

<b>Laboratory</b>	<b>Vasantdada Sugar Institute (Department of Environmental Sciences), Manjari (Bk.), Taluka Haveli, Pune, Maharashtra</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>1 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
<b>I. AIR, GASES &amp; ATMOSPHERE</b>				
<b>1.</b>	<b>Ambient Air Quality</b>	Particulate Matter of 10 micron or less (PM 10 )	USEPA (40 CFR, Appendix L to Part 50)	2.0 -2000 µg/m <sup>3</sup>
		Nitrogen dioxide (NO <sub>2</sub> )	IS: 5182 Part-IV 2006	1-750 µg/m <sup>3</sup>
		Sulfur Dioxide (SO <sub>2</sub> )	IS: 5182 Part-II 2001	1-1,050 µg/m <sup>3</sup>
<b>2.</b>	<b>Stack Emission Monitoring</b>	Suspended Particulate Matter	IS: 5182 (Part IV):2006	1-3,000 mg/Nm <sup>3</sup>
		Nitrogen dioxide (NO <sub>2</sub> )	USEPA- method 7C/ IS 5182 (Part 2) 2001	2-400 mg/Nm <sup>3</sup>
		Sulfur Dioxide (SO <sub>2</sub> )	IS 11255 (Part -2):1985,	1 -1,000 mg/Nm <sup>3</sup>
<b>II. WATER</b>				
<b>1.</b>	<b>Drinking Water</b>	pH	APHA 4500-H <sup>+</sup> B 22 <sup>nd</sup> Edition 2012,	1 – 14
		Sulfate	APHA 4500- SO <sub>4</sub> <sup>2-</sup> E 22 <sup>nd</sup> Edition 2012, IS :3025(Part 24)-1986	1 – 400 mg/l
		Chloride	APHA 4500 Cl <sup>-</sup> B 22 <sup>nd</sup> Edition 2012, IS :3025(Part 32)-1988	5 – 1,000 mg/l
		Fluoride	APHA 4500- F <sup>-</sup> D 22 <sup>nd</sup> Edition 2012,	1 – 100 mg/l
		Dissolved Solid	APHA 2540 C 22 <sup>nd</sup> Edition 2012, IS 3025 (Part 16):1984	5 – 4,000 mg/l

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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>2 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
		Residual chlorine	APHA 4500 – Cl B 22 <sup>nd</sup> Edition 2012,	0.1- 5 mg/l
		Phosphate	APHA 4500 –D 22 <sup>nd</sup> Edition 2012,	1– 6 mg/l
		Alkalinity	IS 3025 (Part 23) :1986	10– 1000 mg/l
		Calcium	APHA 3500 Ca B 22 <sup>nd</sup> Edition 2012	5 – 800 mg/l
		Magnesium	APHA 3500 Mg B, 22 <sup>nd</sup> Edition 2012 By Calculation	5-600 mg/l
		Sodium	APHA 3500-Na B 22 <sup>nd</sup> Edition 2012 IS 3025(Part 45 ) 1993	1 – 100 mg/l
		Conductivity at 25°C	APHA 2510 B 22 <sup>nd</sup> Edition 2012,	1–600 mmoh/cm
		Temperature	IS 3025( Part 9):1984	1°C – 345°C
		Suspended Solids	APHA 2540 D 22 <sup>nd</sup> Edition 2012,	5-500 mg/l
		Dissolved Solids	APHA 2540 D 22 <sup>nd</sup> Edition 2012	5-2,000 mg/l
		Dissolved Oxygen	APHA 4500 – O C 22 <sup>nd</sup> Edition 2012,	1 – 9 mg/l

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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>3 of 9</b>

