

# **DIRECTA**

## **ESSENTIALS FOR INDUSTRY**

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### **TECHNICAL DATA SHEET**

**PRODUCT:** 3M Scotch 2228 Rubber Mastic Tape

Our Ref: 011T2228

### **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 1.65mm thick for quick application build-up. It is designed for electrical insulating and moisture sealing applications. Scotch 2228 can be used on copper or aluminium 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, aluminium 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 35kV (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 connection
- Jacket seal on power cable applications

<b>TYPICAL DATA / PHYSICAL PROPERTIES</b>	
<b>Temperature Rating</b> ASTM D-4388	194°F (90°C)
<b>Colour</b>	Black
<b>Thickness</b> ASTN D-4325	1.65mm
<b>Adhesion</b> ASTM D-1000 Steel PE	26.2N/10mm 12.5N/10mm
<b>Fusion</b> ASTM D-43388, Type 1	Pass
<b>Tensile Strength</b> ASTM D-4325	1.03N/10mm <sup>2</sup>
<b>Elongation</b> ASTM D-4325	100%
<b>Dielectric Breakdown</b> ASTM D-4325 Dry Wet	19.7kV/mm 19.7kV/mm
<b>Dielectric Constant</b> ASTM D-4325	3.5
<b>Dissipation Factor</b> ASTM D-4325	1.0%
<b>Water Absorption</b> ASTM D570	0.15%
<b>Water Vapour Transmission Rate</b> ASTM D-3833	0.1g/100in <sup>2</sup> /24hr
<b>Ozone Resistance</b> ASTM D-3833	Pass
<b>Heat Resistance</b> ASTM D-4388	Pass, 130°C
<b>UV Resistance</b> ASTM D-4388	Pass

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

**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 UL486D “Standard for Insulated Wire Connectors for Use With Underground Connectors”, for insulation resistance (6.0 megohms, section 7.1) and dielectric voltage withstand (2.2kV. 1 minute, section 8.1).

**SPECIFICATION:**

The tape shall be 1.65mm 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 temperature 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 wire insulations. The tape shall not be corrosive to aluminium or copper conductors.

**INSTALLATION:**

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

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

**SHELF LIFE:**

Scotch 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.

The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

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28<sup>th</sup> August 2009