

**Laboratory** Analytical Laboratory, Tea Research Association, Tocklai Tea Research Institute, Tocklai Experimental Station, Jorhat, Assam

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

**Discipline** Chemical Testing **Issue Date** 02.01.2015

**Certificate Number** T-1841 **Valid Until** 01.01.2017

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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
<b>I. POLLUTION &amp; ENVIRONMENT</b>				
1.	Soil	pH	TRA/LAB/SCOPE/SOP 01 [based on IS 2720 (Part 26): 1987/Jackson / Method of Soil Analysis] 1.0/00, 1.1.2009	1 to 12
		Org Carbon	TRA/LAB/SCOPE/SOP 02 [based on IS 2720 (Pt 22)- 1987/Jackson / Method of Soil Analysis] 1.0/00, 1.1.2009	0.1 % to 5 %
		K <sub>2</sub> O	TRA/LAB/SCOPE/SOP 03.0 [based on Knudsen et al. in Method of Soil Analysis (1982) Page et al (eds.)] 1.0/00, 1.1.2009	2 mg/kg to 1000 mg/kg
		P <sub>2</sub> O <sub>5</sub>	TRA/LAB/SCOPE/SOP 07 [based on Soil chemical analysis, Jackson] 1.0/00, 1.1.2009	3 mg/kg to 500 mg/kg
		S	TRA/LAB/SCOPE/SOP 04 [based on Tabatabai and Bremner (1970) / Cottenie et al (1979)] 1.0/00, 1.1.2009	2 mg/kg to 400 mg/kg
<b>II. FERTILIZERS</b>				
2.	Fertilizers & Amendments [Straight & Mixed Fertilizers Containing N, P, K, S And Zn; Amendments: Dolomite, Liming Materials & Pyrites)	N	TRA/LAB/SCOPE/ SOP-15 [based on IS 6092 (Part 2): 1985 1.0/00, 1.1.2009	1 % to 60 %

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	<b>Fertilizers &amp; Amendments [Straight &amp; Mixed Fertilizers Containing N, P, K, S And Zn; Amendments: Dolomite, Liming Materials &amp; Pyrites)</b>	K <sub>2</sub> O	TRA/LAB/SCOPE/ SOP-17 [based on IS 6092 (Part 4): 1985 1.0/00, 1.1.2009	3 to 80 %
		P <sub>2</sub> O <sub>5</sub>	TRA/LAB/SCOPE/ SOP-16 [based on IS 6092 (Part 3): 2004 / FCO 1995 1.0/00, 1.1.2009	1% to 60 %
		S	TRA/LAB/SCOPE/ SOP-18 [based on IS 6655: 1972 / IS 6092 (Part 5): 1985 1.0/00, 1.1.2009	1 % to 95 %
		Ca	TRA/LAB/SCOPE/ SOP-30 [based on IS 997: 1973 /IS 6092 (Part 5): 1985 1.0/00, 1.1.2009	0.02 % to 70 %
		Mg	TRA/LAB/SCOPE/ SOP-30 [based on IS 997: 1973/IS 6092 (Part 5): 1985 1.0/00, 1.1.2009	0.02 % to 80 %
		Zn	TRA/LAB/SCOPE/ SOP-19 [based on IS 8249: 1994 1.0/00, 1.1.2009	0.04 % to 60 %
2.	<b>Organic Manures</b>	Moisture (w/w)	TRA/LAB/SCOPE/ SOP-08 [based on AOAC 967.03] 1.0/01, 1.1.2009	0.5 % to 85 %
		pH	TRA/LAB/SCOPE/ SOP-09 [based on AOAC 973.04] 1.0/01, 1.1.2009	1 % to 12 %

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	<b>Organic Manures</b>	Organic matter	TRA/LAB/SCOPE/ SOP-10 [based on AOAC 967.05] 1.0/02, 1.1.2009	0.5 % to 95 %
		N	TRA/LAB/SCOPE/ SOP-11 [based on IS 6092 (1985)] 1.0/01, 1.1.2009	0.03 % to 95 %
		P <sub>2</sub> O <sub>5</sub>	TRA/LAB/SCOPE/ SOP-12 [based on IS 6092 (Part 3): 2004 1.0/01, 1.1.2009	0.07 % to 80 %
		K <sub>2</sub> O	TRA/LAB/SCOPE/ SOP-13 [based on AOAC 969.23 / IS 6092 (Part 4): 1985 1.0/01, 1.1.2009	0.04 % to 50 %
		S	TRA/LAB/SCOPE/ SOP-14 [based on Tabatabai and Bremner (1970) / Cottenie et al (1979)] 1.0/01, 1.1.2009	0.02 % to 50 %

