SANMY
innovative solutions

Thermal Ageing Test Oven (Loss of Mass) Test as per IS: 5831, IS: 10810 (Pt.10&11), IEC 811-1-2, IEC 8011-3-2 (section 8)

CE
An ISO 9001:2008 Company
GMP compliant

Thermoplastic and electrometric substances when exposed to heat undergo many types of physical and chemical changes. The extent and type of change that takes place depends upon the severity of exposure of the sample to heat (i.e., temp. range), duration and rate of air flow. This test makes an assessment of change in Tensile Strength and Elongation of the material on subjecting them to accelerated ageing in hot air.
The Ageing oven is specially designed to meet the requirement of IS: 10810 (Pt.11), and is available in two models:

SSI-502AGISS Ageing Oven, Single Cell model
SSI-502AGIS Ageing Oven, Four Cells mode

Each Cell is a complete instrument in itself i.e., fitted with individual Temp. Indicating Controller, Air Flow Meter (Rota meter), and an Hour Meter. This enables the user to test different type of samples at desired temperature and duration, depending upon test requirement of end users & testing authorities. The instrument also conforms to IS: 10810 (Pt.10) for Loss of Mass Test.

The instrument consists of the following:

- A double walled chamber with inside chamber of thick aluminum sheet.
- Size of the chamber is 100 mm dia. x 300mm ht.
- Jacket type heater for the chamber.
- Digital Temp. Indicating Controller with sensor. Temp. range 0-200 ± 2 °C.
- Flow meter for controlling the volume of air passing through the chamber.
- Air inlet nozzle for the airline or air compressor.
- Specially designed split top cover to hold three to five test samples in each chamber.
- Hour Meter to record the total time of test.

(Actual instrument may differ from the photograph due to regular improvements)

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To operate the unit Compressed Air line is to be provided by the customer. If the customer is using his own air compressor, it may require one pressure regulator, pressure gauge & connecting pipes which are available from us.

Difference between Hot Air Oven and Ageing Oven:

The test requirement is 8 to 20 air changes per hour, measured on a Flow Meter. According to IS standard, if the Oven does not have a regulated air supply, the oven is then termed as a Hot Air Oven and not a Ageing Oven (as offered by some manufactures) and cannot be used for ageing of samples.
After ageing in the ageing test oven for specified temp. & duration the samples are to be tested on Tensile Testing Machine for tensile & elongation. For preparation of Dumb-bell shaped samples, you may require hydraulic hot press, dumb-bell dies, dumb-bell cutting press, two-roll mill etc. Please ask for details.

Difference between On/Off and PID Controller:

In a simple On/Off controller, the desired Temperature is set, and the heaters are energized. The controller stops the supply to the heaters, when the set temperature is reached. As the oven forms a thermal mass, the temperature of the oven keeps on rising for about 3-4 deg above the set point and them start to decrease. When the temperature again reaches the set point, the supply to the heater is restored, but again due to thermal mass, the temperature falls for 3-4 deg, before it starts to rise. The cycle is repeated over time.
In a PID controller, the controller checks the difference between the set temperature and the current temperature and gives appropriate amount of wattage to heater, so the temperature rate of rise is controlled and the offshoot on both sides is reduced. Any good PID can control the temperature within 0.5 deg of the set temperature. As the wattage to the heater is controlled, PID controller also acts as energy saver in the long run.

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