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ABOCAST 8109-5

TDS 850216

LOW-VISCOSITY, HIGH--TEMPERATURE EPOXY COMPOUND FOR ELECTRICAL COMPONENTS 2-Component Potting, Encapsulation and Laminating System with extended Pot life.

ABOCAST/ABOCURE 8109-5 is a solventless clear Epoxy System for electric, electronic and other applications requiring a very high temperature resistance (up to 180°C, or 230°C intermittently), high rigidity, physical and chemical resistance. It is also available in colors and in filled form (see **ABOCAST/ABOCURE 8502-3** in the back page). It permits very large castings because of its extremely low exotherm (heat of reaction). Its shelf life is virtually indefinite and it is easy to use.

CHARACTERISTICS:

ABOCAST 8109-5: Clear medium - viscosity resin.
ABOCURE 8109-5: Clear low - viscosity converter.

Mixing ratios: 100 pbw (parts by weight.) ABOCAST with 85 pbw ABOCURE.
Viscosity: 25-30 poises a 25°C: 0.8- 1 p. / 70°C; 0.3 p. / 120°C
Lbs/Gallon: 10
Pot life: >2 days @ 20°C, about 7 hours @ 60°C.
Cure Cycle: 3-5 hours @100°C + 3-4 hrs @ 180-220°C.

PHYSICAL PROPERTIES:

Compressive Yield Strength	18-21 x 10 ³ psi
Tensile Strength	8-10 x 10 ³ psi
Flexural Strength	17-20 x 10 ³ psi
Modulus of Elasticity	0.4-0.5 x 10 ⁶ psi
Deflection Temperature	140-180°C (356°F)
Coefficient of Expansion	60-65 x 10 ⁻⁶ linear /°C
Thermal Conductivity	4-4.8 x 10 ⁻⁴ cal/cm s deg C

CHEMICAL RESISTANCE (30 day immersion @ 23°C):

Distilled Water	0.45%	weight gain
10% NaCl	0.30%	" "
10% Nitric Acid	1.60%	" "
3% Sulfuric Acid	0.15%	" "
10% Hydrochloric Acid	0.40%	" "
10% NaOH	1.24%	" "
5% Acetic Acid	0.45%	" "
Petrohol 99	0.15%	" "
Hydrocarbon Test Fluid	0.10%	" "
Ethylene Glycol	0.20%	" "
Hydraulic Oil	0.07%	" "

(The highest values are obtained after a post-cure of at least 10 hours at 180-230°C, which causes the highest crosslinking).

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ELECTRICAL PROPERTIES:

Dielectric Strength:			350-450 Volt/0.0001 inch
Dielectric Constant,	50	Hz/20 °C:	3.7-3.9
Dielectric Constant,	10 ³	Hz/ 20 °C	3.6-3.8
Dielectric Constant,	10 ⁶	Hz/20 °C	3.3-3.5
Power Factor,	50	Hz/20 °C:	0.003-0.005
Power Factor,	10 ³	Hz/ 20 °C	0.005-0.007
Power Factor,	10 ⁶	Hz/20 °C	0.015-0.025
Volume Resistivity,	Ohm-cm x 10 ¹⁵		>15

ABOCAST 8502-3/ABOCURE 8502-3 is also available as a filled version of the 8109-5 System, for a reduced coefficient of thermal expansion (30-35 x 10⁻⁶, against 10⁻⁴, against 60-65 x10⁻⁶ for the 8109-5 System) and increased thermal conductivity (14-16 x 10⁻⁴, against 4-4.8 x 10⁻⁴ for 8109-5). Its color is red, but it is also offered in custom colors.

INSTRUCTIONS FOR USE:

Units and molds are to be clean, dry and warm (60-100°C) previous to impregnation or casting. Mold should be coated with a release agent like ABHESIVE 15B.

Mix ABOCAST/ABOCURE thoroughly and keep the blend warm for best flow and penetration.

Evacuate for 10 minutes. Units to be impregnated should dwell in the liquid in the liquid for at least one hour after vacuuming. Dip-coatings may require more than one cycle.

Cure for at least 10 hours. Faster cures at higher temperatures are possible after simple tests. Impregnated units are sometimes only partially cured (or not at all) when they subsequently embedded and cured in the same resin, or in its filled 8502-3 version (see above).

As mentioned in the previous page, the highest temperature and chemical resistance, as well as the highest module, are reached only after longer cures at the highest temperatures the final product will have to withstand in operation. Such curing times and temperatures vary from case to case and can be confirmed with simple tests.

The above information is from reliable laboratory and field tests. However, no guarantee is given, as uses and applications are beyond our control. The test results are offered for consideration, investigation and verification.