

Laboratory **Research & Development Department, Kanan Devan Hills Plantations Company Private Limited, Munnar, District Idukki, Kerala**

Accreditation Standard **ISO/IEC 17025: 2017**

Certificate Number **TC-6860**

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Validity **12.03.2019 to 06.02.2020**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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**BIOLOGICAL TESTING**

<b>I.</b>	<b>FOOD &amp; AGRICULTURAL PRODCUTS</b>			
<b>1.</b>	<b>Tea (Black Tea, green tea, flavoured tea &amp; Decaffeinated tea)</b>	Total Plate Count	IS 5402:2012	≥ 10 CFU/g
		Yeast & Mould	IS 5403:2005	≥ 10 CFU/g
		E coli	IS 5887(Part 1): 2005	≥ 10 CFU/g
		Coliforms	IS 5401 (Part 1): 2012	≥ 10 CFU/g
<b>II.</b>	<b>ENVIRONMENT &amp; POLLUTION</b>			
<b>1.</b>	<b>Waste Water</b>	Faecal Coliforms	IS 1622: 2014	2 to1600 MPN/ 100 ml
		E coli	IS 1622: 2014	2 to1600 MPN/ 100 ml
		Coliforms	IS 1622: 2014	2 to1600 MPN/ 100 ml
<b>2.</b>	<b>SWAB METHOD</b>			
<b>a.</b>	<b>Microbiological monitoring of ambient air / Surface</b>	Total Plate Count	Compendium of methods for the microbiological examination of food, 5 <sup>th</sup> Edn. 2015, APHA Chapter -3 & ISO 18593:2004	≥ 10 CFU / Swab (or) ≥ 10 CFU / cm <sup>2</sup>
		Yeast & Mould	Compendium of methods for the microbiological examination of food, 5 <sup>th</sup> Edn. 2015, APHA Chapter -3 & ISO 18593:2004	≥ 10 CFU / Swab (or) ≥ 10 CFU / cm <sup>2</sup>
		Coliforms	Compendium of methods for the microbiological examination of food, 5 <sup>th</sup> Edn. 2015, APHA Chapter -3 & ISO 18593:2004	≥ 10 CFU / Swab (or) ≥ 10 CFU / cm <sup>2</sup>
		E.coli	Compendium of methods for the microbiological examination of food, 5 <sup>th</sup> Edn. 2015, APHA Chapter -3 & ISO 18593:2004	≥ 10 CFU / Swab (or) ≥ 10 CFU / cm <sup>2</sup>

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b.	Contact Plate Method (Air Bio-load)	Total Plate Count	Compendium of methods for the microbiological examination of food, 5 <sup>th</sup> Edn. 2015, APHA Chapter -3 & ISO 18593:2004 SOP-MB 16, Issue No.: 1, Dt. of Issue: 13.12.2018	≥ 1 CFU / cm <sup>2</sup>
		Yeast & Mould	Compendium of methods for the microbiological examination of food, 5 <sup>th</sup> Edn. 2015, APHA Chapter -3 & ISO 18593 SOP-MB 16, Issue No.: 1; Dt. of Issue: 13.12.2018	≥ 1 CFU / cm <sup>2</sup>
		Total Plate Count	SOP-MB 16, Issue No.:1, Dt. of Issue: 13.12.2018	3 to 2500 CFU/m <sup>3</sup>
		Yeast & Mould	SOP-MB 16, Issue No.: 1, Dt. of Issue: 13.12.2018	3 to 2500 CFU/m <sup>3</sup>
III.	WATER			
1.	Drinking Water	Faecal Coliforms	IS 1622: 2014	2 to 1600 MPN/ 100 ml
		E coli	IS 1622: 2014	2 to 1600 MPN/ 100 ml
		Coliforms	IS 1622: 2014	2 to 1600 MPN/ 100 ml

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<b>CHEMICAL TESTING</b>				
<b>I.</b>	<b>FOOD &amp; AGRICULTURAL PRODCUTS</b>			
<b>1.</b>	<b>Tea (Black Tea, green tea, Decaffeinated tea &amp; flavoured tea Instant tea</b>	Total Ash	IS 13854:2014	3.0 % to 10.0 %
		Water Soluble Ash	IS 13855:2014	30 % to 70 %
		Acid Insoluble Ash	IS 13857:2014	0.02 % to 5.0 %
		Alkalinity of Water Soluble Ash as KOH	IS 13856:2014	0.2 % to 5.0 %
		Water Extract	IS 13862:2014	20.0 % to 60.0 %
		Crude fibre	IS 16041:2017	2.0 % to 40.0 %
		Loss in mass at 103°C (Oven method)	IS 13853:2014	1.0 % to 10.0 %
		Loss in mass at 103°C (Moisture meter method)	SOP/TC – 49; (Issue No: 01 Issue Date: 27/06/2017)	1.0 % to 10.0 %
		Iron Filings	IS 3633: 2013	≥ 4.0 mg/kg
		Total Catechins	SOP/TC – 09; (Issue No.: 01 Issue Date: 09/01/2017)	2.0% to 30.0%
		Lead	AOAC 999.11 (20 <sup>th</sup> edition), 2016	2.5 mg/kg to 100 mg/kg
		Arsenic	SOP / HM – 44 (Issue No.: 01 Issue Date: 25.08.2017)	0.5 mg/kg to 10 mg/kg
		Cadmium	AOAC 999.11 (20 <sup>th</sup> edition), 2016	0.5 mg/kg to 10mg/kg
		Copper	AOAC 999.11 (20 <sup>th</sup> edition), 2016	2.5 mg/kg to 200 mg/kg
Zinc	AOAC 999.11 (20 <sup>th</sup> edition), 2016	2.5 mg/kg to 200 mg/kg		
Total Polyphenols	SOP No.: TC-60; Issue No:1 Date of issue: 04.12.2018	1 % to 40 %		

