The Institute for Interconnecting and Packaging Electronic Circuits
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IPC-TM-650
TEST METHODS MANUAL

Number	
2.3.4	
Subject	
Chemical Resistance, Marking Paints and Inks	
Date	Revision
8/97	**B**
Originating Task Group	
Rigid Board T.M. Task Group, 7-11d	

1.0 Scope This test method is used for determining that marking inks and/or color coding will not become illegible or discolored when subjected to solutions that are normally used as cleaning agents for printed boards or printed board assemblies.

2.0 Applicable Documents None

3.0 Test Specimens Test specimens may consist of test coupons or production printed boards with the appropriate markings. The amount or size of the marking on the test specimen shall be sufficient enough to satisfactorily perform the procedure of section 5.

4.0 Apparatus or Material

4.1 Vessel for each solution used.

4.2 Toothbrush or suitable applicator for each solution used.

4.3 Optical Aid capable of a 3X magnification.

4.4 Solution A: Mixture of one part isopropyl alcohol and three parts by volume of mineral spirits at 25 ± 5°C.

4.5 Solution B: Terpene defluxer consisting of a minimum of 90% d-limonene and 10% surfactant at 25 ± 5°C.

4.6 Solution C: Mixture of 42 parts by volume of water (1 megohm resistivity), one part by volume of propylene glycol monmethyl ether, and one part by volume of monoethanolamine at 63 to 70°C.

5.0 Procedure

5.1 The following procedure shall be using solutions A, B, and C individually.

5.1.1 The test specimens shall be submerged for a minimum of 3 minutes (+ .5 minutes/ – 0.0 minutes) in a vessel containing the solution.

5.1.2 The test specimens shall be removed from the vessel and with a toothbrush (wetted with solution) the specimen shall be brushed for a minimum of 10 strokes on the area where the marking is present.

5.1.3 Steps 5.1.1 and 5.1.2 shall be repeated on the test specimen two additional times.

5.1.4 After the third submersion and brushing, the test specimens shall be air or blown dry.

5.1.5 The test specimens shall be evaluated in accordance with 5.2.

5.2 Evaluation After the test has been performed, the test specimens shall be examined for any markings that are missing in whole or part, faded, smeared, blurred or shifted to the extent that they cannot be identified from a distance of 150 mm [6.0 in] or by examining with a optical aid using a magnification of no more than 3X shall constitute a failure.

6.0 *Notes*

6.1 If test solutions other than those described herein are to be used, then the solutions should be agreed upon between the vendor and customer prior to testing.

6.2 The three solutions being used to perform this test exhibit some potential for health and safety hazards. Safety precautions shall be observed.

6.3 It is the intent of this test method to subject a different set of test samples to each test solutions. It is at the option of the tester to subject the samples through the test solutions consecutively. If the samples fail after consecutive solutions the test should be performed with individual test solutions.