

SAFETY

- Active Safety
- Passive Safety



Safety » Active Safety » Environmental Test Facilities

A number of integrative tests have been successfully carried out to develop components, Such as dashboards, door trims, bumpers, lighting devices, LED displays etc.

Environmental testing is simulation of different environmental conditions like temperature, humidity, rain, solar radiation exposure and their combinations and exposure of test component to these conditions. The combination may be tested in cyclic and in combination of different parameters.



| Corrosion Test Facility | | |
|-----------------------------|--|---|
| | Basic Corrosion test chamber | Cyclic corrosion test chamber |
| |  |  |
| Name of the chambers | Basic Corrosion chamber | Cyclic corrosion chamber |
| Applicable Standards | ASTM B-117, ASTM G-85, DIN 50021, IS 9000 Part – XI Any customer driven specification | ASTM G85 (without SO2); SAE J2334 ; ISO 14993, etc. Any customer driven specification |
| Chamber size | 2m X 1m X 1 m | 1 m3 |
| Chamber Temp. in °C | 35°C ± 3°C | 25°C to 70°C |
| Humidity | 96% R.H ± 3% R.H. | 20 % R.H to 100% R.H |
| Spray cycle | -- | Can be possible |
| Sample size | As per the chamber size | As per the chamber size |
| Sample weight | 60 Kg | 60 Kg |

Walk in Hot and Cold Room



Test Chamber Size : 6 m x 3 m x 3 m

Temperature Range : -20°C to 70°C

Cyclic: +25 to +40°C with 95% RH

Application: Extensively used for Engine test, vehicle cold startability trials, AC / heater performance test, component durability under different temperature conditions, M1 category bonnet, dicky, door slam test under different temperature conditions

Weather resistance Test

Name of the equipment Weather-o-meter Ci 4000 (Xenon Lamp) water cooled



Radiation emitted by Xenon source are closest to solar radiations.

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- Solar radiations
- Humidity
- Temperature
- Rain

| Particulars | Possible |
|--------------------------------|--|
| Test Name & Standard | SAE J1885, J1960, J2412, J2413, J2527 |
| | ISO 105-B02, 105-B04, 105-B06, 11341, 3917, 4892-1, 4892-2, 12040 |
| | ASTM G151 G155, D4303 D4355 |
| Irradiance in w/m ² | (0.35 w/m ² , 0.5 w/m ² , 1.1 w/m ² etc.) |
| Chamber Temp. in °C | 40 to 60 °C |
| Black Panel Temperature °C | 60 to 80 °C |
| Humidity | 10% RH to 75% RH in light cycles* Up to 100% in dark cycles |
| Radiation @ Filter | (340nm or 420nm or 300-400nm or 300-800nm) |

| | |
|-----------------------------------|-----------------------------|
| Specimen Spray (on / Off) | ON / OFF possible |
| Spray cycle | Different cycle is possible |
| Cycle Type(Light/ Dark) | Light/ Dark possible |
| Sample size | 130mm x 70mm x 5mm max |

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No. of Climatic chambers in ARAI and its specifications

| Sr. No. | Chamber Size | Temperature Range | Humidity range | Ramp rate |
|---------|-----------------------|-------------------------------------|----------------|-----------|
| 1 | 1m X 1m X 1m (2 nos.) | -60°C to 180°C | Up to 98% | 4°C/min |
| 2 | | -70°C to +180°C | | 1°C/min |
| 3 | 1.5m X 1.2m X 1.2m | -20°C to +70°C | Up to 97% | 1°C/min |
| 4 | 0.5 m X 0.5 m X 0.4 m | -70°C to +180°C | Up to 98% | 3°C/min |
| 5 | Walk-in chamber | Specification available separately. | | |

Basic Cyclic Salt Spray Chamber

Tests feasible as per Standards: ASTM B-117, ASTM G-85, DIN 50021, IS 9000 Part XI.

Size - 2.1 X 1.2 X 1 m³

Ozone Chamber

Tests feasible as per Standards: ISO 1431/1, SAE J 30, SAE J


Vibration test (Sine, Sweep Sine, Random, Resonance Detection and Shock test)

1000 kgf. electro-dynamic shaker is used to carry out vibration durability up to 2000 Hz The equipment facilitates testing in all the three x, y, and z axes. It is capable to simulate sine, random, shock, sweep sine, type of waveforms.

Solar simulation under Wether-Ometer


As per Standard SAE J 1885 / ISO:105/ ISO:4892/ ASTM G 26

This facilities is a unique for Combined Climatic simulation of

-  Solar radiations
-  Temperature
-  Humidity
-  Rain

 Application - Performance checking of paints, adhesives, fabrics, plastics, textiles etc. for accelerated weathering

 Radiation emitted by Xenon source are closest to solar radiations.

 Spectro-Colorimeter is used for Measurement of Colour co-ordinates, CIEL *a*b**C*h, CMC, XYZxy, Hunter lab, Reflectance, Glossiness after exposure to climatic conditions for the evaluation purpose.

UV Chamber (Mercury Arc Ultra Violet) :

Tests feasible as per Standards: IS, ECE etc.

Evaluation of glass performance for resistance of UV radiation

Operating temperature: 45 ± 5°C

IP Test (Ingress Protection): (Dust & water Test)

 Tests feasible as per Standards: IS 13947 : Part I :1993 – Appendix C

- ☞ Tests can be performed: IP 54, 55, 56, 65, 66, 67 and 68
- ☞ Dust Chamber meets the requirement of IS 13947: Part I: 1993 – Appendix C,
- ☞ Dust Chamber Size 1500 mm (Height) X 600 mm (Width) X 500 mm (Depth) and weight less than 60 kg.
- ☞ We are having water Test facility as per IS 13947: Part I: 1993 – Appendix C

Dust Test :

- ☞ Chamber meets the requirements of SS 15.1 (Cl. 6.0), IS: 1884 -1993 (Cl. 8.12), ECE R 3 (Annex. 8,Cl. 1.2.2), IS 10250 -1982 (Cl no.4.6)
- ☞ The internal chamber is cubical in shape measuring 900 mm in all direction not including hopper shaped bottom.
- ☞ Chamber capable to maintain and indicating any temperature between ambient to 60°C ± 3°C throughout its working space.
- ☞ The chamber capable of agitating dust by projecting blasts of compressed air with help of ON/OFF selectable timer. Range of the timer should be 1- 60 selectable in second / minutes.

Water Chamber:

- ☞ Chamber meets the requirements of IS: 14210:1994 (Cl. 6.9), SS 15.1 (Cl. 7.0), IS: 1884 -1993 (Cl. 8.14), ECE R 3 (Annex. 8, Cl. 1.2.1), IS: 9000 (Part XVI): 1983.
- ☞ Chamber having working space of 1mX1mX1m.
- ☞ Chamber capable of spraying water at any temperature between Ambient to 60°C.
- ☞ Revolving table having diameter between 450 mm to 500 mm at the center of the working space should be provided. Table should be capable of rotating around its vertical axis with a total weight of 50 kg. The RPM of the table should be variable between 2 to 10 RPM with an accuracy of ± 0.5 RPM.
- ☞ Spraying nozzle / nozzles (8 Nos.) capable of spraying water in solid cone with different pressure.

Spray suppression device test

Test as per EEC_Directive_91, 226 and AIS-013

Evaluation of performance of energy absorption type spray suppression device.