3M™ Scotchcast™ Flame-Retardant Electrical Insulating Resin 2131

Data Sheet **January 2015**

Description

3M™ Scotchcast™ Flame-Retardant Electrical Insulating Resin 2131 is a two-part polyurethane resin designed to replace the cable jacket when splicing or repairing mine and portable cables. Its formulation makes it particularly suited to withstand the rugged conditions under which mine and portable cables must operate.

Flame-Retardant Resin 2131 is also used as the insulating material for cable splices operating at up to 1000 volts and designed for 194ºF (90ºC) continuous use/266ºF (130ºC) overload.

- Flame-retardant
- Bonds to most modern cable jackets
- Bonds to itself
- Tough, yet flexible (semi-flexible)
- Available in two-part closed mixing pouch for easy mixing and pouring
- Excellent multi-purpose moisture sealing resin
- Room temperature cure
- Color: Black

Agency Approvals & Self Certifications

For RoHS information, please visit www.3M.com/ROHS

When used in accordance with the appropriate kit configuration, Flame-Retardant Resin 2131 meets Part 7, Title 30 CFR and carries the following MSHA approvals:

07-KA060002-MSHA	3M™ Scotchcast™ Flexible Power Cable Inline Splice Kit 82-F Series 3M™ Scotchcast™ Flexible Power Cable Tap Splice Kit 82-BF1
07-KA060007-MSHA	3M™ Scotchcast™ Mine and Portable Cable Splice Kit 8096 Series 3M™ Three-Conductor Inline Splice Kits 5750 and 5760 Series 3M™ Scotchcast™ Jacket Repair Kits M Series*

* The Flame-Retardant Resin 2131 is not included with the “M” Series kits and must be ordered separately.

Resin Applications

- To replace or repair the jacket on both single and multi-core power cables
- To insulate between conductors of multi-core splices operating at up to 1000 volts
- To seal the crotch or sheath when terminating multi-core cables
- Potting cable or wire encasements
- Potting cable fittings & splices
- Potting printed circuit boards
- Potting junction boxes
- Filling back shell connectors
- Potting for motor repairs

Typical Physical and Electrical 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 Properties (Test Method)	**Typical Value** US units (metric)
Color	Black
Hardness (ASTM D2240)	82 Shore A
Density	0.703 oz/in^3 (1,217 g/cm^3)
Tensile Strength (ASTM D412)	1038 psi (73,0 kg/cm^2)
Elongation (ASTM D412)	339%
Glass Transition Temperature, T_g (DSC)	-103 ºF (-75ºC)
Maximum Exotherm, 100g (3M TM-67)	147ºF (64ºC) rise
Gel Time @ 75ºF (23ºC) (3M Method TM-67)	17 minutes
Viscosity (cP) @ 77°F (25°C) (3M Method TM-173) Part A Prepolymer Part B Polyol	 600 - 1,100 4,000 - 10,000
Specific Gravity (ASTM D891) Part A Prepolymer Part B Polyol	 1.08 1.29
Moisture Absorption (ASTM D471) 168 hrs. Immersion @ 212ºF (100ºC)	 4.9%
Adhesion to Metals (lb/in^2) (3M TM-456) Copper Brass Steel Aluminum	 550.2 274 491.3 221
Adhesion to Cable Jackets (lb/in^2) (3M TM-457) Vinyl Neoprene Nylon XLPE	 125 115 >72 208.5

Electrical Properties (Test Method)	**Typical Value**
Dielectric Strength (ASTM D149)	343 V/mil (13,5 kV/mm)
Dielectric Constant, @ 60Hz (ASTM D150)	5.22 @ 73ºF (23ºC) 6.33 @140ºF (60ºC) 6.56 @194ºF (90ºC)
Dissipation Factor, @ 60Hz (ASTM D150)	5.6% @ 73ºF (23ºC) 7.9% @140ºF (60ºC) 17.0% @194ºF (90ºC)

Usage & Handling

IMPORTANT:
Product should remain in the sealed container/envelope until ready to use. In cold weather, warm closed mixing pouch to 60°F (16°C) or warmer before mixing. Keep in a warm area, such as truck cab or inside pocket, until ready to use.

General Instructions

Closed Mixing Pouch:

- Tear open the protective envelope and remove the closed mixing pouch
- Before breaking the barrier, squeeze the bag to premix the separate components.
- Firmly grasp each flat side of the bag near the center barrier, while pulling the sides of the barrier apart and rolling the sides of thumbs through the barrier. Break the barrier all the way across to the side seals.
- Alternately squeeze each end of the bag, forcing the resin back and forth (30 seconds).
- Strip the resin from the corners of the bag and continue to mix until the color is uniform (additional 30 seconds, maximum).
- Clip off a corner of the closed mixing pouch and pour

Bulk Components:
Measure the appropriate quantity of each component as indicated in the table below, then thoroughly mix to a uniform color and consistency prior to use. Opened bulk components should be blanketed with nitrogen to prevent moisture contamination.

Component	Color	Weight Ratio (w/w)	Volume Ratio (v/v)
Part A	Pale Yellow	1	1
Part B	Black	2.1	1.69

Typical De-Mold/Cure Time:

Temperature	De-Mold Time	Approximate Cure Time
70°F (21°C)	1.5 – 2 hrs	16 – 24 hours
50°F (10°C)	3.5 – 4 hrs	24 – 30 hours
32°F (0°C)	6 – 8 hrs	36+ hours

NOTE: Values are typical, not to be considered minimum or maximum. Always confirm that material is no longer tacky prior to de-molding.

Safety Precautions:
Read all Health Hazard, Precautionary and First Aid statements found in the Safety Data Sheet (SDS) and/or product label of chemicals prior to handling or use.
Wear protective gloves when using this product.

⚠ CAUTION

Working around energized electrical systems may cause serious injury or death. Installation should be performed by personnel familiar with good safety practice in handling electrical equipment. De-energize and ground all electrical systems before installing product.

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Shelf Life & Storage	3M™ Scotchcast™ Flame-Retardant Electrical Insulating Resin 2131 has a 3-year shelf life from date of manufacture when stored in the factory-sealed packaging under humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).
Availability	Please contact your local distributor or call 1.800.245.3573.

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