

## Starting Formulation

### SF 2800

### Chemical Resistant Epoxy Powder Coating EPON™ Resin 1007F / EPON Resin SU-8

Formula <u>Material</u>	<u>Supplier</u>	<u>Pounds</u>	<u>Gallons</u>
Formulation			
EPON Resin 1007F	Hexion	60.0	6.18
EPON Resin SU-8	Hexion	40.0	4.04
MODAFLOW®	Monsanto Company	0.5	0.10
Ti-Pure R-960	Du Pont Company	50.0	1.43
Dicyandiamide (dicy)	American Cyanamid Company	<u>4.0</u>	<u>0.34</u>
Total Formulation		154.5	12.09

Mixing Instructions	<u>Pounds</u>	<u>Gallons</u>
Total Formulation	154.5	12.09

Fill a heated sigma blade mixer with EPON Resin 1007F, EPON Resin SU-8 and Modaflow. Mix for 5 to 10 minutes at 93-115 °C. Add Titanium Dioxide (Ti-Pure R-960) and mix for 1 hour. Lower the batch temperature to 93 °C and add the dicy. Continue mixing for 3 to 5 minutes. Discharge, cool and pulverize the batch to less than 12 mesh prior to pebble milling. Classify the powder to the appropriate particle size. A maximum particle size of 149 microns is recommended for fluidized bed dipping applications.

**Typical Handling Properties** To demonstrate the improved chemical resistance of this formulation, fluidized bed coated 2-inch by 1-inch by 1/8-inch steel coupons were immersed in various refluxing chemical test solutions. Grit blasted steel coupons were coated to a 15-mil film thickness and cured for 1 hour at 218 °F. A standard formulation was also introduced into the test as a reference. This reference system was composed of a conventional epoxy resin, EPON Resin 1007F cured with 4 phr of dicy and containing one third (by weight) Titanium Dioxide (Ti-Pure R-960). Coupons were also coated with this reference system at a 15-mil film thickness and cured for 1 hour at 218 °C. Table 1 illustrates the superior chemical resistance obtained with Starting Formulation No. 3000 relative to the conventional epoxy system.

Typical Formulation Table 1 / Formulation Properties

	<u>Units</u>	<u>Value</u>
Weight per gallon	lb/gal	12.97
Application	Fluidized bed, dip and powder spray	
Cure schedule	1 hour at 218 °C	
<b>Pigment volume concentration (PVC)</b>	%	12.05

Film Failure Tests Table 2 / Hours to Film Failure for Refluxing Test Solutions

Generated: October 19, 2021  
 Issue Date:  
 Revision:

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Solutions	Starting Formulation No. 3000	Reference System
15% Hydrochloric acid	> 28	< 8
25% Acetic acid	16	< 8
5% Sodium hydroxide	> 28	28
D.I. water	> 28	> 28
50:50 MEK/toluene	4	< 2

#### 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.

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

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