

LIMITED OXYGEN INDEX APPARATUS (LOI)



Oxygen index is defined as minimum concentration of oxygen, expressed as volume percent in a mixture of oxygen and nitrogen that just support flaming combustion of plastic materials under equilibrium condition of candle like burning. The equilibrium is established by the relation between the net lost to the surroundings as measured by either time of burning or length of specimen burned. This point is approached from both sides of the critical oxygen concentration in order to establish the oxygen index.

The "**ASIAN**" Limited Oxygen Index Apparatus consist of a test chimney made of borosilicate glass (size is

76mm internal diameter & 450mm long) supported by the metallic base and hook with the help of the metallic pillar. The mixture of nitrogen and oxygen is released from the bottom of tube. The tube is filled with glass beads for mixing and evenly distributing the gas mixture. The specimen holder, which holds the test specimen, made of U shape and fixed at the center of the chimney. There is the porous screen mounted below the level of the specimen holder, to prevent falling combustion debris from fouling the gas entry and distribution paths. There is a digital temperature indicator cum controller with thermocouple for the measurement and control the temperature within the chimney. A copper tube with suitable orifice for pilot flame is provided for igniting the specimen by inserting it from the top of the test column. The digital preset timer and buzzer is also mount in the instrument.

Two ROTAMETER with needle valve are provided to control and measure oxygen and nitrogen flow in the test chimney. A timer for indicating the time of burning with a reset switch. The rotameter, temperature controller, timer are fitted in the sheet panel. The test chimney is fitted separately on the metallic platform.

FLOW METER (ROTAMETER):

- 10 to 90 cc/sec for Oxygen × 2cc/sec
- 30 to 270 cc/sec for Nitrogen × 10cc/sec

NOTE: *Item Required By The User For Complete Testing:* Oxygen gas, nitrogen gas and LPG cylinders with its regulator and fitting, 220 V single phase power supply (Other Power optional).

RELATED STANDARD

ASTM D-2863-1997: Measuring the minimum oxygen concentration to support the candle like combustion of plastic (oxygen index)