

# Scotchcast™ Electrical Resin 10

Two-Part, Room-Curing, Class B, Semiflexible, Filled, Thixotropic, Epoxy Liquid Resin

## Data Sheet

### Product Description

3M™ Scotchcast™ Electrical Resin 10 has a thixotropic (heavy paste) consistency that makes it useful for applications requiring a thick coating, a heavy layer, applied by spatula, extrusion, buttering or trowelling, cures with minimum sagging. The cured resin exhibits good physical properties, such as high thermal and mechanical shock strength, strong adhesion, resistance to oil and fuel. It also exerts little stress on sensitive components. Typical applications include filling, patching, caulking, holding, spot repairing, lead anchoring and insulating by buttering end-turns of motor stator coils.

- Temperature rated Class B (130°C)
- General purpose, buttering and holding
- High thermal and mechanical shock resistance
- Resistance to oil and fuel

### Handling Properties

Mix Ratio (A:B)	Wt 1:1	
	Vol (%) 48:52	
Viscosity @ 23°C (73°F)	A = Paste	
	B = Paste	
Density	Mixed = Paste	
	A = 1.656 kg/l (13.82 lbs/gal)	
	B = 1.548 kg/l (12.92 lbs/gal)	
Flash Point	A = 232°C (450°F)	
	B = 238°C (460°F)	
Gel Time	30 min. @ 60°C (140°F)	
Curing Guide	23°C (75°F)	24-48 hrs
	60°C (140°F)	2 hrs
	95°C (203°F)	1 hr

### Test Methods

<sup>1</sup> Fed. Std. No. 406, Method 1021	<sup>3</sup> 3M Test Method
<sup>2</sup> Fed. Std. No. 406, Method 1011	<sup>4</sup> Fed. Std. No. 406, Method 4021
<sup>3</sup> Fed. Std. No. 406, Method 1031	<sup>5</sup> Fed. Std. No. 406, Method 4041
<sup>4</sup> MIL-I-16923E	<sup>6</sup> Fed. Std. No. 406, Method 4031

### Typical Properties

\*Not recommended for specification purposes. Product specifications will be provided upon request.

Property	Value*
Color	Brown
Specific Gravity (Cured)	1.55
Flammability <sup>4</sup>	Self-extinguishing
Compressive Strength <sup>1</sup> (10% Compression)	3400 psi (239 kg/cm <sup>2</sup> )
Tensile Strength <sup>2</sup>	1500 psi (105 kg/cm <sup>2</sup> )
Elongation <sup>2</sup> (% @ break)	15
Flexural Strength <sup>3</sup> (1/2" x 1/2" Sample)	1000 psi (70 kg/cm <sup>2</sup> )
Electric Strength <sup>4</sup> (volts/mil) (1/8" [3.175 mm] Sample)	350 V/mil (13.8 kv/mm)
Hardness (Shore D)	70
Thermal Conductivity <sup>4</sup> (cal · cm/cm <sup>2</sup> · sec · °C)	8.2 x 10 <sup>-4</sup>
Coefficient of Linear Thermal Expansion <sup>8</sup> (23° C to 113°C) (length/unit length/°C)	8.6 x 10 <sup>-5</sup>
Thermal Shock <sup>5</sup> 10 cycles - 55°C to 130°C 1/4" (6.350 mm) Olyphant Inserts	Passes
Thermal Shock <sup>4</sup> Boiling Water	Passes
% Weight Gain 7 days	2.2
Hardness Change, Shore D	-6
Mechanical Shock <sup>4</sup> (Ball drop, lbs.)	7.75 (3.5kg)
Moisture Absorption <sup>6</sup> %Weight gain, 240 hrs. @96 % R.H.	.44
Thermal Aging  1000 hrs. @130°C % Weight Loss	2.0
Hardness Change, Shore D	15
Dielectric Constant <sup>6</sup> (100 Hz @ 23°C)	5.3
Dissipation Factor <sup>6</sup> (100 Hz @ 23 °C)	0.10
Volume Resistivity <sup>7</sup> (Ohm-cm @ 23°C)	1 x 10 <sup>12</sup>

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

## Usage Information

### **Mixing**

Mix the separate parts before removing them from their containers. Warming to 60°C (140°F) facilitates this process. (Gel time is approximately 30 minutes @ 60°C). Thoroughly mix parts A and B in the correct proportions. Note: Mechanical means are preferable. Small quantities can be easily mixed on a flat plate to ensure thorough blending.) Mix until the color is uniform or a homogeneous mixture is achieved.

### **Deaerating**

Scotchcast Resin 10 is so thick that evacuating entrapped air is not suggested.

### **Curing**

Where minimum stress and maximum thermal shock resistance are required, the ambient temperature cure cycle is recommended. If an oven cure is used, time should be added to the cure cycle to allow the resin to reach the curing temperature. Cure using cycles shown under **Handling Properties**. Where higher temperatures are not objectionable and the size of the casting not excessive, the resin can be quick-cured in one hour at 95°C (203°F).

