



Scotch® 13

Electrical Semi-Conducting Tape

Data Sheet



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-vulcanising 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.
- ❖ Suitable for indoor or outdoor applications.
- ❖ Meets requirements of ADTM-D4388, Type IV.

Applications

- ❖ To electrically round out high-voltage connectors and to bond to insulating materials to minimise electrical stresses.
- ❖ Continue semi-conducting strand shielding found in solid dielectric (polyethylene, XLPE, EPR, etc.) cables at 5kV 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.

Data : Average Properties

Thickness	0.76mm
ASTM-D4325	
Tensile Strength	10.5N/10mm
ASTM D-4325	
Elongation	800%
ASTM D-4325	
Fusion	Pass
ASTM-D4388	
Temperature Rating	
Normal	90°C
Emergency Cable	130°C
Volume Resistivity	10 ³ ohm-cm
ASTM-D4325	
Field Test Resistance	10,000 ohms
(See Below)	

Field Test

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

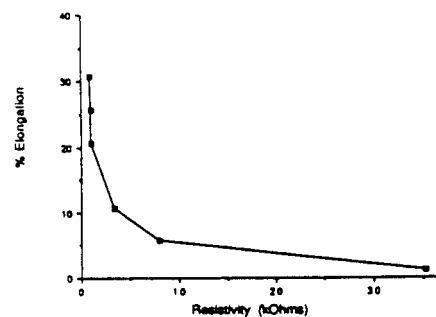


Figure 1

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.



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Engineering/Architectural

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

Alternate: Jointing 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 ohmmeters. Scotch™ 13 Tape complies with the requirements of ICC Guide P1026.

Resistivity of cable semi-conductive shield over wrapped 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 over wrapping 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.

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 40-40% relative humidity. Good stock rotation is recommended.

Availability

13 Tape is available in a 19mm x 4.5M roll from your local authorised 3M electrical distributor.

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