Scotch®
Rubber Splicing Tape 23

Data Sheet **February 2017**

Description	Scotch® Rubber Splicing Tape 23 is a highly conformable, self-fusing EPR (Ethylene Propylene Rubber) based, high-voltage splicing tape. It is a non-vulcanizing, shelf-stable tape with excellent electrical properties. Scotch® 23 tape can be used as an insulation for low-voltage applications as well as an insulation for splices up to 69,000 volts.
Agency Approvals & Self Certifications	For RoHS information, please visit www.3M.com/ROHS
Tape Features	• Can be used to splice and terminate cables whose emergency overload temperatures can reach 266°F (130°C) • Based on Ethylene Propylene Rubber (EPR) • Physical and electrical properties are unaffected by the degree of stretch • Self-fusing tape • Excellent electrical properties • A special polyester liner which will not stick to the tape upon unwind • Compatible with all solid dielectric cable Insulation: 1. Polyethylene (high and low density) 2. Cross-linked Polyethylene (XLP) 3. Polyvinyl Chloride (PVC) 4. Butyl Rubber 5. Ethylene Propylene Rubber (EPR) 6. Oil-based rubber
Applications	• Primary electrical insulation for splicing cable from 600 volts through 69,000 volts on all solid dielectric cables • Primary insulation for building stress cones on cables up to 35,000 volts on all solid dielectric cables • Jacketing on high-voltage splices and terminations • Moisture sealing electrical connections • Bus bar insulations • End sealing high-voltage cables

3M

Scotch® Rubber Splicing Tape 23

Typical Properties

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

Physical Property (Test Method ASTM D-4325*)	**Typical Value** US units (metric)
Color	Black
Thickness*	30 mils (0.76 mm)
Tensile Strength*	8 lbs/in (1,4 KN/m)
Ultimate Elongation*	1000%
Operating Temperature	194°F (90°C)
Emergency Operating Temperature	266°F (130°C)
Fusion (ASTM D-4388)	Passes
Thermal Conductivity (ASTM D-1518)	.1208 Btu (hr)(sq ft)
Modulus @ 266°F (130°C)	See Characteristics & Test Data
Ozone Resistance (ASTM D-4388)	Passes

Electrical Property (Test Method ASTM D-4325*)	**Typical Value** US units (metric)
Dielectric Strength*	
After Standard Conditioning	800 V/mil (31,5 Mv/m)
After 96 hrs @ 96% RH	>90% of Std Condition Value
Insulation Resistance (ASTM D-1000)	
(Indirect Method of Electrolytic Corrosion)	>1 x 10^6 megohms
Dissipation Factor	See Characteristics & Test Data
Dielectric Constant	See Characteristics & Test Data
Dielectric Strength at Elevated Temperature	See Characteristics & Test Data

Product Specifications

The high-voltage corona-resistant tape is based on Ethylene Propylene Rubber and is capable of operation at the emergency cable temperature of 266°F (130°C). Scotch® Rubber Splicing 23 tape may be applied in either the stretched or unstretched condition without resulting in loss in either physical or electrical properties.

The tape is split resistant, crack resistant, slip resistant and flag resistant when exposed to various environments (indoor or outdoor). It is compatible with synthetic cable insulations. Scotch® 23 Tape has a dissipation factor of less than 5% at 266°F (130°C), and a shelf life of 5 years.

Scotch® Rubber Splicing Tape 23

Engineering/ Architectural Specifications	Splicing and terminating solid dielectric cables shall be done in accordance with drawings engineered by the splice material manufacturer such as the 2047 Series available from 3M Company. Splices and terminations may be insulated using Scotch® Rubber Splicing Tape 23.

Characteristics and Test Data

Modulus at 266°F (130°C):

A high-voltage tape that constantly maintains a rubber-like consistency throughout the life of a splice. One method of determining a rubber material consistency is by measuring the modulus of the material. The modulus of a material is the stress required to elongate the material to a given elongation.

Figure 1 shows the 100% modulus (stress required to elongate Scotch® 23 tape to 100% elongation) after heat aging the samples at 266°F (130°C) for a varying number of days. The results indicate a very stable product with excellent "body" or elasticity after oven aging at 266°F (130°C).

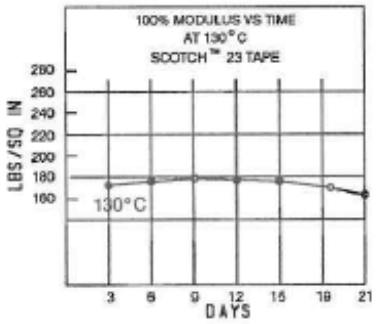

Figure 1

Dissipation Factor:

Figure 2 shows the dissipation of Scotch® 23 tape. This test was run according to ASTM D-150 at a stress of 50 V/mil (2,0 MV/m) and a frequency of 60 cycles per second.

