

Laboratory **Regional Test Centre-Cum-Technical Back-Up Unit for Solar Thermal Devices, Division of SPRERI, Vallabh Vidhyanagar, Gujarat**

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

Discipline **Mechanical Testing** **Issue Date** **12.09.2016**

Certificate Number **T- 2341** **Valid Until** **11.09.2018**

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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. PERFORMANCE TEST				
1.	Solar Flat Plate Collector	Static Pressure Leakage Test	IS 12933 (Part 5): 2003 Clause. 5.3	Qualitative Test
		Outdoor No Flow Exposure Test	IS 12933 (Part 5): 2003 Clause. 5.2	Qualitative Test
		External Thermal Shock Test	IS 12933 (Part 5): 2003 Clause. 5.4	Qualitative Test
		Internal Thermal Shock Test	IS 12933 (Part 5): 2003 Clause. 5.5	Qualitative Test
		Rain Penetration Test	IS 12933 (Part 5): 2003 Clause. 5.6	Qualitative Test
		Impact Resistance Test	IS 12933 (Part 5): 2003 Clause. 5.7	Qualitative Test
		Thermal Efficiency Test	IS 12933 (Part 5): 2003 Clause. 6.4	$3.0 < F_R U_L < 10 \text{ W/m}^2\text{K}$ $0.2 < F_R(\alpha\tau) < 0.9$
		Determination Of Time Constant	IS 12933 (Part 5): 2003 Clause. 6.5	$60 < \tau < 150 \text{ Sec}$
		Incident Angle Modifier Test	IS 12933 (Part 5): 2003 Clause. 6.6	$0.1 < b_0 < 0.4$
		Transmittance Test On Cover Plate	IS 12933 (Part 2): 2003 Clause. 5.1	$0.4 < \tau < 0.95$
		Thermal Shock Test (Gasket And Grommets)	IS 12933 (Part 2): 2003 Clause. 12.1.1	Qualitative Test

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	Solar Flat Plate Collector	Temperature Test (Absorber)	IS 12933 (Part 2): 2003 Clause. 9.1.4	Qualitative Test
2.	Solar Box Type Cooker	Cooking Tray Leakage Test	IS 13429 (Part 3): 2000 Clause. 4.1.1	Qualitative Test
		Rubber Gasket Leakage Test	IS 13429 (Part 3): 2000 Clause. 4.1.2	Qualitative Test
		Leakage Test For Upper Side Of Cover Plate	IS 13429 (Part 3): 2000 Clause. 4.1.3 (a)	Qualitative Test
		Leakage Test For Lower Side Of Cover Plate	IS 13429 (Part 3): 2000 Clause. 4.1.3 (b)	Qualitative Test
		Rain Penetration Test	IS 13429 (Part 3): 2002 Clause. 4.1.4	Qualitative Test
		Cover Plate Slam Test	IS 13429 (Part 3): 2000 Clause. 4.2 (a)	Qualitative Test
		Mirror Slam Test	IS 13429 (Part 3): 2000 Clause. 4.2 (b)	Qualitative Test
		Mirror Reflectivity Test	IS 13429 (Part 3): 2000 Clause. 4.3	≥ 65 % Reflectance
		Exposure Test	IS 13429 (Part 3): 2000 Clause. 4.4	Qualitative Test
		Load Test For FRP Body Cookers Only	IS 13429 (Part 1): 2000 Clause. 7.2.2	Qualitative Test
		Stagnation Temperature Test	IS 13429 (Part 3): 2000 Clause. 4.5.1	$0.04 < F_1 < 0.16$

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	Solar Box Type Cooker	Load Test : Sensible Heating Of Water	IS 13429 (Part 3): 2000 Clause. 4.5.2	$0.15 < F_2 < 0.60$
		Standard Boiling Time	IS 13429 (Part 3): 2000 Clause. 4.5.3	Graph showing the variation of T_{boil} (in minutes) with $[X = (100 - T_a)/G]$
		Transmittance Test For Cover Plate	IS 13429 (Part 2): 2000 Clause. 5.1	$\geq 65 \%$ Transmittance
		Thermal Shock Test For Gasket And Sealants	IS 13429 (Part 2): 2000 Clause. 5.2	Qualitative Test
		Cooking Tray Test	IS 13429 (Part 2): 2000 Clause. 4.2	Qualitative Test

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