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		Caffeine	SOP No.: TC-61; Issue No:1 Date of issue: 04.12.2018	0.2 % to 6.0 %
		Extraneous Matter	SOP No.: TC-62; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Living Insects	SOP No.: TC-63; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Dead Insects	SOP No.: TC- 64; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Insects fragments	SOP No.: TC- 65; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Moulds	SOP No.: TC- 66; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Rodent contamination	SOP No.: TC-67; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Added Flavour	SOP No.: TC-68; Issue No:1 Date of issue: 05.12.2018	Present / Absent
		Odour	SOP No.: TC-69; Issue No:1 Date of issue: 05.12.2018	Qualitative (Agreeable/ Disagreeable)
		Traint & mustiness	SOP No.: TC-70 Issue No:1 Date of issue: 05.12.2018	Qualitative (Present / Absent)
2.	Instant tea	Loss in mass at 103°C	IS 13859: 2014	1.0 % to 10.0 %
		Total Ash	IS 13860: 2014	5.0 % to 50.0 %
II.	<b>RESIDUES IN FOOD PRODUCTS</b>			
1.	Pesticide residues in tea	Dicofol	SOP No: PR-14; Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 20 mg/kg
		Ethion	SOP No: PR-14; Issue No:1 Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Propagite	SOP No: PR-14, Issue No:1 Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Fenazaquin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 20 mg/kg
		Quinalphos	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 2 mg/kg

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		Spiromesifen	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 75 mg/kg
		Hexaconazole	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Cypermethrin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 25 mg/kg
		Deltamethrin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 15 mg/kg
		Bifenthrin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 35 mg/kg
		Fenpropathrin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 30 mg/kg
		Profenophos	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Triazophos	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Tebuconazole	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 55 mg/kg
		Methyl-chorpyriphos	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 15 mg/kg
		Lambda cyhalothrin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Permethrin	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
		Anthraquinone	SOP No: PR-14, Issue No:1, Date of issue: 10.12.2018	0.01 mg/kg to 10 mg/kg
<b>III.</b>	<b>POLLUTION &amp; ENVIRONMENT</b>			
<b>1.</b>	<b>Waste Water</b>	pH	IS 3025 (Part 11):2017	1 to 14
		BOD	IS 3025 (Part 44):2019	2 mg/L to 1000 mg/L
		Oil and Grease	IS 3025 (Part 39):2019	1.0 mg/L to 500 mg/L
		Total Suspended Solids	IS 3025 (Part 17):2017	2.0 mg/L to 20000 mg/L
		Electrical Conductivity	IS 3025 (Part 14):2019	200 µS to 1000 mS
		COD	IS 3025 (Part 58):2017	4 mg/L to 10000 mg/L
		Sodium	IS 3025 (Part 45):2019	1 mg/L to 2000 mg/L

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IV.	<b>WATER</b>			
1.	<b>Drinking Water</b>	pH	IS 3025 (Part 11):2017	1 to 14
		Turbidity	IS 3025 (Part 10):2017	0.1 NTU to 100 NTU
		Total Dissolved Solids	IS 3025 (Part 16):2017	2 mg/L to 10000 mg/L
		Alkalinity (P & M) as CaCO <sub>3</sub>	IS 3025 (Part 23):2019	1 mg/L to 1000 mg/L
		Total hardness as CaCO <sub>3</sub>	IS 3025 (Part 21):2019	1 mg/L to 1000 mg/L
		Sulphate as SO <sub>4</sub>	IS 3025(Part-24):2019	1 mg/L to 1000 mg/L
		Magnesium as Mg	IS 3025 (Part 46):2019	1 mg/L to 500 mg/L
		Total Suspended Solids	IS 3025 (Part 17):2017	2 mg/L to 10000 mg/L
		Calcium as Ca	IS 3025 (Part 40):2019	1 to 500 mg/L
		Iron as Fe	IS 3025 (Part 53):2019	0.1 mg/L to 10.0 mg/L
		Residual free chlorine	IS 3025(Part-26):2019	0.1 mg/L to 100 mg/L
		Chloride as Cl	IS 3025 (Part 32):2019	1.0 mg/L to 2000 mg/L
		Nitrate as NO <sub>3</sub>	IS 3025 (Part 34):2019	0.5 mg/L to 200 mg/L
		Nitrite as NO <sub>2</sub>	IS 3025 (Part 34):2019	0.01 mg/L to 50 mg/L
		Ammoniacal Nitrogen	IS 3025 (Part 34):2019	0.5 mg/L to 500 mg/L
		Fluoride as F	IS 3025 (Part 60):2019	0.1 mg/L to 10 mg/L
		Electrical Conductivity	IS 3025 (Part 14):2019	200 µS to 1000 mS
		Sodium	IS 3025 (Part 45):2019	1 mg/L to 2000 mg/L
		Odour	IS 3025 (Part 5):2018	Qualitative (Agreeable/ Disagreeable)
		Taste	IS 3025 (Part 8):2017	Qualitative (Agreeable/ Disagreeable)