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

Number	
2.3.17.1	
Subject	
Resin Flow of Adhesive Coated Films and Unsupported Adhesive Films	
Date	Revision
5/98	**B**
Originating Task Group	
Flex Peel Strength Test Methods Task Group (D-13A)	

1 Scope This test is to measure the flow properties of cast adhesive freefilms or coverfilms used in the manufacture of flexible circuitry. The test also provides a measure of the squeeze out, which might be expected to occur around terminal pads or other boundary spaces.

1.1 Limitations It is not possible to define a universal set of laminating conditions that suit all of the various adhesive types. This test is dependent on sample preparation, which is consistent with good industry practice and in accordance with the suppliers' suggested laminating procedures.

2 Applicable Documents None

3 Test Equipment

3.1 Copper foil Foil may be treated one side or untreated.

3.2 A laminating press in good working order with platen surfaces of 30.5 cm x 30.5 cm minimum. Platens must be sufficiently flat and parallel to allow uniform lamination.

3.3 Paper punches with circular punch sizes of 1.6 mm, 3.2 mm, 4.8 mm, and 6.4 mm.

3.4 A suitable instrument for measuring thickness of the adhesive.

4 Test Procedure

4.1 Layup for Adhesives Cast on Coverfilms With the release film intact, punch seven graduating holes across the coverfilm (see Figure 1), then remove release. Alternative punched hole diameters may be agreed upon between user and vendor.

4.2 Layup of Freefilm Adhesive The freefilm must be transferred to a suitably thick polyimide or polyester film. This effectively creates a coverfilm, which may be laid up per 4.1. A 0.005 mm polyimide film shall be used as a referee in the event of conflict.

4.3 Lamination To be accomplished by time, temperature, press pad, and pressure parameters as agreed upon between supplier and user. A prebake may be used to simulate extended storage conditions. Prebake conditions must be agreed upon by supplier and user.

4.4 Evaluation

4.4.1 Squeezeout Characteristics Measuring squeezeout on specimen punched holes at 90° intervals around the circumference of the holes; averaging the four readings for each hole to arrive at an average squeezeout.

Calculation:

$$\frac{\text{average}}{\text{adhesive thickness}} = \text{microns/micron}$$

5 *Notes*

5.1 Fill and squeezeout properties of cast adhesive films are a complex variable. Different adhesives will exhibit different abilities to flow. The amount of retained solvent, adhesive thickness, shelf aging, and substrate thickness will cause the flow properties to vary within any one adhesive. The uniformity of lamination, press pad, and thermal excursion is critical in obtaining test repeatability.

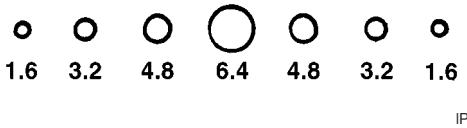

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Figure 1 Punched Holes (mm)