



# Scotch™

## 2228 Rubber Mastic Tape

### Data Sheet

#### Product Description

Scotch 2228 is a conformable self-fusing rubber electrical insulating and sealing tape. Scotch 2228 consists of an ethylene propylene rubber (EPR) backing coated with an aggressive, temperature-stable mastic adhesive. The tape is made 65 mils (1,65 mm) thick for quick application build-up. It is designed for electrical insulating and moisture sealing applications. Scotch 2228 can be used on copper or aluminum conductors rated at 90°C, with an emergency overload rating of 130°C. It offers excellent resistance to moisture and ultraviolet exposure and is intended for both indoor and weather exposed outdoor applications.

#### Tape Features:

- \* Conformable for application over irregular surfaces
- \* Compatible with solid dielectric cable insulations
- \* Self-fusing tape
- \* Flexible over wide temperature range
- \* Excellent weather and moisture resistance
- \* Excellent adhesion and sealing characteristics with copper, aluminum and power cable jacket materials.
- \* Thick construction allows quick application build-up and padding over irregular connections

#### Applications

- \* Primary electrical insulation for cable and wire connections rated up to 1000 volts
- \* Electrical insulation and vibration padding for motor leads rated up to 1000 volts
- \* Primary electrical insulation for bus bar connections rated up to 35 kv (3M drawing 2047B-106)
- \* Padding for irregular shaped bus bar bolted connections
- \* Moisture seal for cable and wire connections
- \* Moisture seal for service drops
- \* Moisture seal for ground wire and rod connections
- \* Jacket seal on power cable applications

#### Typical Data

##### Temperature Rating:

ASTM D-4388 194°F (90°C)

##### Color

Black

##### Thickness

ASTM D-4325 65 mils (1,65 mm)

##### Adhesion

ASTM D-1000

Steel 15.0lb/in (26,2N/10mm)

PE 10.0lb/in (17,5N/10mm)

##### Fusion

ASTM D-4388, Type I Pass

##### Tensile Strength

ASTM D-4325 150psi (1,03N/mm<sup>2</sup>)

##### Elongation

ASTM D-4325 1000%

##### Dielectric Breakdown

ASTM D-4325

Dry 500v/mil (19,7kv/mm)

Wet 500v/mil (19,7kv/mm)

##### Dielectric Constant

ASTM D-4325 3.5

##### Dissipation Factor

ASTM D-4325 1.0%

##### Water Absorption

ASTM-570 0.15%

##### Water Vapor Transmission Rate

ASTM D-3833 0.1g/100in<sup>2</sup>/24hr

##### Ozone Resistance

ASTM D-3833 Pass

##### Heat Resistance

ASTM D-4388 Pass, 130°C

##### UV Resistance

ASTM D-4388 Pass

*Note: These are typical values and should not be used for specification purposes.*

### 3M Water Seal Test

Samples were constructed using 2228 tape as a seal between PVC cable jackets and connecting ground wires (3M Cable Grounding Kit 2252). The specimens were thermal cycled in water baths at 25°C and 90°C. The total test time of 336 hours revealed no significant change in insulation resistance. The results exceed requirements listed in UL 486D "Standard for Insulated Wire Connectors for Use With Underground Connectors" for insulation resistance (6.0 megohms, section 7.1) and dielectric voltage withstand (2.2 kv, 1 minute, section 8.1).

### Specification

The tape shall be 65 mils (1,65 mm) thick. The tape must be ethylene propylene rubber based and coated with a rubber mastic pressure sensitive adhesive. The tape must be classified for normal service temperatures up to 90°C with allowable short-term exposure up to 130°C.

The tape must be applicable at temperatures of 0°C to 38°C without loss of physical properties. The tape must be classified for use in both indoor and weather-exposed outdoor environments.

The tape must not split or crack when exposed to normal operating temperatures and environments. The tape must be compatible with synthetic cable and wire insulations. The tape shall not be corrosive to aluminum, or copper conductors.

### Installation

Scotch 2228 should be applied in half-lapped layers until desired insulation build up is reached. Stretch the tape to 3/4 of its original width during application for good conformability and to obtain a moisture tight seal.

Scotch 2228 should be overwrapped for mechanical protection with two half-lapped layers of Scotch Brand vinyl electrical tape.

### Shelf Life

2228 tape has a five 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 (21°C) and 40–50% relative humidity. Good stock rotation is recommended.

### Availability

Scotch 2228 Rubber Splicing Tape is available from your local 3M authorized distributor.

#### 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.

Any 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 expressed 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.



#### Electrical Products Division

6801 River Place Blvd.  
Austin, TX 78726-9000



Printed on 50% recycled  
waste paper, including 10%  
post-consumer waste paper.

Litho in USA.

© 3M 1994 80-6106-8340-3