



Scotchcast™ Electrical Resin 226

Two-Part, Room-Curing, Unfilled, Polyurethane Liquid Resin

Data Sheet

Product Description

3M™ Scotchcast™ Electrical Resin 226 is a rubbery castor-based polyurethane that combines very low viscosity with a good workable pot life and a demold time, at room temperature, of as little as six hours. Resin 226 maintains good electrical properties in both wet and dry environments. It also has a long-term heat stability (130°C) and good toughness. Resin 226 is used for a wide range of electrical and electronic potting and casting applications. For example, its low exotherm and low cure shrinkage, make possible the potting of small, heat-sensitive components, as well as the casting of large quantities of the resin at one time. And the very low viscosity of the product makes it possible to quickly fill and impregnate sand-filled modules. Resin 226 is formulated with materials that have low volatility at room temperature, minimizing toxicity potential. The isocyanate used is not TDI, and it does not contain MOCA.

- Good electrical, physical, chemical and thermal properties.
- Excellent hydrolytic stability
- Low viscosity

Handling Properties

Mix Ratio (A:B)	Wt 2:5 Vol 23.6:76.4
Initial Viscosity@ 23°C (73°F)	A = 190 cps B = 750 cps
Density	Mixed = 650 cps A = 10.3 lbs/gal B = 8.0 lbs/gal
Flash Point	A = 204°C (400°F) B = 288°C (550°F)
Gel Time	15 min. @ 60°C (140°F)
Curing Guide	Demold 23°C (73°F) 6 hrs 67°C (152°F) 1 hr Full Cure 23°C (73°F) 72 hrs 67°C (152°F) 6 hrs

Test Methods

¹Fed. Std. No. 406, Method 1011

²3M Test Method

³MIL-I-16923E

⁴ASTM D-7486

⁵Fed. Std. No. 406, Method 4031

⁶Fed. Std. No. 406, Method 4041⁷

Typical Properties

*All values shown are typical. They are based on several determinations and are not intended for specification purposes. Product specifications will be provided upon request.

Property	Value*
Color	Black
Specific Gravity	1.06
Hardness (Shore A)	75
Tensile Strength	980 psi (68.9 kg/cm ²)
Elongation ¹	105%
Thermal Shock 10 cycles - 55°C to 130°C 1/4" (6.25 mm) Olyphant	Pass
Mechanical Shock ³ (Ball drop, lbs.)	>7.75
Brittle Point ⁴	-11°C
Thermal Conductivity (cal · cm/cm ² · sec · °C)	4.9 x 10 ⁻⁴
Linear Thermal Expansion (length/unit length/°C)	23 x 10 ⁻⁵
Electric Strength ⁵ (1/8", 3.175 mm)	420 V/mil 16,500 volts/mm
Thermal Aging (% Weight Loss, 1000 hr. @31°C)	.75%
Hydrolytic Stability (120 days, 71°C, 95% R.H.) Hardness after Weight Gain	75 .45%
Naval Avionics (4 Weeks, 100°C, 95% R.H.) Hardness after, Shore A Weight Gain	65 Pass .6%
Volume Resistivity ⁶ (ohm-cm, 23°C, 95% R.H.) Initial After one week (100°C, 95% R.H.)	6.5 x 10 ¹³ 3.3 x 10 ¹³
Exothermic Heat Rise (over room temperature) 454 gram sample	50°C (90°F)

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. Parts A and B should be proportioned to within 2% accuracy and then combine thoroughly. To obtain a homogeneous mixture, extremely thorough mixing with intermittent scraping of the sides and bottom of the mixing container is required. If not mixed thoroughly, the product will fail to cure, exhibit soft or tacky areas, or exhibit hard, brittle areas.

Deaerating

The thorough mixing requirements of this product frequently result in the entrainment of moisture laden air. Deaeration to remove this air and moisture is recommended. This is accomplished by evacuating the 3M™ Scotchcast™ Electrical Resin at room temperature to between 5 and 10 mm of mercury absolute pressure. Container side walls should be four times the height of the liquid resin to contain the foaming that takes place under vacuum.