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		Bio Chemical Oxygen Demand (BOD) at 27°C for 3 days	IS 3025( Part 44):1993	2 – 200 mg/l
		Chemical Oxygen Demand (COD)	APHA 5220- C 22 <sup>nd</sup> Edition 2012	010 - 500 mg/l
		Ammonia	APHA 4500 - NH <sub>3</sub> , F 22 <sup>nd</sup> Edition 2012 /APHA 4500 - NH <sub>3</sub> , B/C 22 <sup>nd</sup> Edition 2012	0.5 - 1mg/l
		Carbonate Alkalinity	APHA 2320 B 22 <sup>nd</sup> Edition 2012 IS 3025 (Part23) : 1986	1 – 500 mg/l
		Bicarbonate Alkalinity	APHA 2320 B 22 <sup>nd</sup> Edition 2012, IS 3025 (Part23) : 1986	1 – 500 mg/l
		Acidity	IS 3025(Part22) 1986	1- 1,000 mg/l
		Kjeldahl Nitrogen	APHA 4500 –N <sub>org</sub> , B 22 <sup>nd</sup> Edition 2012	1-500 mg/l
		Volatile Solids	APHA 2540-E 22 <sup>nd</sup> Edition 2012	1-100 mg/l
		Fixed Solids	APHA 2540- E 22 <sup>nd</sup> Edition 2012	1-100 mg/l
		Cadmium	IS 3025 (Part 41) :1992	0.1-1 mg/l
		Copper	IS 3025 (Part 42 ):1992	0.1-5 mg/l

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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>4 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
		Zinc	IS 3025 (Part 49 ):1994	0.2-5 mg/l
		Manganese	APHA 3111B 22 <sup>nd</sup> Edition 2012	0.1-4 mg/l
		Total Chromium	IS 3025 (Part 52):2003	0.1-1 mg/l
		Iron	IS 3025 (Part 47):1994	1-10 mg/l
<b>2.</b>	<b>Waste Water</b>	pH	APHA 4500-H <sup>+</sup> B 22 <sup>nd</sup> Edition 2012	1 – 14
		Sulfate	APHA 4500- SO <sub>4</sub> <sup>2-</sup> E, 22 <sup>nd</sup> Edition 2012 IS :3025(Part 24)-1986	10-40,000 mg/l
		Chloride	APHA 4500 Cl <sup>-</sup> B 22 <sup>nd</sup> Edition 2012, IS :3025(Part 32)-1988	1-15,000mg/l
		Fluoride	APHA 4500 F <sup>-</sup> D 22 <sup>nd</sup> Edition 2012	0.1 – 10 mg/l
		Dissolved Solid	APHA 2540 C 22 <sup>nd</sup> Edition 2012 /IS 3025 (Part 16):1984	20-3,00,000 mg/l
		Residual chlorine	APHA 4500 – Cl <sup>-</sup> B 22 <sup>nd</sup> Edition 2012	1-20 mg/l
		Phosphate	APHA 4500 P D 22 <sup>nd</sup> Edition 2012, / IS 3025 (Part 31): 1988	1-2,000 mg/l

<b>Laboratory</b>	<b>Vasantdada Sugar Institute (Department of Environmental Sciences), Manjari (Bk.), Taluka Haveli, Pune, Maharashtra</b>		
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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>5 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
		Alkalinity	IS 3025 (Part 23) :1986	10– 20,000 mg/l
		Calcium	APHA 3500 Ca B 22 <sup>nd</sup> Edition 2012,	5 – 10,000 mg/l
		Magnesium	APHA 3500 Mg B 22 <sup>nd</sup> Edition 2012,	1-5,000 mg/l
		Sodium	APHA 3500-Na B, 22 <sup>nd</sup> Edition 2012 IS 3025(Part 45 ) 1999	10– 30,000 mg/l
		Conductivity at 25°C	APHA 2510 B 22 <sup>nd</sup> Edition 2012	10–5000 mmoh/cm
		Temperature	IS 3025( Part 9):1984	1°C - 100°C
		Suspended Solids	APHA 2540 D 22 <sup>nd</sup> Edition 2012	10-50,000 mg/l
		Dissolved Solids	APHA 2540 D 22 <sup>nd</sup> Edition 2012	10-3,50,000 mg/l
		Dissolved Oxygen	APHA 4500 – OC 22 <sup>nd</sup> Edition 2012	1 – 9 mg/l
		Bio Chemical Oxygen Demand (BOD) at 27 °C for 3 days	IS 3025( Part 44):1993/ IS 3025 (Part 38):1989	20-2,50,000 mg/l
		Chemical Oxygen Demand (COD)	APHA 5220- C 22 <sup>nd</sup> Edition 2012	20-5,00,000 mg/l
		Ammonia	APHA 4500 NH <sub>3</sub> F 22 <sup>nd</sup> Edition 2012	1-50 mg/l

