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**PERFECT** INTERNATIONAL INSTRUMENT  
**东莞宝大仪器有限公司**  
 全球服务电话:400-6677223  
**Oil Resistance of Electrical Grade Tapes**

**1. DEFINITION**

1.1 The oil resistance of a pressure sensitive tape is the property of the adhesive to withstand the attack of the oil without impairment of its adhesion strength. This is measured by determining the adhesion strength after the tape is immersed in a specific oil for a given time at an elevated temperature.

**2. SIGNIFICANCE**

2.1 Pressure sensitive tapes may be used in locations where they contact oil or oil vapors that can affect the performance of the tape. An adhesion strength test after oil immersion is a method for determining this effect.

**3. TEST SPECIMENS**

3.1 Specimens shall be 250 mm (10") long and 6 mm (1/4") wide. Four specimens shall be removed from the roll so that the adhesive surface contacts neither the fingers nor any foreign object. Tape wider than 6 mm (1/4") shall be cut to that width with a sharp razor blade to prevent edge damage.

**4. EQUIPMENT**

4.1 The test liquid shall be appropriate to the intended application of the tape and may be one or more of the following:

4.1.1 Mineral insulating oil meeting the requirements of ASTM Specification D 3487, Type I or Type II.

4.1.1.1 This oil is of a type common for immersion of transformers, switches, and circuit breakers. Exxon Univolt 60 Transformer Oil is found satisfactory for this purpose.

4.1.2 Fire-resistant phosphate ester-based hydraulic liquid.

4.1.2.1 Monsanto Sydrol 500B-4 has been found satisfactory for this purpose.

4.2 Test panels. See Appendix B.

4.3 A 2 kg (4 1/2 lb.) rubber-covered steel roller. See Appendix B.

4.4 Air-circulating oven.

4.5 A suitable container to fully submerge the test panels in the test liquid.

4.6 PSTC 101 Adhesion Testing Equipment

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## 5. TEST METHOD

5.1 Adhesion to steel plate - Clean the steel plate (see Appendix C) and immediately after removing the tape from the plate, apply the adhesive side down to the polished surface of the steel. The tape shall be rolled twice - once in each direction with the 4 1/2 lb. roller, at a rate of 300 mm/min (12"/min).

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5.2 Apply specimens so that 125 mm (5") length shall extend beyond the end of the plate. Apply 6 mm (1/4") wide tape specimens to the plate so that there is a 3 to 6 mm (1/8" to 1/4") space between them.

5.3 When thermosetting tapes are used, cure the assembly in a mechanical convection oven maintained at  $130^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $266^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ) for 2 hours; remove, and maintain at room conditions for a minimum of 16 hours before testing.

5.4 Immerse the plate completely in the test oil for 72 hours at  $50^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $122^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ) in a vertical position with the free ends of the specimens adhered to the back of the plate. After removal from the oil, place the assembled specimen side down on a clean blotting paper for 30 min.

5.5 Measure the adhesion of each specimen in accordance with PSTC-101.

## 6. ADHESION TO BACKING

6.1 For effect of oil on adhesion to backing, apply 6 mm (1/4") or wider strips to the plate in accordance with Paragraph 5.1, except wrap both ends around the plate. Apply 6 mm (1/4") wide specimens to these strips, immerse in oil, remove, and measure adhesion to backing (PSTC-101).

## 7. REPORT

7.1 Complete identification of the tape.

7.2 Identification of the oil.

7.3 Kind of test (adhesion to steel or to backing).

7.4 Average of the four specimens' adhesion in Newtons/10 mm (lbs. per inch) of width or other appropriate units, plus the maximum and minimum, if specified.

Another method for measuring the oil resistance of electrical grade tapes is ASTM D 1000.

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