

Scotch™ 13 Electrical Semi-Conducting Tape

Product Description

The soft, black rubber tape is a highly conformable, semi-conducting EPR (Ethylene Propylene Rubber) based high-voltage splicing tape. It is non-vulcanizing and shelf stable, with stable conductivity over a wide temperature range. Its conductivity is not affected, except by low-viscosity oils. The conductivity of cable semi-conducting jackets is not affected by 13 Tape.

Tape Features:

- Ethylene propylene rubber (EPR)
- Semi-conducting (low resistivity)
- Retains conductivity with stretch
- Elongates easily to conform to irregular shapes
- Stable at elevated temperatures (130°C / 266°F)
- Compatible with all solid dielectric cable insulations and conductors
- Exceptional resistance to cracking or checking from solvents, UV, or moisture
- Compatible with high-voltage splicing and terminating materials
- Usable for indoor or outdoor applications
- Meets requirement of ASTM-D-4388, Type IV

Applications

- To electrically round out high-voltage connectors and to bond to insulating materials to minimize electrical stresses
- Continue semi-conducting strand shielding found in solid dielectric (polyethylene, XLP, EPR, etc.) cables at 5 kV and above
- Provide shielding for cable joints on solid dielectric insulated power cables (shielded or concentric neutral)
- Replace semi-conducting layer beneath metallic shield of similar cables in case of damage (screening)
- Make conductive portion of stress cone of power cable termination on solid dielectric insulated power cables
- Maintain positive connection between concentric neutral semi-conducting jackets of power cables and semi-conducting surfaces of plug-in units
- Establish a more positive contact between concentric neutral wires and pre-molded devices already installed with too much of jacket exposed
- Round out bolted connections on insulated bus bars

Data: Average Properties

Thickness ASTM D-4325	30 mils
Tensile Strength ASTM D-4325	6 lbs/in
Elongation ASTM D-4325	800%
Fusion ASTM D-4388	PASS
Temperature Rating Normal Emergency Cable	90°C 130°C
Volume Resistivity ASTM D-4325	10 ³ ohm-cm
Field Test Resistance (See Below)	10,000 ohms

Field Test

13 Tape can be checked for resistance with an ohmmeter. After elongating the tape 25% of its original width, probe points placed one inch apart on the tape should measure 10,000 ohms or less. Figure 1 illustrates the type of results which may be expected in the field.

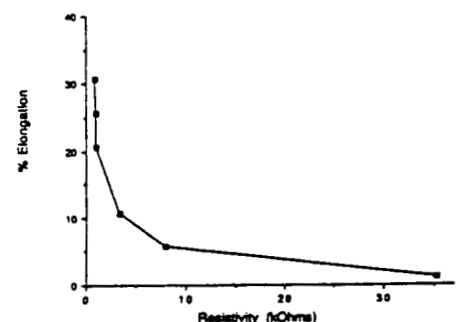


Figure 1

Specifications

Product

The conducting rubber tape must be based on ethylene propylene rubber and be capable of operation at the emergency cable temperature of 130°C. It must be usable without covering, both indoors and outdoors, in a highly stretched condition, without splitting or cracking. It must not split when heated to 130°C; it must be compatible with all common solvents, adhesives, and high-voltage splicing and terminating insulations and must not adversely affect semi-conductive cable jackets.

Engineering/Architectural

Joining (splicing) and terminating shall be done according to engineering print supplied by manufacturer of joining or termination materials for specific cable and approved by specifying engineer.

Alternate: Joining and terminating engineering drawing shall be compatible with specific cable or cables approved by specifying engineer.

Characteristics and Test Data

Effects of 13 Tape on resistivity of semi-conductive cable shield.

The Insulated Conductor Committee (ICC) has set a standard for compatibility of materials placed on shielded cables. When tested according to ICC Guide P1026, products in contact with semi-conductive cable shield shall have a resistance measurement below ten ohm-meters. Scotch 13 Tape complies with the requirements of ICC Guide P1026.

Resistivity of cable semi-conductive shield overwrapped with 13 Tape remained the same as, or lower than, that of the exposed shield (control). This test shows 13 Tape does not significantly affect semi-conductive cable shields.

Installation Techniques

13 Tape is usually wrapped in half-lapped layers. Highly elongate tape when overwrapping connectors, terminal lugs, and near edges of cable metallic shield, semi-conducting cable tape and semi-conducting jackets.

Note: Stretching 13 Tape increases its conductance and will not harm it in any way.

Caution: 13 Tape is not oil resistant. It should not be used in splicing and terminating cables which contain oil or slippery compounds as part of dielectric such as PILC or VCLC.

Techniques for proper use of this conductive tape are contained in standard and special prints available through 3M Systems for Splicing and Terminating. Ask your local 3M Electrical Products representative.

Shelf Life

13 Tape has a 5 year shelf life (from date of manufacture) when stored under the following recommended storage conditions. Store behind present stock in a clean dry place at a temperature of 70°F and 40-50% relative humidity. Good stock rotation is recommended.

Availability

13 Tape is available in a 3/4-inch x 15-foot roll from your local authorized 3M electrical distributor.

Complete Product and Use Specifications are available through the Electrical Products Division, 3M Company.

IMPORTANT NOTICE TO PURCHASER: All statements, technical information and recommendations related to the Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

All statements or recommendations of the seller which are not contained in the Seller's current publications shall have no force or effect unless contained in an agreement signed by an authorized officer of the Seller. The statements contained herein are made in lieu of all warranties express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

SELLER SHALL NOT BE LIABLE TO THE USER OR ANY OTHER PERSON UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY, FOR ANY INJURY OR FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES SUSTAINED OR INCURRED BY REASON OF THE USE OF ANY OF THE SELLER'S PRODUCTS.

3M Electrical Products Division

6801 River Place Blvd.
Austin, TX 78726-9000

