

Component & Material Lab-iCAT

The Component & Material Lab at iCAT has capability of homologation as well as advance R&D. The facility is Centre of Excellence for Component & Material. The centre is able to provide complete testing needs and equipped with CAD/CAE tools, prototyping machines, testing and process engineering equipments.

NATRiP has established following capabilities for component and material Lab at iCAT.

Component & Material Lab iCAT

Process Cycle	Description of Facility	Use of Facility
DESIGN	CAD/CAE	Design and Virtual structural analysis.
	Basic Material Lab	
	Rockwell Hardness Tester	Metallic and non metallic material characterization.
	Micro Hardness Tester	
	Metallurgical Microscope	
	Polishing Grinding Machine	
	Stereo Microscope	
	Rockwell Surficial Hardness Tester	
	Ultrasonic Tester	
	Reverse Engineering	
	3D measuring devices	
	Prototyping	
	Basic CNC Lab	Prototyping of particular component
	Rapid Prototyping	Prototyping of particular moulding component
TESTING	Structural Testing	Deceleration, impact and static/dynamic load test
	Environmental Testing	
	Climatic Chamber for full vehicle	Test Extreme environmental conditions
	Climatic Chamber for full Components	1200l, -50 to 180 ⁰ C, humidity control, 20 KW
	Thermal shock chamber	85l, 40 to 220 ⁰ C & -50 to 60 ⁰ C, humidity control, 20 KW

	corrosion chamber : salt spray	1200l, 10 to 55 ⁰ C , humidity control, 3.5 KW
	corrosion chamber : sulphur dioxide	1200l, DIN50018
	climatic+ sun simulation + IR radiation	900l, -35 to 150 ⁰ C & 10 to 90 ⁰ C with radiation, 11KW.
	Water test chamber for components	900l ICE 529
	Dust test chamber for components	900l ICE 529
	UV chamber for components	40 to 120 ⁰ C
	Vacuum chamber for components	
	Ozone chamber	
	Weather-O-meter	
	Combined Structural & Environmental Testing	
	Electrodynamic Shakers + Climatic Chamber	Vibration + Temperature control +Solar simulation
	MAST + Climatic Chamber	
Functionality Testing	Certification purpose	
FAILURE ANALYSIS	Dimensional Analysis	
	3D measuring devices	For plastic deformation inspection purpose
	Fracture Analysis	
	Electronic Microscope	Material probe analysis
	x-ray with analysis software + Chamber	Component failure analysis
	Thermography	
Shearography		
PROCESS ENGINEERING	CAE Analysis	
	Plastic injection, stamp, simulation software.	
ELECTRONIC COMPONENTS	Structural Testing	Mechanical shock, drop test
	Environmental Testing	
	Climatic Chamber for full Components	Test Extreme environmental conditions
	Thermal shock chamber	
	corrosion chamber : salt spray	
	corrosion chamber : sulphur dioxide	
climatic+ sun simulation +IR		

	radiation chamber for components	
	Water test chamber for components	
	Dust test chamber for components	
	UV chamber for components	
	Combined Structural + Environmental Testing	
	Electrodynamic Shakers + Climatic Chamber	Vibration + Temperature control +Solar simulation
	MAST+ Climatic Chamber	
	Electromagnetic Compatibility	