



PRODUCT INFORMATION

HIGH TECHNOLOGY MATERIALS

METAGEL 166FRN

“FLAME-OUT” THIXOTROPIC EPOXY DIPPING AND SEALING COMPOUND FOR ELECTRONIC COMPONENTS

METAGEL 166FRN is a new “self-extinguishing” highly thixotropic chemically resistant epoxy dipping and sealing compound formulated to meet the most stringent physical and electrical attributes required for dip coating encapsulation of high tech electronic components.

METAGEL 166FRN provides uniform coating thickness which is easily controlled utilizing a vibratory dip bath, pre-heating of the units, adjusting the processing speed of dip coating or a combination of these procedures.

METAGEL 166FRN hardens to an enamel-like highly chemically resistant encapsulant at room temperature or a short moderate temperature oven cure.

METAGEL 166FRN is specifically designed for dip coating tantalum capacitors, torroidal coils, wire wound chokes and resistors, transformers, and sealing of electronic components as well as dip coating-encapsulation of printed circuits and multiple component assemblies.

INSTRUCTIONS FOR USE

1. By weight, mix 20 parts of **METAGEL 166FRN ACTIVATOR** into 100 parts of **METAGEL 166FRN BASE**.
2. Mix thoroughly and uniformly. De-airing with vacuum is recommended for uniformity.
3. Cure overnight at room temperature or select any one of the following cure schedules:
 - a. 3 hours @ 60°C
 - b. 1 1/2 hours @ 85°C

SUGGESTED PROCEDURE FOR ENCAPSULATION BY DIP COATING

1. Mix components as directed and pour **METAGEL 166FRN** into a tray for dip coating of sufficient depth to accommodate the components for complete immersion.
2. For very thin coatings, pre-heat the components at 80°C for 15 to 30 minutes. Thicker coatings may be obtained at room temperature.
3. Immerse the components in **METAGEL 166FRN** and withdraw very slowly. Vibration of either the components or the dipping bath will assure a smooth uniform coating.
4. Select one of the recommended cure schedules.
5. If additional coatings are required after curing, repeat Steps 3 and 4.

Technical information and recommendations made by Mereco Division and Metachem Resins Corporation concerning products and uses or applications thereof, are based on reliable laboratory tests and are believed to be accurate. No warranty, however, is expressed or implied, nor is any warranty expressed or implied as to results to be obtained from use of said materials, whether used singly or in combination with other products. No statements made are to be construed as constituting a license under any existing patent.

FORM 1105 REV. 0

TYPICAL PROPERTIES (UNCURED COMPONENTS)*

<u>ATTRIBUTES</u>	<u>BASE</u>	<u>ACTIVATOR</u>	<u>MIXTURE</u>
Viscosity, 10 ³ cps @ 25°C (Helipath test method)	250 - 275	Thixotropic	80 - 120
Standard Color	Black	Clear gel	Black
Specific Gravity, 25°C/25°C	1.86	1.0	1.66
Working Life, 100 gm mass ambient @ 25°C	--	--	4 hours**

TYPICAL PROPERTIES (CURED METAGEL 166FRN)*

<u>ATTRIBUTES</u>	<u>TEST METHOD</u>	<u>METAGEL 166FRN</u>
Fire retardancy	MTP #39	Self-extinguishing
Thermal Shock Resistance, 10 cycles, 50°C to 130°C	MTP #17	Passes
Flexural Strength, psi	ASTM-D-790-63	15,000
Impact Resistance, Izod, ft. lb./in.	ASTM-D-256-56	0.46
Hardness, Shore D Durometer	MTP #37	87-89
Moisture Absorption, % weight increase @ 96% R.H.	MIL-I-16923-D	0.05
Compressive Strength, psi	ASTM-D-1621-64	22,000
Operating Temperature Range, °C		-50 to 140
Thermal Expansion Co-efficient, /°C	ASTM-D-696	50 x 10 ⁻⁶
<u>ELECTRICAL PROPERTIES</u>	<u>TEST METHOD</u>	<u>METAGEL 166FRN</u>
Dielectric Strength, volts/mil	MIL-I-16923-D	440
Volume Resistivity, 30°C. ohm-cm	ASTM-D-257-57	3.98 x 10 ¹⁶
Dissipation Factor, 30°C, 100 KHz	ASTM-D-669-59	0.021
Dielectric Constant, 30°C, 100 KHz	ASTM-D-150-54T	4.2

*Not to be used as specifications.

**Up to 5 gallons of material may be catalyzed and if maintained at 25°C, a two hour working life can be achieved. Schedule replenishment techniques can extend working life in excess of eight hours. Check with Mereco Technical Staff for details.