

Starting Formulation

SF 7016

High Tg Potting Compound EPON™ Resin 828 and 1001F

Introduction This formulation illustrates the use of phthalic anhydride as a curing agent for epoxy resins when used in high service temperature encapsulations.

Formula	<u>Material</u>	<u>Supplier</u>	<u>Pounds</u>	<u>Gallons</u>
Resin Portion				
	EPON Resin 828	Hexion	60.0	6.19
	EPON Resin 1001F	Hexion	<u>40.0</u>	<u>4.12</u>
		Total	100.0	10.31
Converter Portion				
	Phthalic Anhydride	Aristech Chemical Co.	<u>40.0</u>	<u>3.14</u>
		Total	40.0	3.14

Mixing Blend the EPON Resin 828 and EPON Resin 1001F by heating to 250 °F. Add the phthalic anhydride and reheat to 250 °F. No evacuating procedure is necessary due to the low viscosity at 250 °F.

Curing Schedule 12 hours at 260 °F and 12 hours at 325 °F. (Shorter cure times can be employed when using a tertiary amine catalyst or when less than optimum properties are required.)

Typical Handling Properties Table 1 / Handling Properties

	<u>Units</u>	<u>Value</u>
Viscosity at 250 °F	cP	25-30
Gel Time at 250 °F	hrs	78 1/2
Density	lbs/gal	10.41

Typical Cured State Properties Table 2 / Cured State Properties at 23 °C

	<u>Units</u>	<u>Value</u>
Heat Distortion Temperature	°C	131
Tensile Strength	psi	10,800
Elongation at Break	%	5.4
Flexural Strength	psi	19,500

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Flexural Modulus, Initial	ksi	473
Compressive Strength, Yield	psi	18,700
Izod Impact, notch	ft•lbs/in	0.264
Hardness	Shore D	89
	Rockwell M	106
Water Absorption, 24 hour immersion	%	0.16
Weight Loss after 1,000 hrs. at 350 °F	%	0.61

Typical Electrical Properties Table 3 / Electrical Properties Properties

	<u>Units</u>	<u>Value</u>
Volume Resistivity		
at 77 °F	ohm•cm	1 x 10 ¹⁶
at 302 °F	ohm•cm	1.4 x 10 ¹²
at 356 °F	ohm•cm	3.6 x 10 ¹⁰
at 392 °F	ohm•cm	2.5 x 10 ⁹
Volume Resistivity after 1000 hours aging at 350 °F		
at 77 °F	ohm•cm	4.6 x 10 ¹⁵
at 302 °F	ohm•cm	2.5 x 10 ¹³
at 356 °F	ohm•cm	3.0 x 10 ¹¹
at 392 °F	ohm•cm	5.6 x 10 ¹⁰

Storage Recommendations regarding storage conditions can be obtained by visiting our web site at www.hexion.com

General Information

These are starting formulations and are not proven in the user's particular application but are simply meant to demonstrate the efficacy of the products and to assist in the development of the user's own formulation. It is the user's responsibility to fully-test and qualify the formulation, along with the ingredients, methods, applications or equipment identified herein ("Information"), by the user's knowledgeable formulator or scientist, and to determine the appropriate use conditions and legal restrictions, prior to use of any Information.

Safety, Storage & Handling

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