

Starting Formulation

SF 7017

Potting Compound Low Coefficient of Linear Thermal Expansion EPON™ Resin 826

Introduction This formulation illustrates the use of filler combinations in attaining a low coefficient of expansion in an epoxy potting compound.

- Suggested Uses**
- Molded parts such as sand-core boxes for foundry work, pipe fitting, cases, and housings
 - Electrical insulation such as transformer bushings for interior service

Formula	<u>Material</u>	<u>Supplier</u>	<u>Pounds</u>	<u>Gallons</u>
Resin Portion				
	EPON Resin 826	Hexion	21.74	2.250
	Alumina T-60	Aluminum Co. of America	<u>78.26</u>	<u>2.518</u>
		Total	100.00	4.768
Converter Portion				
	Hexahydrophthalic Anhydride	Allied Chemical Corp.	17.39	1.756
	Diethylamino Ethanol	S-2 Accelerator, Pennwalt Corp.	<u>0.02</u>	<u>0.002</u>
		Total	17.41	1.758
Filler Portion				
	Asbestine 3X	International Talc Co., Inc.	<u>11.96</u>	<u>0.508</u>
		Total	11.96	0.508

Mixing Part A: Heat EPON Resin 826 to 175 °F. Add the Alumina T-60 and blend well.

Part B: Heat the hexahydrophthalic anhydride to 175 °F. Add the diethylamino ethanol and blend well. Combine parts A and B at 175 °F.

Part C: Add the Asbestine 3X and blend well by stirring. For best results, evacuate while mixing.

Cure: 24 hours at 250 °F

Typical Handling Properties Table 1 / Handling Properties

Units Value

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Viscosity at 170 °F ¹	cP	13,300
Gel Time at 250 °F	hrs	1-2
Filler Content by weight	%	69.74
Density	lbs/gal	18.39

¹ Brookfield, Model RVT, Spindle #4, 10 RPM

Typical Physical Properties Table 2 / Physical Properties

	<u>Units</u>	<u>Value</u>
Hardness		
at 80 °F	Shore D	93
at 150 °F	Shore D	92
at 200 °F	Shore D	91
at 250 °F	Shore D	90
at 300 °F	Shore D	82
at 350 °F	Shore D	78
Tensile Strength at 77 °F	psi	9,000
Tensile Elongation	%	0.6
Flexural Strength at 77 °F	psi	11,880
Flexural Modulus, Initial	ksi	1,600
Izod impact, notch	ft•lbs/inch	0.380
Coefficient of Linear Thermal Expansion		
from 0 °C to 110 °C	in/in/°C	18.0 x 10 ⁻⁶
above 110 °C	in/in/°C	73.2 x 10 ⁻⁶

Typical Electrical Properties Table 3 / Electrical Properties

	<u>Units</u>	<u>Value</u>
Volume Resistivity, 1 minute at 500 volts		
at 77 °F	ohm•cm	2.6 x 10 ¹⁵
at 150 °F	ohm•cm	2.1 x 10 ¹⁵
at 200 °F	ohm•cm	1.1 x 10 ¹⁵
at 266 °F	ohm•cm	3.5 x 10 ¹³
at 302 °F	ohm•cm	1.5 x 10 ¹²
at 356 °F	ohm•cm	3.9 x 10 ¹¹
at 392 °F	ohm•cm	6.6 x 10 ¹¹
Dielectric Constant at 77 °F		

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60 cycles	6.356
100 cycles	6.321
1 kilocycle	6.182
10 kilocycles	5.982
100 kilocycles	5.830
1 megacycle	5.634
Dissipation Factor at 77 °F	
60 cycles	0.016
100 cycles	0.018
1 kilocycle	0.022
10 kilocycles	0.025
100 kilocycles	0.023
1 megacycle	0.015

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

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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.

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