Priming

Where adhesion is critical, the application surface must be primed with 3M™ Scotchcast™ Electrical Resin Primer 5136. Instruction sheets on these products are available on request.

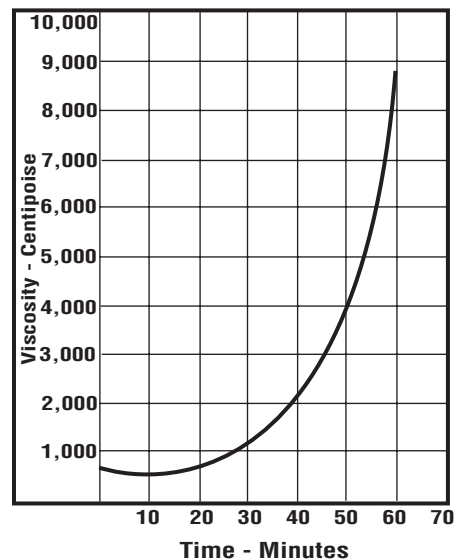
Storage

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.

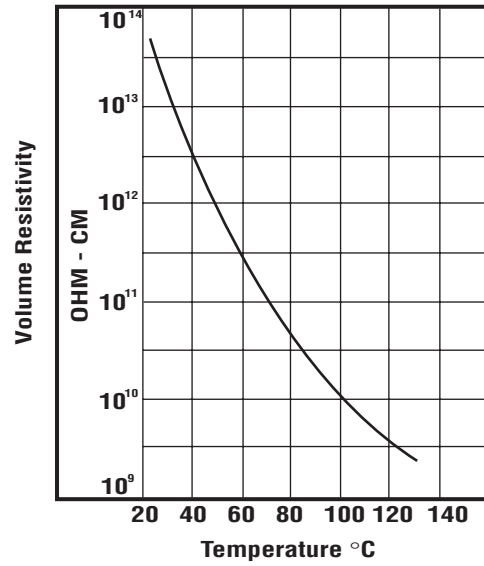
Potlife @ Room Temperature
(100 gram sample)

Handling and Safety Precautions

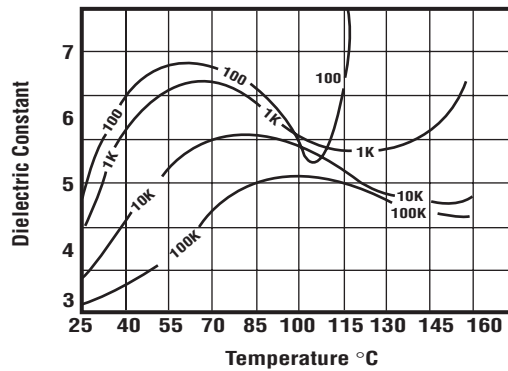
Read all Health Hazard, Precautionary and First Aid statements found in the Material Safety Data Sheets (MSDS) and/or product label of chemicals prior to handling or use.



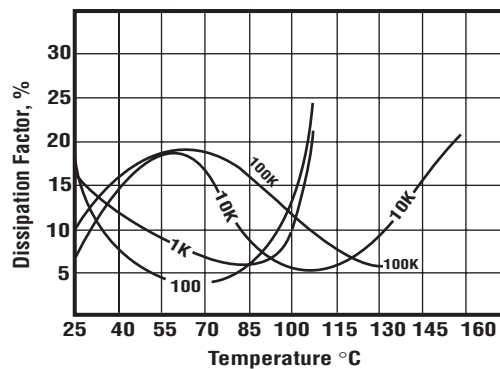
Volume Resistivity
(OHM-CM)
Fed. Std. 406, Method 4041



Dielectric Constant
Fed. Std. 406, Method 4021
(Test Frequencies in Hertz)



Dissipation Factor %
Fed. Std. 406, Method 4021
(Test Frequencies in Hertz)



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