Method of Test for
PROPERTY RETENTION OF EPOXY RESIN SYSTEMS
DOTD Designation: TR 708-85

Scope

1. This method of test is intended to determine the ability of epoxy resin systems to retain bonding properties after being exposed to five 24-hour temperature cycles of 30 to 110 °F at 50 percent relative humidity.

Apparatus

2. *Environmental Test Chamber* - An environmental test chamber capable of maintaining five 24-hour temperature cycles of 30 to 110 °F at 50 percent relative humidity.

Safety Precautions

3. The following precautions should be observed when handling epoxy components and cleaning fluids.

(a) Persons handling these materials should use appropriate protective clothing, including rubber or plastic gloves, and appropriate eye protection such as safety glasses.

(b) If any epoxy or cleaning material should contact the skin, the material should be removed immediately with a dry cloth or paper towel, and the affected area should be washed thoroughly with soap and water.

(c) If any material should come in contact with the eyes, flush immediately with water and contact a physician.

(d) Adequate ventilation is necessary to prevent excessive inhalation of vapors.

(e) Observe all precautions as specified by the manufacturer before handling each material.

Sample Preparation

4. Prepare the tensile bond specimens in accordance with DOTD Designation: TR 706.

Procedure

5. (a) Program the environmental chamber to produce continuous 24-hour temperature cycles from 30 $\pm$ 1 °F to 110 $\pm$ 1 °F and back to 30 $\pm$ 1 °F. The rate of increase and decrease in temperature shall be 6 $\pm$ 1 °F hour.

(b) After the required cure period, remove the specimens from the mold and place them inside the environmental chamber during the increasing portion of the temperature cycle at a temperature between 68 and 81.5 °F and allow five complete temperature cycles to elapse.

(c) During the last increasing temperature cycle, remove the specimens at a temperature between 68 and 81.5 °F and test according to paragraphs 5 (a) and (b) of DOTD Designation: TR 706.

Calculations

6. Calculate the tensile bond strength in accordance with DOTD Designation: TR 706.

Report

7. (a) Report the average value as property retention tensile bond strength to the nearest 10 psi.

(b) Note the mode of failure as being either:
- (1) in the mortar
- (2) in the adhesive
- (3) in the mortar/adhesive interface

NOTE: Should any of the bonded test specimens fail in the mortar at a strength less than that required, a retest shall be conducted for that specimen.

Normal testing time is seven days.