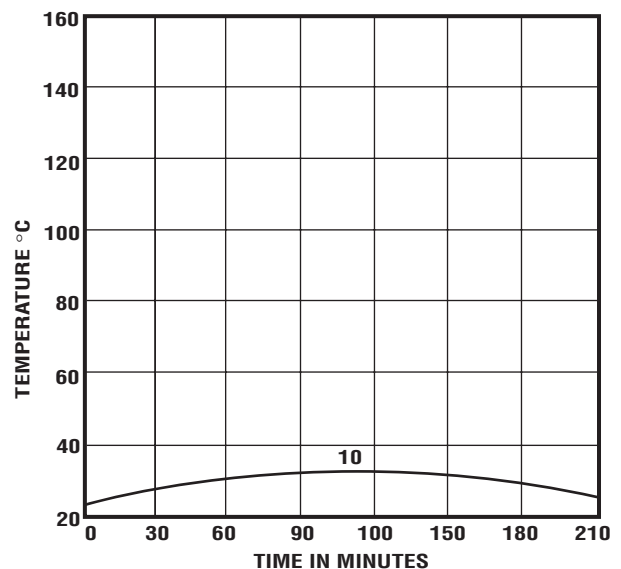
### **Storage**

Both parts of this resin system should be stored at temperatures between 20 to 30 degrees Celsius, and 30% to 60% relative humidity. When not in use, containers should be kept tightly closed. Storage at conditions outside those suggested may compromise the performance of the resin.

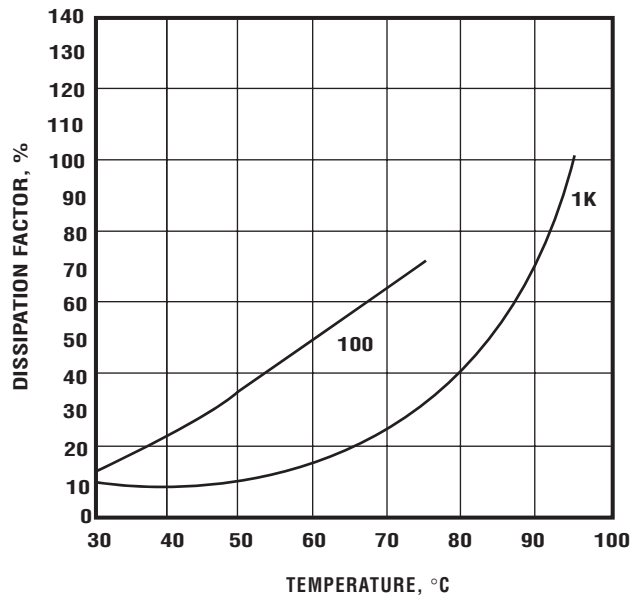
## Handling and Safety Precautions

Read all Health Hazard, precautionary and First Aid statements found in the Material Safety Data Sheet (MSDS) and/or product label of chemicals prior to handling or use.

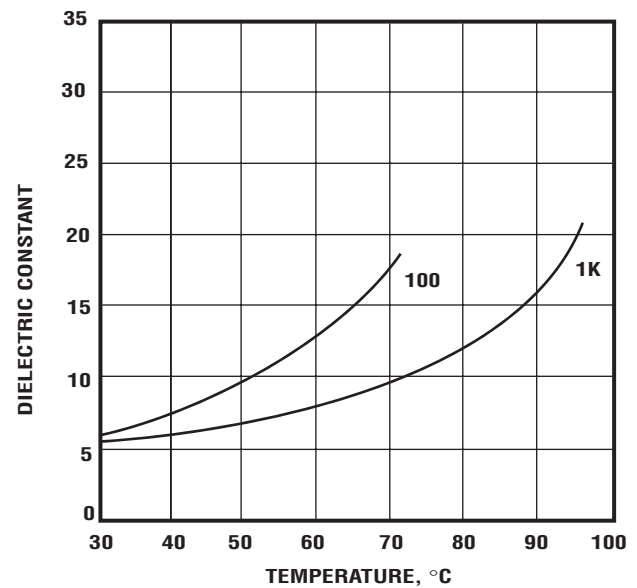
EXOTHERMIC HEAT RISE  
(1 LB. SAMPLE)



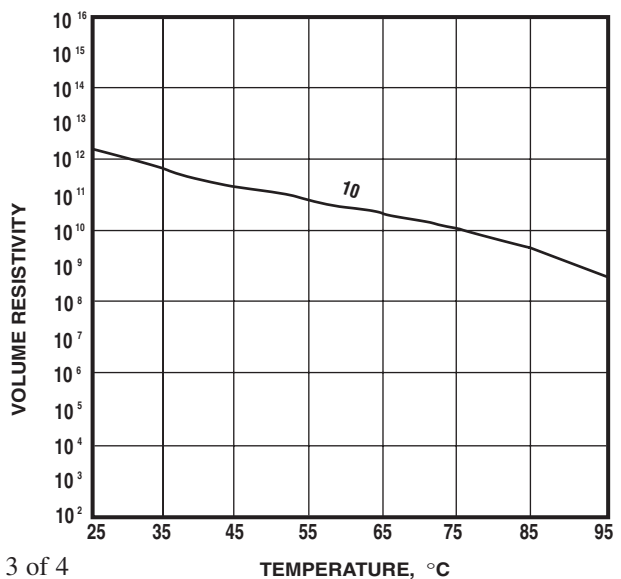
DISSIPATION FACTOR  
 Fed. Std. 406, Method 4021  
 (Test Frequencies in Hertz)



DIELECTRIC CONSTANT  
 Fed. Std. 406, Method 4021  
 (Test Frequencies in Hertz)



VOLUME RESISTIVITY  
 (OHM-CM)  
 Fed. Std. 406, Method 4041



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