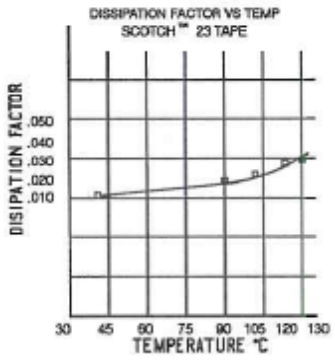

Figure 2

Characteristics and Test Data, *continued*

Dielectric Constant:

Figure 3 shows the dielectric constant versus temperature of Scotch® Rubber Splicing Tape 23. This test was run according to ASTM D-150 at a stress of 50 V/mil (2,0 MV/m) and a frequency of 60 cycles per second.

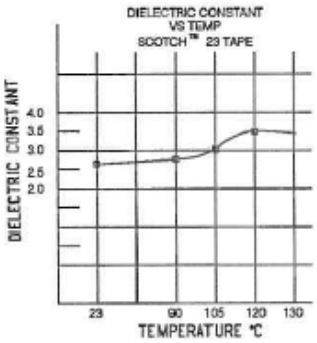

Figure 3

Dissipation Strength at Elevated Temperatures:

A high-voltage splice has a high dielectric strength at room temperature, but also good values at the temperature at which it is expected to operate. *Figure 4* shows a plot of dielectric strength versus temperature. This test was run according to ASTM D-1000.

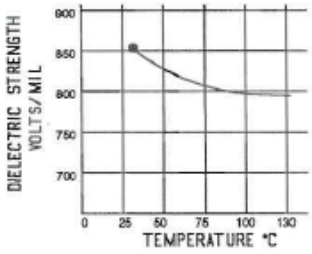

Figure 4

Dielectric Strength Versus Thickness:

Figure 5 shows a plot of dielectric strength in volts per mil versus thickness. As can be seen by the curve, the dielectric strength in the original thickness of .030" (,76 mm) is 800 V/mil (31,5 MV/m). However, the dielectric strength of a .020" (,51 mm) thickness of Scotch® 23 tape is 1200 V/mil (47,2 MV/m). This test was run according to ASTM D-1000.

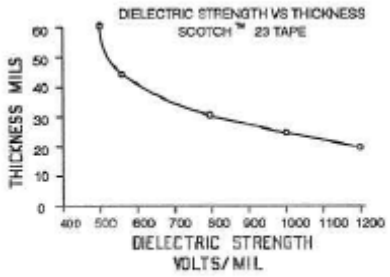

Figure 5

Scotch® Rubber Splicing Tape 23

Installation Techniques	Scotch® Rubber Splicing Tape 23 should be applied in successive half-lapped, level-wound layers until desired buildup is reached. To eliminate voids in critical areas, highly elongate the tape. Stretch tape in these critical areas just short of its breaking point. Doing so will not alter its physical or electrical properties. In less critical areas, less elongation may be used. Normally, the tape is stretched to ¾ of its original width in these less critical areas. Always attempt to half-lap to produce a uniform buildup. When using Scotch® 23 tape for splicing cables from 35 kV to 69 kV, always elongate the tape throughout the entire splice. Techniques for the proper use of this tape are contained in standard and special prints available through the 3M systems for splicing and terminating program. These are available through the local 3M Electrical Markets Division representative.
Availability	Please contact your local distributor; available from 3M.com/electrical [Where to Buy] or call 1-800-245-3573.
Shelf Life & Storage	This product has a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity). The tape is not impaired by freezing or by overheated storage up to the point of flow, which prevents removal from the package.

Important Notice	All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product, which are not contained in 3M's current publications, or any contrary statements contained on your purchase order, shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.
Warranty; Limited Remedy; Limited Liability	This product will be free from defects in material and manufacture at the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any direct, indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

3M
Electrical Markets Division
6801 River Place Blvd.
Austin, TX 78726-9000
800.245.3573
FAX: 800.245.0329
www.3M.com/electrical

78-8129-9332-3 Rev B

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Adhesive Tapes ***category:***

Click to view products by 3M ***manufacturer:***

Other Similar products are found below :

56-YELLOW-34"X72YD 00-021200-13972-7 021200-64630 60 TAPE (1") 62-GRAY-12"X36YD 62-GRAY-1"X36YD 69-1"X36YD 764-1"x36yd-Red 764-1"x36yd-White 9500PC-3/4 967454-1 1181 19MM X 16,5 METERS 130C-1X15FT E39-RS1-CA 1900-48mm 22-1/2X36YD 88-SUPER-34X44FT 890103N001 2670 96 EVK-TA-TM047NBH01 20-1"X60YDS 2020-18mmx55m H150 363 3900-Blue 3939-24mmx55m 44-TAN-14"X90YD 4504-34x18 471-Trans-1"x36yd-Bulk 5414 34X36 35-Gray-1/2 4008-12"X36YD 4104-34"x18yd 4116 444-1"x36yd 4466 1" 4466W-1/2"x36yd 4492B-12"x72yd 4492B-1"x72yd 4496W-12"x36yd 4508-1"x36yd 4516-3/8x36 4726 1/2"X36YD 054007-43154 054007-43152 06149 11-32-2857 5419 1/2" 56 TAPE (1/2")