

# Scotch® Electrical Shielding Tape 24

Data Sheet

September 2016

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**Description** Scotch® Electrical Shielding Tape 24 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.

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**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 Tape 24 will permit complete resin saturation when splicing
- Usable for indoor and outdoor applications

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**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

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**Open Product (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.

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**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.

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## Scotch® Electrical Shielding Tape 24

### Physical Chemical Electrical Properties

| Physical Property (Test Method)                       | Typical Value*<br>US units (metric) |
|-------------------------------------------------------|-------------------------------------|
| <b>Thickness</b> (ASTM D 1000-76)                     | 0.016                               |
| <b>Breaking Strength</b> (ASTM D 1000-76)             | 22 lbs./in.                         |
| <b>Elongation</b> (ASTM D 1000-76)                    | 70%                                 |
| <b>Weather Resistance</b> (Stretched and Unstretched) | Passed                              |
| <b>Shelf Life</b>                                     | Indefinite                          |

| Electrical Property (Test Method)                  | Typical Value*<br>US units (metric) |
|----------------------------------------------------|-------------------------------------|
| <b>Electrical Resistance</b> (3M) (ASTM D 1373-67) | Passed                              |
| <b>Wire Size</b>                                   | Two No. 36 AWG tinned copper wires  |

| Chemical Property (Test Method)          | Typical Value*<br>US units (metric) |
|------------------------------------------|-------------------------------------|
| <b>Ozone Resistance</b> (ASTM D 1373-67) | Passed                              |
| <b>Water Absorption</b>                  | Zero                                |
| <b>Resistance to Ultraviolet</b> (3M)    | Passed                              |

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

### Characteristics and Test Data

Tests were designed to determine how long a 12-inch specimen of Scotch® Electrical Shielding Tape 24 would withstand a given amount of current before separating. A 20 gram weight was attached to the Scotch Tape 24 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 illustrates the results. The data indicates that Scotch Tape 24 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 1 is representative of the method used for determining the resistance per foot of Tape 24. The 200-gram weight was used to insure contact between the interwoven No. 36 wires. The resistance is .92 ohms for 10 feet of Tape 24.

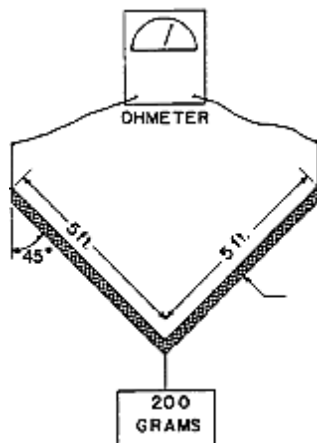


Figure 1

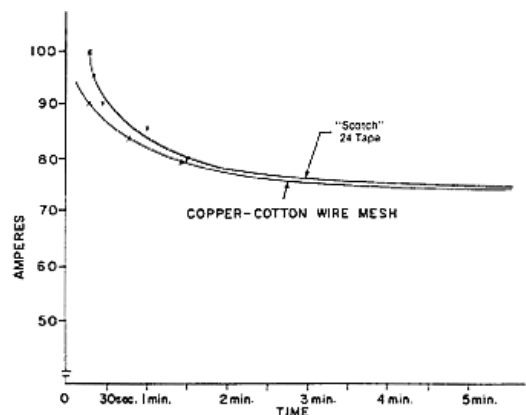


Figure 2

## Scotch® Electrical Shielding Tape 24

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### Installation Techniques

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

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

**Caution: Scotch Tape 24 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 Tape 24 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 through the 3M Systems for Splicing and Terminating program. They are available through your local 3M Electro-Products Division Representative.

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### Shelf Life

Scotch® Electrical Shielding Tape 24 has an indefinite storage life. Because of its open-weave knit construction, Tape 24 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.

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### Availability

Please contact your local distributor; available from [3M.com/electrical](http://3M.com/electrical) [Where to Buy] or call 1.800.245.3573.

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