water, other than Sodium Chloride	IS 253:1985 (2004) IS 7224:2006	Upto 3 %
		Ferrocyanide	IS 253:1985 (2004) IS 7224:2006	Qualitative (Visual Comparison)
	Iron as Fe	IS 253:1985 (2004) IS 7224:2006	Qualitative (Visual Comparison)	

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II. ORES & MINERALS

1. Lime Stone, Dolomite, Allied Material	Loss on Ignition	IS 1760 (Part-1) 1991 (2006)	5 to 50%
	Silica	IS 1760 (Part-2) 1991 (2006)	0.2 to 25%
	Alumina	IS 1760 (Part-3) 1992 (2006)	0.2 to 20%
	Ferric Oxide	IS 1760 (Part-3) 1992 (2006)	0.2 to 10%
	Titania	IS 2000 (Part-5) 1985 (2006)	0.1 to 5%
	Calcium	IS 1760 (Part-3) 1992 (2006)	0.2 to 60%
	Magnesium	IS 1760 (Part-3) 1992 (2006)	0.2 to 90%
2. Bauxite, Laterite	Loss on Ignition	IS 2000 (Part-1) 1985 (2006)	5 to 40%
	Silica	IS 2000 (Part-2) 1985 (2006)	0.5 to 30%
	Alumina	IS 2000 (Part-3) 1985 (2006) ISO 6994:1986 (E)	10 to 60%
	Ferric Oxide	ASTM E 394 - 00 Reap. 2004	1 to 5%
	Ferric Oxide	IS 2000 (Part-4) 1985 (2006)	5 to 60%
	Titania	IS 2000 (Part-5) 1985 (2001)	1 to 10%
	Calcium	IS 3605 - 1984 (2003) IS 5949 - 1990 (2003)	1 to 10%
Magnesium	IS 3605 - 1984 (2003) IS 5949 - 1990 (2003)	1 to 10%	

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3.	Iron Ore	Moisture	IS 1493 : 1959 IS 1493 (Part-1) 1959 IS 11690 : 1980	1 to 15%
		Total Iron as Fe	IBM Chapter 1.2.1.1 (Pg. 4) QSS/LAB/SOP/08 IS 1493 : 1959 IS 1493 (Part-1) 1959	35 to 70%
		Silica	IBM Chapter 1.2 (Pg. 45), June 2004, IS 1493 : 1959 IS 1493 (Part-1) 1959	0.5 to 30%
		Alumina	IBM Chapter 1.2.1.4 (Pg. 8), June 2004, IS 1493 : 1959 IS 1493 (Part-1) 1959	0.25 to 15%
		Phosphorus	ASTM E 1070	0.005 to 2%
		Manganese	QSS/LAB/SOP/07	0.01 to 1%
		Loss on Ignition	QSS/LAB/SOP/07	0.1 to 15%
III. COAL COKE & OTHER SLID FUELS				
1.	Coal, Coke, Brown Coal, Lignite	Total Moisture	ISO 589:1981 ISO 579:1999 ASTM D 3302: 2012, IS 1350 (Part-1) 1984 (RA 2002)	1 to 55%

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	Coal, Coke, Brown Coal, Lignite	Moisture in the Analysis Sample	IS 1350 (Part-1) 1984 (RA 2001), Cl.6.1e & Cl.6.3.2; ASTM D 3173:2011	0.20 to 20%
		Volatile Matter	IS 1350 (Part-1) 1984 (RA 2002), ASTM D 3175-2011	0.20 to 45%
		Ash	IS 1350 (Part-1) 1984 (RA 2002), ASTM D 3174:2011	0.50 to 50%
		Fix Carbon (by Difference)	IS 1350 (Part-1) 1984 (RA 2001), ASTM D 3172-07a	NA
		Gross Calorific Value	IS 1350 (Part-2) 1970 ASTM D 5865-2004a	2000 to 9000 Kcal/Kg
		Sulphur	IS 1350 (Part-3) 1969 (RA 2000)	0.1 to 10%
		Phosphorus	ASTM C 114:2004a	0.01 to 0.75%
IV. WATER				
1.	Potable Water, Drinking Water	pH Value	IS 3025 (Part-11)1983 (2006)	1 to 14
		Filterable Residue (TDS)	IS 3025 (Part-16)1984 (2006)	5 to 3000 mg/l
		Suspended Solids (TSS)	IS 3025 (Part-17)1984 (1996)	5 to 500 mg/l
		Total Hardness	IS 3025 (Part-21)1983 (2006)	10 to 2500 mg/l
		Acidity	IS 3025 (Part-22)1986 (1998)	10 to 500 mg/l

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	Potable Water, Drinking Water	Alkalinity	IS 3025 (Part-23) 1986 (1998)	10 to 500 mg/l
		Sulphates	IS 3025 (Part-24) 1986 (1998)	4 to 500 mg/l
		Chloride	IS 3025 (Part-32) 1988 (1993)	Not Less than 2 mg/l
		Iron	IS 3025 (Part-53) 2003 (Method A)	0.1 to 1 mg/l
		Oil & Grease	IS 3025 (Part-39) 1991 (2003) (Method A)	5 to 100 mg/l
		Calcium	IS 3025 (Part-40) 1991 (2003)	5 to 500 mg/l
		Magnesium	IS 3025 (Part-46) 1994 (1999)	5 to 500 mg/l

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