

Call Letters	PSTC-22
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1. DEFINITION

1.1 Latent staining of a surface finish is the discoloration of that surface that has been in contact with a pressure sensitive tape, but that makes its appearance some time after the tape has been removed.

2. SIGNIFICANCE

2.1 Latent staining is an important property determination if a tape is to be applied to a surface finish wherein any resulting discoloration occurring some time after removal of the tape is undesirable.

3. SCOPE

3.1 To provide the user with a method of testing a tape for latent staining characteristics. Because of the many types of surface finishes, this test must be adapted to the specific finish with which the user is concerned.

4. TEST SPECIMEN

4.1 Discard at least three, but no more than six, outer wraps of tape from each roll being tested prior to taking test specimen.

4.2 Each specimen shall be equal in dimensions to the others, sufficient in size to give good comparison of the area covered by the specimen to that not covered, preferably 12 mm wide x 50 mm long (1/2" wide by 2" long).

5. EQUIPMENT AND MATERIAL

5.1 The test panels shall be plain flat metal, or plate glass, of convenient size, preferably 100 mm (4") square, and of any convenient thickness.

5.2 Standard spray equipment or other suitable means of applying a uniform surface finish.

5.3 Test oven which shall be reliable convection or forced-circulation type, of sufficient size to accommodate the test panels and capable of maintaining, within $\pm 2^{\circ}\text{C}$, the temperature conditions of drying or baking recommended by the manufacturer of the surface finish.

5.4 A 2 kg (4 1/2 lb.) rubber-covered roller as described in Appendix B.

5.5 Ultraviolet light source (RS lamp, preferably mounted in an enclosed space 600 x 600 x 900 mm (24 x 24 x 36") high, open at the top so that the bottom of the lamp is 450 mm (18") above the test platform).¹

5.6 One thin flat metal template, 62.5 mm (2 1/2") square.

5.7 The surface finish shall be of the same type as that being used in the specific field application.

6. TEST METHOD

6.1 Using standard spraying technique or other method, coat a test panel with the paint to be used to obtain a dry film thickness of 37.5 to 50 microns. A primer coat may be necessary to obtain sufficient bond to the test panel.

6.2 Allow the coated panel to air dry for 30 minutes at standard conditions of 23°C (72°F) and 50% RH \pm 5%. See Appendix A.

6.3 After this preliminary dry, expose the test panel to the time and temperature recommended by the paint manufacturer, or the time and temperature set up by the user, to obtain a satisfactory finish.

6.4 After allowing the test panel to return to room temperature, apply the tape specimens to be tested, including an accepted standard or control (no more than four strips per panel) so that each strip extends radially from the center towards a corner,² as indicated in Figure 1.

6.5 Roll down each strip manually with the 2 kg (4 1/2 lb.) roller, three times in each direction at a rate of 150 to 300 mm/s (6 to 12"/s).

6.6 Re-expose the test panel, so prepared, to the same conditions as specified in 6.3 above.

6.7 At room temperature, after the above exposure, strip off specimens and clean the panel, using naphtha or other suitable solvent to remove any adhesive residue. It is advisable to reapply the stripped specimens on the reverse side of the panel, in order to retain their identity.

6.8 Examine panel for staining in the areas of tape application.

6.9 Using the 70 mm (2³/₄" square template, block off the central test surface of the panel so that its diagonals are at a 45° angle to the diagonals of the test panel and place the assembly, face up, in the ultraviolet light enclosure for a period of 4 hours. Avoid excessive heating, a maximum of 57°C is recommended.

7. REPORT

7.1 Using a relative numerical rating scale, record for each specimen its relative degree of stain for both oven exposure and, where applicable, ultraviolet light exposure, including a brief qualitative description of the stain.

¹The intensity of an RS lamp ultraviolet source decreases as the number of hours of use accumulate. It is recommended that such a lamp not be used beyond the time limit set by its manufacturer. For this reason, it is also mandatory that a standard or control specimen be included on every panel.

²This specifically described procedure is considered to be necessary in order to neutralize any effects of optical illusion which are known to occur and interfere with a correct interpretation of test results.

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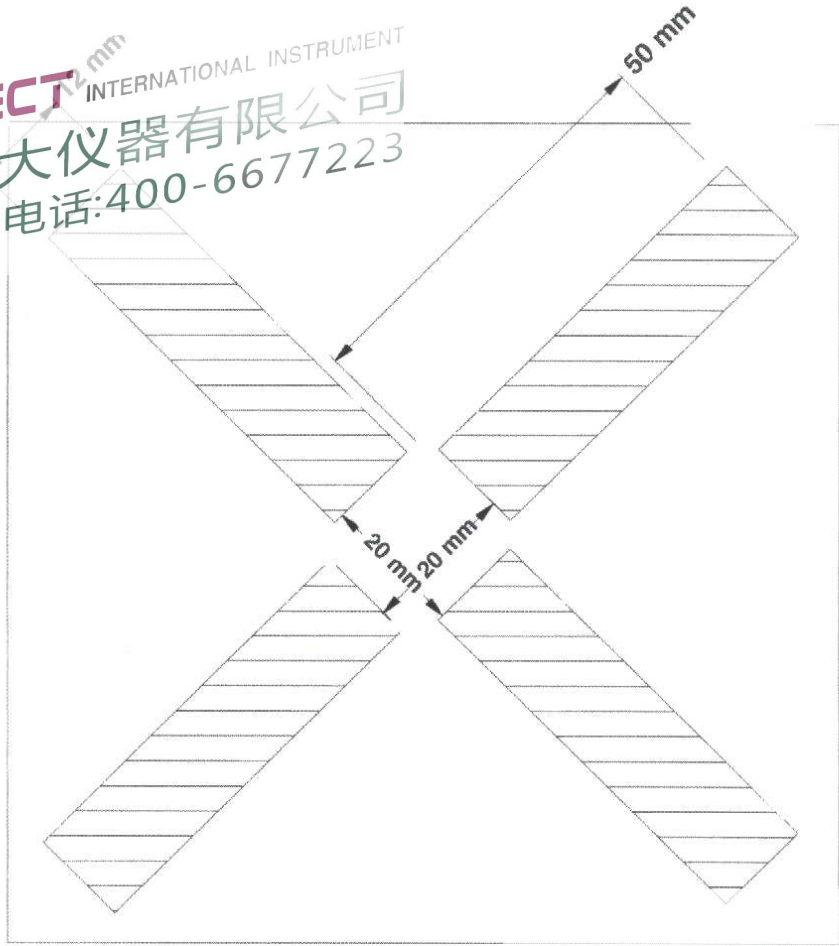


Figure 1. Stain test panel.

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