BP 153-01

STAINING OF SURFACES BY POLYMERS AND ELASTOMERS

Application

This test method is used to determine the types of stain or discoloration that polymers and elastomers may cause to painted surfaces and other materials.

Procedure A: Determination of contact and migration stains.

Procedure B: Determination of staining by water-extractable ingredients.

Apparatus and Materials Required

Fluorescent Sunlight Cabinet

Modified oven equipped with four Westinghouse No. FS 20T-12 fluorescent sunlamps.

Oven

Approximate internal dimensions: 725 mm wide, 610 mm deep, and 520 mm high. Capable of maintaining a temperature of 60 +/- 2 °C. A Grieves-Henry oven, Model PL-1 or equivalent, is suitable.

Sunlamp Fixture

To be completely installed in the cabinet. A 20 gauge steel box with screw cover; one 20 watt high power-factor ballast for two lamps; four fluorescent starter assemblies; covered 20 gauge steel holders; four Westinghouse FS 20T-12 fluorescent sunlamps. (Note: Safety precautions for ultraviolet exposure - avoid looking directly at the light source.)

Source: Ster-L-Ray Sales and Service
5803 Elizabeth
Allen Park, Michigan 48101 U.S.A.

Mechanical Convection Oven

Capable of maintaining 80 +/- 2 °C, according to ASTM E 145, Type II-A and aging materials according to ASTM D 573.

AATC-Chromatic Transference Scale

Source: American Association of Textile Chemists and Colorists
P.O. Box 12215
Research Triangle Park
Durham, NC 27709 U.S.A.

Date	Action	Revisions
2006 06 02	Revised	Typographical Correction in Sunlamp Fixture paragraph
2001 09 25	Revised	Editorial – no technical change A. Cockman
1991 08 27		

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Painted Panels

The painted panels shall be prepared as described in FLTM BI 103-02, Method C, using white or light-gray production enamel. The painted panels shall be aged 16 h at 45 +/- 2 °C, or 72 h at 23 +/- 2 °C before the test and must be used within 60 days after aging. Store unused panels in a cool, dark place packaged in plain wrapping paper until ready to use.

Soap Solution - 5%

A mixture of 95:5 by volume of distilled water and soap solution (S-M1B4 or ESB-M1B9-A).

Water - Distilled or Deionized

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

Cotton Thread - undyed and unimpregnated.

Filter Paper

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5% relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

Method A - Determination of Contact and Migration Stains

1. Place two test specimens from the material to be tested (minimum 1 x 2 cm in size and of uniform thickness) on the painted panel. Load with 150 g/cm^2 by means of a second panel (or glass plate) and a top weight. Other substrates such as plastic may be used instead of the painted panel, if specified in the relevant Engineering Materials Specification.

   Specimens shall be cut from the finished part or test slab and shall be tested as received. Avoid contamination of the surface by handling with clean hands or laboratory gloves.

2. Place the assembly into the oven for 72 h at 80 +/- 2 °C.

3. After aging, remove the assembly from the oven and separate the specimen from the painted panel.

4. Expose the painted panel (that was in contact with the specimen) in the fluorescent sunlamp cabinet for 24 h at 60 +/- 2 °C, and 300 mm from the light source.

5. Remove the painted panel from the sunlamp cabinet, cool to 23 +/- 2 °C and wash the surface with the soap solution.

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