### III. FOOD & AGRICULTURAL PRODUCTS

		<b>Pesticide Residues</b>		
<b>1.</b>	<b>Tea</b>	Ethion	IS 11773: 2003 / TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Endosulfan	IS 12611: 1981/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Deltamethrin	IS 12616: 1989 / JAOAC 1999/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Cypermethrin	IS 12616: 1989 / JAOAC 1999/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg

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	Tea	Fenprothrin	IS 12616: 1989 / JAOAC 1999/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Quinalphos	IS 14437: 1997/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		$\lambda$ -cyhalothrin	JAOAC 1999/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Bifenthrin	JAOAC 1999/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Chlorpyrifos	IS 12364: 1988 / TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Dimethoate	IS 11021: 2004 / TRA-LAB/SCOPE/SOP/26 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Profenophos	TRA/LAB/SCOPE/SOP/5.0 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Propargite	TRA/LAB/SCOPE/SOP/5.0 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Organochlorine Pesticides (HCH Isomers; DDE, DDD & DDT Isomers; Aldrin, Dieldrin, Endrine, Heptachlor & Heptachlor Epoxide)	IS: 14628:1999 / TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.02 mg/kg to 500 mg/kg

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	Tea	Hexaconazole	TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Propiconazole	TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Thiamethoxam	Manual of methods of pesticide residues Analysis of food commodities, DG, Health Services, MOH&FW New Delhi	0.2 mg/kg to 500 mg/kg
		Imidacloprid	Manual of methods of pesticide residues Analysis of food commodities, DG, Health Services, MOH&FW New Delhi	0.1 mg/kg to 500 mg/kg
		Thiacloprid	Manual of methods of pesticide residues Analysis of food commodities, DG, Health Services, MOH&FW New Delhi	0.2 mg/kg to 500 mg/kg
		Cyfluthrin	IS 12611 – 1981/ TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Flufenoxuron	TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.1 mg/kg to 500 mg/kg
		Oxyflufen	TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg
		Spiromesifen	TRA/LAB/SCOPE/SOP/5.0, 1.0/01, 1.1.2009	0.05 mg/kg to 500 mg/kg

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		<b>Heavy Metals</b>		
	Pb		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	0.2 mg/kg to 200 mg/kg
	Cd		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	0.2 mg/kg to 200 mg/kg
	Cu		TRA/LAB/SCOPE/ SOP-28 [based on AOAC 971.20], 1.0/01, 1.1.2009	5 mg/kg to 1000 mg/kg
	Ni		TRA/LAB/SCOPE/ SOP-28 [based on AOAC 971.20], 1.0/01, 1.1.2009	1 mg/kg to 500 mg/kg
	Zn		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	1 mg/kg to 1000 mg/kg
	Fe		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	2 mg/kg to 2000 mg/kg
	Cr		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	1 mg/kg to 500 mg/kg
	As		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	0.05 mg/kg to 100 mg/kg
	Hg		AOAC 999.10 / TRA/LAB/SCOPE/SOP 6.0, 1.0/01, 1.1.2009	0.05 mg/kg to 100 mg/kg

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2.	Tea Quality Parameters	Total Ash, per cent by mass	ISO 1575:1987	1 % to 50 %
		Acid Insoluble Ash, per cent by mass	ISO 1577: 1987	0.05 % and above
		Alkalinity of Water Soluble Ash (as K <sub>2</sub> O) per cent by mass	ISO 1578:1975	0.1 % and above
		Water Soluble Ash of total ash per cent by mass	ISO 1576:1988	5 % and above
		Water Soluble Extract per cent by mass	ISO 9768: 1994	5 % and above
		Crude Fibre Content per cent by mass	ISO/TC 34/SC 8:1992	5 % and above
		Moisture content % (m/m)	ISO 1573:1987	0.5 % and above
		Iron Filings	TRA/LAB/SCOPE/SOP 38, 1.0/00, 24.10.2013	10 mg/kg and above

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