

SERIES 700 AUTOMATIC OZONE TEST CHAMBERS

**for
PRODUCT TESTING
QUALITY CONTROL
BASIC RESEARCH**



***Designed to meet
ASTM and ISO 9000
certification requirements***

ISO 9000 certification requires that manufacturers of products affected by ozone such as elastomers, including natural and synthetic rubber compounds, in both raw material and finished product, coloring agents including those used for textiles and electrical insulation products include ozone tests in their quality control program.

Ozone is present in the atmosphere and is generated by numerous electrical devices including copier and laser printing machines. It is a toxic component in smog, produced photochemically by irradiation of sunlight on various man-made pollutants. Ozone also drifts into our atmosphere in varying amounts from a layer surrounding the earth in the stratosphere above the tropopause at approximately 50,000 feet altitude, produced from oxygen by strong solar rays.

The Mast Ozone Chamber is indispensable

equipment for highly accurate and reliable ozone resistance testing of sample materials and products. These tests are essential for carrying out research and maintaining product quality control. The basis of the Mast 700 Ozone Test Chamber Series is the field proven 700-1, which was developed in cooperation with the Society of Automotive Engineers/American Society for Testing Materials (ASTM) joint committee, and is used throughout the world. (A list of users is available on request.) Series 700 Chambers fulfill the requirements for equipment used in tests under ASTM D-1149, Accelerated Cracking of Vulcanized Rubber, D-1171, Weather Resistance Exposure of Automotive Rubber Compounds, D-1352-90, Ozone-Resisting Butyl Rubber Insulation for Wire and Cable and ISO 1431-1, parts 1 and 2, Rubber, vulcanized or thermoplastic - Resistance to ozone cracking. The Mast Ozone Chamber is favored by the nation's leading auto and rubber manufacturers.

Model 700-10LTA, Preferred by Leading Automobile and Rubber Products Manufacturers

The Model 700-10LTA is simple to operate and versatile over a wide range of temperatures, airflows and ozone concentrations. Users confirm its ozone concentration stability and dependable operation. The entire system is diagrammed below.

OZONE GENERATION – The ozone source is a mercury vapor quartz ultra-violet lamp. It is housed in a protective metal container outside the test compartment as required by ASTM and is easily accessible through the lower side door.

AIR FLOW SYSTEM – Fresh air is drawn into the system with a rotary vane type Gast "Oil-less" Air Compressor. Felt filters on both the intake and exhaust sides of the compressor remove particulate contamination. The rate of airflow is observed on a flowrator and set with the "Air Flow Control," a valve in the compressor by-pass line. Air leaving the flowrator then passes in small part thru the **Computer Controlled Regulator** over the ultra-violet lamp and in large part through a lamp by-pass line. The ozonized air from the lamp is remixed with the by-passed air and enters the test compartment circulation system. A freshly ozonized airflow replenishes the air in the test compartment approximately once a minute at the recommended flow rate of six cubic feet/minute. Only fresh air is passed over the ozone source as recommended by ASTM. Air in the test compartment is exhausted outside and is not recirculated over the ozone source.

AIR RECIRCULATION – Plenum chambers located on each side of the all stainless steel test compartment direct the ozonized air through it. A wheel type blower in the left plenum chamber provides two-feet/second air recirculation velocity over the test samples. The blower wheel is shaft-mounted with the drive motor mounted outside the test compartment, as required for the ASTM tests.

TEMPERATURE CONTROL – Pro-Set Digital Indicating Temperature Control (by Blue M Electric Company) provides automatic temperature control over a range to 300 °F and a tolerance of plus or minus 1/2 °F, as measured with a highly dependable fully compensated cold junction type T thermocouple in the chamber air stream. In order to achieve this remarkable control despite ambient temperatures up to 100°F, a finned stainless steel cooling coil is employed.

The heat is supplied by an open wire (non-corrosive), element of Blue M modular disc design, which offers oven performance unmatched in the industry. The design is such that over 85% of the open wire coiled element is exposed to the high volume chamber air stream. Thermal lag is virtually eliminated with this unit.

