

HUMIDITY RESISTANCE TESTING

Application

This procedure is a method for preparation of parts and cabinets for determining the resistance to humidity of various parts. **Note: The procedure is not to be used for glazing materials.**

Apparatus Required

Humidity Cabinet

The humidity cabinet consists of a test chamber, a saturator tower, a supply of suitably conditioned compressed air, specimen supports, provision for heating the chamber and suitable controls for maintaining the desired temperature. Top opening, front opening, or walk-in type cabinets are satisfactory.

Source: Harshaw Chemical Co., Equipment Section
15583 Brookpark Road
Cleveland, Ohio 44142

or equivalent.

Size

The cabinet shall be of sufficient size to test adequately the number of parts required by the Engineering Material Specification without overcrowding. Satisfactory correlation between test cabinets is obtained when the test chamber is no less than 0.7 m - approximately 0.6 x 0.9 x 1.2 m. Cabinets smaller than this may be difficult to control within the limits specified.

Construction Materials

Cabinet

The test chamber shall be constructed of epoxy-lined steel or equivalent material.

Specimen Racks

Specimen racks and supports shall be constructed of plastic, vinyl coated steel, or equivalent materials. Shelves shall be provided with drain holes so that test specimens do not rest in pools of collected water.

Plumbing

All piping inside the test chamber shall be plastic or hard rubber.

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2000 11 10	Revised	Editorial – no technical change A. Cockman
1990 06 26		

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Vents

Vents shall be so placed that moisture is circulated freely about the test specimens and also exhausted to the outside of the cabinet.

Saturator Tower

The compressed air, after cleaning and before entering the cabinet, shall be passed in finely divided bubbles through a saturator of corrosion resistant materials, containing heated distilled or deionized water, controlled at the specified temperature. The distilled or deionized water in the saturator tower should be changed on a periodic basis, depending on water purity, to prevent excessive accumulation of impurities from the air.

Temperature

The temperature of the test chamber shall be maintained by heating elements in the walls of the cabinet through suitable controls. The test chamber shall be insulated by water jackets or other suitable means between the exterior walls of the cabinet to prevent cold spots where condensation on test specimens may occur.

Air Supply

The air supply to the nozzles or air distribution pipe shall be free of oil and dirt or other objectionable impurities.

Note: A water scrubber or suitable cleaning material (a minimum of 600 mm of sheep's wool, excelsior, slagwool, activated aluminum, or equivalent) may be used to clean the air supply of oil and dirt.

Humidity and Temperature Control

Thermistor Psychrometer

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Cleveland, Ohio 44142

or equivalent.

Materials Required

Distilled or Deionized Water

20 micromhos/cm at 25 °C maximum conductivity (ASTM D 1125)