

# Starting Formulation

SF 7012

## General Purpose Electrical Potting Compound EPON™ Resin 828

**Introduction** This general purpose electrical potting compound provides good mechanical, thermal and electrical properties while curing at moderate temperatures, 90-150 °C. Polyethylene glycol is used to impart a degree of thermal shock resistance to the cured system.

Formula	Material	Supplier	Pounds	Gallons
Resin Portion				
	EPON Resin 828	Hexion	75.0	7.74
	Carbowax 600	Union Carbide Corp.	<u>25.0</u>	<u>2.67</u>
		<b>Total</b>	<b>100.0</b>	<b>10.41</b>
Converter Portion				
	Hexahydrophthalic Anhydride	Anhydrides & Chemicals, Inc.	51.5	4.50
	Chlorendic Anhydride	Jonas Chemical Corp.	51.5	3.46
	DMP-10	Rohm & Haas Co.	<u>2.0</u>	<u>0.24</u>
		<b>Total</b>	<b>105.0</b>	<b>8.20</b>

**Typical Handling Properties** Table 1 / Handling Properties

	Units	Value
Resin/Converter Combining Ratio	by weight	0.95 : 1
	by volume	1.27 : 1
Viscosity at 23 °C	cP	24,000
Density	lbs/gal	11.0
Pot Life at 23 °C	hrs	8-10

**Compounding Procedure** Combine the hexahydrophthalic anhydride (HHPA) and chlorendic anhydride using agitation. Sparge with dry inert gas, if possible, so that hydrolysis of anhydride is minimized. During agitation, heat the mixture to 90 °C. Add DMP-10 and hold the converter blend until a clear solution is attained. Cool the converter to 40 °C or less and then add it to a thoroughly mixed blend of EPON Resin 828 and Carbowax 600. Continue agitation until the resin and the converter are thoroughly mixed.

This potting compound is useable for 8 to 10 hours if it is stored at room temperature. Filler loadings of 100 to 200 parts per hundred resin can be incorporated if the formula is to be used at elevated temperatures. Suitable fillers include silicas, aluminas, talcs and calcium carbonate.

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Application The unit to be potted is placed in the mold and heated to 90-120 °C. The compound is poured into the mold. If necessary, entrapped air is removed by vacuum.

This formulation may be cured overnight at 90 °C, in 3-4 hours at 120 °C, or 1 hour at 150 °C. Large castings should be cured at the lowest temperature. Silicone mold releases, such as Dow-Corning Compound Number 7 are the most effective.

Typical Cured State Properties Table 2 / Cured State Properties

	<u>Units</u>	<u>Value</u>
Tensile Strength, Ultimate	psi	10,600
Tensile Elongation at Break	%	5.25
Flexural Strength, Ultimate	psi	19,100
Compressive Strength, Ultimate	psi	16,500
Izod Impact, notched	ft•lbs/inch	0.473
Hardness	Rockwell M	104
Water Absorption, 24 hours	%	0.18
Weight Loss, 24 hours at 150 °C	%	0.5
Electrical Properties		
Dielectric Constant, at 10 <sup>6</sup> Hertz		3.56
Dielectric Strength	volts/mil	479

Storage Recommendations regarding storage conditions can be obtained by visiting our web site at [www.hexion.com](http://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

Please refer to the MSDS for the most current Safety and Handling information.

Exposure to these materials should be minimized and avoided, if feasible, through the observance of proper precautions, use of appropriate engineering controls and proper personal protective clothing and equipment, and adherence to proper handling procedures. None of these materials should be used, stored, or transported until the handling precautions and recommendations as stated in the Material Safety Data Sheet (MSDS) for these and all other products being used are understood by all persons who will work with them. Questions and requests for information on Hexion Inc. ("Hexion") products should be directed to your Hexion sales representative, or the nearest Hexion sales office. Information and MSDSs on non-Hexion products should be obtained from the respective manufacturer.

#### Contact Information

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