# Volume Resistivity VR-4

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## Test Procedure

This test method describes the procedure for the measurement of volume resistivity of electrically conductive adhesives.

**Equipment Used:**

- **H.P. 4338A milliohmeter**
- **H.P. 16143B mating cable**
- **H.P. 16007A, 16007B 4 point clip**

Place 2 parallel strips of 3M Magic #810 Scotch® Tape 0.100 inch apart along the length of a standard 1 inch x 3 inch glass slide. Place a small amount of the test adhesive in the space between the test strip. Using a clean glass slide held at a 45° angle, squeeze the adhesive into the 0.100 inch space between the tape stripes. The clean glass slide will ride on the tape, providing a uniform thin application of adhesive.

Remove the tape and place the glass slide in a pre-heated oven. The oven's temperature and cure time should be consistent with the adhesive manufacturer's data sheet and the users production cure schedule. After cure remove from oven.

Using a 4 point resistance bridge, measure the resistance by setting the Current Contact 2.00 inches apart and Voltage Contacts 1.00 inch apart on the cured adhesive strip. The voltage contacts are separated from each Current Contact by 0.50 inch.

To convert reading to ohm-cm, multiply the resistance number by .0005. This factor assumes the adhesive strip width is 0.1 inch, the cured adhesive thickness is 0.002 inch, and the distance between Voltage Contacts is 1.00 inch. The formula is as follows:

$$P = \frac{R\,(w \times t)}{L}$$

P = resistivity, ohm-cm
R = measured resistance
w = width cm.
t = thickness, cm.
L = length, cm.

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