Scotch® 24 Electrical Shielding Tape

Data Sheet

1.0 Product Description

Scotch® 24 Electrical Shielding Tape is an all-metal, open-weave, shielding braid tape in a flat, cable-like form. It is conformable due to the open-weave knit construction of two No. 36 AWG tinned copper wires.

Features:

- Tinned copper conductors
- Stable at elevated temperatures
- Oil Resistant
- Compatible with power cable insulations
- Fire resistant
- Elongates easily to conform to inclined or uneven surfaces.
- Corrosion resistant
- Compatible with all high-voltage splicing and termination materials
- Unaffected by solvents, U.V., ozone, and moisture
- Because of its construction, the tape interlocks with the previous layer, thereby assuring a tighter wrap (no solder bead is required)
- The porosity of Scotch 24 Tape will permit complete resin saturation when splicing
- Usable for indoor and outdoor applications

2.0 Applications

- To provide shielding for cable joints on shielded power cables
- To make the conductive portion of the stress cone on power cable terminations
- To smooth connector area in oil-filled cables

3.0 Data

Physical Properties:

Test Method	Typical Value*
• Thickness (ASTM-D-1000-76)	0.016
• Breaking Strength (ASTM-D-1000-76)	22 lbs./in.
• Elongation (ASTM-D-1000-76)	70%
• Weather Resistance (Stretched and Unstretched)	Pass
Shelf Life	Indefinite

Electrical Properties:

Test Method	Typical Value*
• Electrical Resistance (3M) (ASTM D-1373-67)	Pass
• Wire Size	Two No. 36 AWG tinned copper wires

Chemical Properties:

Test Method	Typical Value*
• Ozone Resistant (ASTM D-1373-67)	Pass
• Water Absorption	Zero
• Resistance to Ultraviolet (3M)	Pass

* All values are averages, based on several determinations, and are not intended for specification purposes.

4.0 Specifications

Product

(Open Specification)

Conducting metal tape must be woven of No. 36 AWG tinned copper wire and be capable of operating at the emergency cable temperature of 130˚C/266˚F. It must be usable uncovered, indoors and outdoors, in a highly stretched condition without corroding, tearing or splitting. It must be nonflammable and be compatible with cable oils, common solvents, adhesives, and high-voltage splicing and terminating insulations.

Engineering/Architectural

(Closed Specification)

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

Alternate - the jointing and terminating engineering drawing shall be compatible with the specific cable or cables and approved for the specific voltage of the cable.

5.0 Characteristics and Test Data

Tests were designed to determine how long a 12-inch specimen of Scotch® 24 Tape would withstand a given amount of current before separating. A 20 gram weight was attached to the Scotch 24 Tape to ensure contact between the strands of the copper mesh. The test ended when Scotch 24 separated, due to the melting of the tinned copper wires. Figure 2 on the back page illustrates the results.

The data indicates that Scotch 24 Tape has excellent current carrying capacities for replacing the electrostatic shielding in high-voltage cables.

It should not be used as a ground strap or jumper wire because it will not carry the large fault currents and lightning currents that often appear in high voltage cables.

Figure 3 is representative of the method used for determining the resistance per foot of 24 Tape. The 200-gram weight was used to insure contact between the interwoven No. 36 wires. The resistance is .92 ohms for 10 feet of 24 Tape.

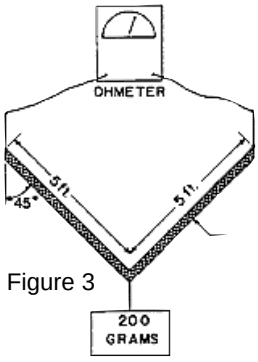

Figure 3

6.0 Installation Techniques

When constructing tape terminations and splices, overwrap area according to 3M prints with one half-lapped layer of Scotch 24 Tape to continue electrostatic shielding.

When using resin-pressure methods, overwrap splice area with one quarter-lapped layer of Scotch 24 Tape. Solder 24 Tape ends to cable metallic shielding.

Caution: Scotch 24 tape should not be used as a ground strap or jumper wire. It's ampacity is not great enough to carry large fault currents.

Note: A solder bead across 24 Tape is not necessary to hold it in place.

Techniques for the proper use of this conductive tape are contained in standard and special prints available though the 3M Systems for Splicing and Terminating program. They are available through your local 3M Electro-Products Division Representative.

7.0 Maintenance

(Shelf Life)

Scotch 24 Tape has an indefinite storage life. Because of its open-weave knit construction, 24 Tape will not telescope while on the roll.

The tape can be checked for resistance with an ohm meter. Probes touching the surface one foot apart should measure .092 ohms or less. The tape is not impaired by freezing nor by over-heated conditions.

8.0 Availability

Scotch 24 Tape is available in 1-inch x 15-foot and 1-inch x 100-foot (job size) rolls.

Complete Product and Use Specification are available through the Electro-Products Division, 3M Company.

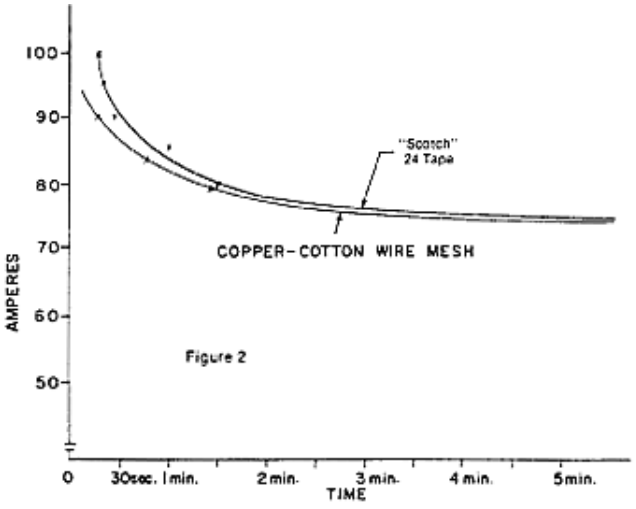

Figure 2

'3M' and 'Scotch' are trademarks of 3M Company.

3M

Electrical Products Division

6801 River Place Blvd.
Austin, TX 78726-9000
www.3M.com/elpd

Litho in USA