

Laboratory	Regional Test Centre-Cum-Technology Back-up Unit for Solar Thermal Devices, School of Energy Studies, Department of Physics, University of Pune, Pune, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Thermal Testing	Issue Date	10.09.2014
Certificate Number	T-2191	Valid Until	09.09.2016
Last Amended on	13.01.2015	Page	1 of 3

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.	Flat Plate Collector	Static Pressure Leakage Test	IS 12933 (Part 5): 2003 Cl.5.3	Qualitative
		Outdoor No Flow Exposure Test	IS 12933 (Part 1): 2003 Cl.7.2.1	Qualitative
		External Thermal Shock Test	IS 12933 (Part 5): 2003 Cl.5.4	Qualitative
		Internal Thermal Shock Test	IS 12933 (Part 5): 2003 Cl.5.5	Qualitative
		Rain Penetration Test	IS 12933 (Part 5): 2003 Cl.5.6	Qualitative
		Impact Resistance Test	IS 12933 (Part 5): 2003 Cl.5.7	Qualitative
		Thermal Performance Test	IS 12933 (Part 5): 2003 Cl.6.4	$0.25 < F_R(\tau\alpha)_e < 0.95$ $2.5 < F_R U_L < 8.5$
		Time Constant Test	IS 12933 (Part 5): 2003 Cl.6.5	$60 < \tau < 240$ sec
		Incident Angle modifier test	IS 12933 (Part 5): 2003 Cl.6.6	$0.1 < b_0 < 0.9$
		Transmittance test on cover plate	IS 12933 (Part 5): 2003 Cl.5.1	$0.40 < \tau < 0.90$
		Thermal Shock test for gaskets and grommet	IS 12933 (Part 5): 2003 Cl.12.1	Qualitative
		Temperature Test on absorber	IS 12933 (Part 5): 2003 Cl.9.1.4	Qualitative

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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
	Box Type Cooker	Cooking tray Test	IS 13429 (Part 3): 2000 Cl.4.1.1	Qualitative
		Rubber Gasket leakage test	IS 13429 (Part 3): 2000 Cl.4.1.2	Qualitative
		Leakage Test for upper side of cover plate	IS 13429 (Part 3): 2000 Cl.4.1.3 (a)	Qualitative
		Leakage Test for lower side of cover plate	IS 13429 (Part 3): 2000 Cl.4.1.3 (b)	Qualitative
		Rain Penetration test	IS 13429 (Part 3): 2000 Cl.4.1.4	Qualitative
		Slam Test	IS 13429 (Part 3): 2000 Cl.4.2	Qualitative
		Mirror Reflectivity Test	IS 13429 (Part 3): 2000 Cl.4.3	≥ 65 % Reflectance
		Exposure test	IS 13429 (Part 3): 2000 Cl.4.4	Qualitative
		Load Test for FRP body Cooker Only	IS 13429 (Part 1): 2000 Cl.7.2.2	Qualitative
		Thermal Performance Test	IS 13429 (Part 3): 2000 Cl.4.5	
		Stagnation temperature test	IS 13429 (Part 3): 2000 Cl.4.5.1	0.05 < F1 < 0.20
		Load Test : Sensible Heating of water	IS 13429 (Part 3): 2000 Cl.4.5.2	0.10 < F2 < 0.70

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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
	Box Type Cooker	Transmittance test for cover plate	IS 13429 (Part 2): 2000 Cl. 5.1	≥ 65 % Transmittance
		Thermal shock test for Gasket, Grommet & sealant	IS 13429 (Part 2): 2000 Cl. 5.2	Qualitative

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