

# Starting Formulation

SF 1013

White Enamel

High Solids EPON™ Resin 828 and 1001-CX-75 / EPIKURE™ Curing Agent 3140 and 3502

- Features
- Formulated for spray application
  - Desirable mixing ratio of 65/35 by volume
  - Attractive volatile organic content (VOC) of 2.75 pounds/gallon
  - Minimum 6 hour working pot life

Formula	Material	Supplier	Pounds	Gallons
Part A				
	EPON Resin 1001-CX-75	Hexion	220.4	24.47
	EPON Resin 828	Hexion	141.6	14.58
	Beetle U216-8	Cytec Industries	18.8	2.21
	TiO2 (R-900)	Du Pont Company	199.2	5.69
	Sparmite	Elementis Pigments, Inc.	456.9	12.47
	Thixatrol ST	Elementis Specialties Inc.	3.1	0.36
Disperse with high-speed disperser until a temperature of about 150 °F and grind to Hegman 7-8.				
Then, add the following with mixing				
	Methyl isobutyl ketone	Shell Chemical Company	15.5	2.32
	Propylene glycol methyl ether		13.6	1.78
	Xylene	Shell Chemical Company	<u>8.1</u>	<u>1.12</u>
	<b>Total Part A</b>		<b>1,077.2</b>	<b>65.00</b>
Part B				
	EPIKURE Curing Agent 3140	Hexion	65.2	8.05
	EPIKURE Curing Agent 3502	Hexion	65.2	9.20
	Methyl isobutyl ketone	Shell Chemical Company	40.3	6.03
	Propylene glycol methyl ether		40.3	5.24
	Xylene	Shell Chemical Company	<u>46.9</u>	<u>6.48</u>
	<b>Total Part B</b>		<b>257.9</b>	<b>35.00</b>
	<b>Total Part A &amp; B</b>		<b>1,335.1</b>	<b>100.00</b>

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Mixing Instructions	<u>Pounds</u>	<u>Gallons</u>
Part A	1,077.2	65.00
Part B	<u>257.9</u>	<u>35.00</u>
Part A + B	1,335.1	100.00

Resin Composition	<u>Units</u>	<u>Value</u>
Part A	% Solids	54
Part B	% Solids	46
Part A + B	% Solids	100

Disperse the base component in a high speed disperser. Continue dispersing the mixture until a temperature of about 150 °F is reached to insure proper development of thixotropy by the Thixatrol ST. The base component and curing agent component should be packaged separately.

**Typical Handling Properties** This formulation is designed for spray application only, although other application methods may be considered. A film thickness of 6-8 mils or less per coat is recommended, with an interval of one day between coats. Coatings exceeding 10 mils may exhibit a reduced rate of cure, particularly with regard to through-curing characteristics.

The formulation may be readily applied with conventional spray equipment, such as a DeVilbiss MBC-510 spray gun equipped with an "E" fluid tip and needle, and a No. 54 air cap and pressure pot set-up. Recommended pot pressure and atomizing pressure are about 10 psi and 60 psi, respectively. The mixed formulation should preferably be allowed to age for approximately one hour before application. This step would leave a usable pot life of about 5-6 hours out of the total pot life of 6-7 hours.

Surfaces to be coated should be cleaned thoroughly. The preferred method for cleaning steel surfaces is sand- or grit-blasting. Acid etching with dilute hydrochloric acid is usually the most efficient method of cleaning masonry surfaces. Such surfaces should be structurally sound and free of any surface powdering. After acid etching, the masonry surface should be rinsed with copious amounts of water and dried before applying the coating.

For application of this system in confined or poorly ventilated areas, we recommend the use of a fresh air-supplied hood and other protective clothing sufficient to cover the applicator's entire body.

The application methods for an EPON™ Resin 1001F/EPON Resin 828/EPIKURE™ Curing Agent 3140/EPIKURE Curing Agent 3502 White Enamel can involve the use of air or airless spray equipment, roller or brush. This system is normally air dried but can be force cured by baking if desired. This operation requires the use of well ventilated facilities (fresh air supply and adequate exhaust) along with the use of OSHA/NIOSH approved respiratory equipment for worker protection. In addition, the worker must wear appropriate protective clothing to avoid skin contact.

**Typical Formulation Properties** Table 1 / Formulation Properties

	<u>Units</u>	<u>Value</u>
Mix ratio Part A : Part B	By volume	65/35
	By weight	4.18:1.0

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Nonvolatile content by weight	%	79.4 <sup>1</sup>
Weight per gallon	lb./gal.	13.35
Pigment : Binder Weight Ratio		1.62
Pigment volume concentration (PVC)	%	29.8
Volatile Organic Compound (VOC)	lb/gal	2.75
	g/L	330
Induction Time	hrs	1
Pot life	hrs	6-7
Viscosity @ 25°C		
Part A + Part B	KU	72

<sup>1</sup> The theoretical volatile component of EPIKURE Curing Agent 3502 (27% wt solids) was taken into account for these calculations.

Typical Film Table 2 / Film Performance Properties  
Properties

*Determined on films applied to MEK-washed Q Panels and cured 7 days at 25 °C and 55% relative humidity.*

	<u>Units</u>	<u>Value</u>
Dry film thickness	mils	1.6-2.0
Gardner circular dry time		
Set-to-touch	hrs	9.5
Cotton free	hrs	10.5
Thru-dry	hrs	16
Pencil hardness		4H
Flexibility, conical mandrel	in	1/8
MIBK resistance, minutes to soften two pencils		60

Cure Schedules Table 3 / Cure Schedules

*A ketimine curing agent, such as EPIKURE Curing Agent 3502, reacts somewhat slowly with epoxy resins in the absence of moisture. When water is present it combines with the ketimine to produce a low molecular weight ketone and a polyamine. This polyamine, along with the EPIKURE Curing Agent 3140, combines to function as a reactive curing agent for the epoxy resin.*

	<u>Units</u>	<u>Value</u>
Ambient Cure* (70 °F to 80 °F)		
Dry to handle	hours	8-10
Development of physical properties	days	2
Development of chemical and solvent resistance	days	7
Force dry, to a sandable stage		
100°F	hrs	1.5 – 2
110°F	hrs	1 – 1.5
120°F	min	45

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120°F	min.	40
140°F	min.	30
Force dry, to full cure		
140°F	hrs	1.5
High temperature bake, to full cure		
200°F	min.	20
250°F	min.	10
300°F	min.	7
350°F	min.	4
400°F	min.	2

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

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