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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>6 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
		Carbonate Alkalinity	APHA 2320 B 22 <sup>nd</sup> Edition 2012 IS 3025 (Part23) : 1986	1 –5,000 mg/l
		Bicarbonate Alkalinity	APHA 22 <sup>nd</sup> Edition 2012, Page No. 2-29	1 –5,000 mg/l
		Acidity	IS 3025(Part22) 1986	10-20,000 mg/lit
		Kjeldahl Nitrogen	APHA 4500 –N <sub>org</sub> , B 22 <sup>nd</sup> Edition 2012	2 -5,000 mg/l
		Volatile Solids	APHA 2540 E 22 <sup>nd</sup> Edition 2012	10-2,50000 mg/l
		Fixed Solids	APHA 2540 E 22 <sup>nd</sup> Edition 2012	10-50,000 mg/l
		Cadmium	IS 3025 (Part 41) :1992	0.1-20 mg/l
		Copper	IS 3025 (Part 42 ):1992	0.1-20 mg/l
		Zinc	IS 3025 (Part 49 ):1994	0.1-50 mg/l
		Manganese	APHA 3111B 22 <sup>nd</sup> Edition 2012,	0.1-50 mg/l
		Total Chromium	IS 3025 (Part 52):2003	0.1-50 mg/l
		Iron	IS 3025 (Part 47):1994	1-100 mg/l
		Oil & Grease	IS 3025 (Part 39):1991	2- 1,000mg/l
		Brix <sup>0</sup>	IS 162- 1999	1-90 <sup>0</sup>

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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>7 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
<b>III. POLLUTION &amp; ENVIRONMENT</b>				
<b>1.</b>	<b>Solid Waste &amp; Compost</b>	Moisture	The Fertilizer (Control) Order 1985	1-95%
		Organic Carbon	The Fertilizer (Control) Order 1985	1-95%
		C/N Ratio	The Fertilizer (Control) Order 1985	1-50
		Total Nitrogen	IS:10158-1982(IS:1035), 4/ The Fertilizer (Control) Order ,1985, Schedule II, part B, 3(v) of FCO 1985	1-40 %
		pH at 25°C	IS:9235-1979 (IS:1034),7	1-14
		Total Potassium	The Fertilizer (Control ) Order 1985	1-50%
		Total Phosphate	IS: 10158- 1982,10.2 Method B The Fertilizer (Control ) Order 1985	1-50 %
<b>IV. BUILDING MATERIALS</b>				
<b>1.</b>	<b>Soil</b>	pH	SOP/05 Based on Procedure for Soil Analysis, ISRIC, Food and Agriculture , Organization of the United Nations	1-14

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<b>Discipline</b>	<b>Chemical Testing</b>	<b>Issue Date</b>	<b>11.01.2014</b>
<b>Certificate Number</b>	<b>T-2792</b>	<b>Valid Until</b>	<b>10.01.2016</b>
<b>Last Amended on</b>	<b>-</b>	<b>Page</b>	<b>8 of 9</b>

<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
		Conductivity	EVS/SOP/05 Based on Procedure for Soil Analysis, ISRIC, Food and Agriculture , Organization of the United Nations	1-4 mmoh/cm
		Manganese	EVS/SOP/05 Based on Soil Survey Laboratory Methods Manual Soil Survey Investigations Report No. 42, Version 4.0, November 2004	1-4 mg/g
		Zinc	EVS/SOP/05 Based on Soil Survey Laboratory Methods Manual Soil Survey Investigations Report No. 42, Version 4.0, November 2004	0.2-20 mg/g
		Iron	EVS/SOP/05 Based on Soil Survey Laboratory Methods Manual Soil Survey Investigations Report No. 42, Version 4.0, November 2004	2-10 mg/g
		Copper	EVS/SOP/05 Based on Soil Survey Laboratory Methods Manual Soil Survey Investigations Report No. 42, Version 4.0, November 2004	1-20 mg/g



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**Certificate Number** T-2792 **Valid Until** 10.01.2016

**Last Amended on** - **Page** 9 of 9

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Potassium	VSI/EVS/SOP/05 Based on Soil Survey Laboratory Methods Manual Soil Survey Investigations Report No. 42, Version 4.0, November 2004	0.5-2,000 mg/g
		Phosphorous	VSI/EVS/SOP/05 Based on Procedure for Soil Analysis, ISRIC, Food and Agriculture , Organization of the United Nations	0.5-500 mg/g

-X-X-X-X-X-X-X-X-X-X-X-X-