

Starting Formulation

SF 1021

Zinc-Rich Primer

EPON™ Resin 1001-CX-75 / EPIKURE™ Curing Agent 3115-X-70

Suggested Uses Recommended as a shop- or field-applied primer for steel

- Features
- Low toxicity maintenance primer
 - Rapid development of adhesion and toughness permits handling in only minutes
 - Can be welded in thin (1/2 to 1 mil) films
 - Has excellent corrosion resistance; affords galvanic protection to adjacent undercoated areas
 - Provides superior abrasion resistance

Formula	Material	Supplier	Pounds	Gallons
Part A				
Pigment (thixotroping agent)				
	Cab-O-Sil	Cabot Corp.	25.4	1.45
Vehicle				
	EPON Resin 1001-CX-75	Hexion	149.9	16.62
	Beetle™ U 216-8	Cytec Industries	9.4	1.11
	Methyl isobutyl ketone	Shell Chemical Company	42.9	6.43
	Propylene glycol methyl ether	Shell Chemical Company	66.4	8.68
	Xylene		<u>54.2</u>	<u>7.51</u>
	Total Part A		348.2	41.80
Part B				
	EPIKURE Curing Agent 3115-X-70	Hexion	72.7	9.14
	Methyl isobutyl ketone		28.2	4.22
	Propylene glycol methyl ether		27.8	3.63
	Xylene		<u>6.4</u>	<u>0.89</u>
	Total Part B		135.1	17.88
Part C				
	Zinc Dust Type 335	Meadowbrook Company	<u>2,372.0</u>	<u>40.32</u>
	Total Part C		2,372.0	40.32

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Total Part A + B + C 2,855.3 100.00

Mixing Instructions

	<u>Pounds</u>	<u>Gallons</u>
Part A	348.2	41.80
Part B	135.1	17.88
Part C	<u>2,372.0</u>	<u>40.32</u>
Part A + B + C	2,855.3	100.00

Disperse the Cab-O-Sil™ in a suitable portion of the EPON™ Resin solution by means of vigorous agitation, or by grinding in a sand mill (maximum thixotropy is developed by grinding in the Cab-O-Sil). After the Cab-O-Sil is dispersed, let down the dispersion with the remaining epoxy resin solution, the additional solvents, and the Beetle™ U 216-8.

Charge the ingredients of the curing agent component to a suitable container and mix thoroughly. Package the base component, the curing agent component, and the zinc dust components separately to be mixed just prior to use.

Typical Handling Properties When ready to apply, add the curing agent component to the base vehicle component and mix thoroughly. Then, slowly add the zinc dust with good agitation. Continue mixing until the zinc dust is thoroughly dispersed. NOTE: BECAUSE OF THE LIMITED POT LIFE OF THE MIXED FORMULATION, DO NOT MIX ANY MORE MATERIAL THAN CAN BE APPLIED DURING THE WORKING DAY. TO PREVENT PIGMENT SETTLING, THE MIXED FORMULATION SHOULD BE STIRRED OCCASIONALLY DURING APPLICATION.

This formulation is designed for spray application only, although other application methods may be considered. A film thickness of 1.5 to 2.0 mils per coat is recommended with an interval of one day between coats. For use as a preconstruction or welding primer, this formulation should be applied to a dry film thickness of about 0.5 mil over the profile of the sandblasted steel. At this low film thickness the coating will dry to handle in a matter of minutes.

The formulation may be readily applied with conventional spray equipment, such as a DeVilbiss MBC-510 spray gun, equipped with an "E" fluid tip, a needle and a No. 54 air cap, and a 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. To reduce the formulation to spray application viscosity, use a thinner composed of MIBK/PGME/Xylene, 1/1/1 by weight.

Surfaces to be coated should be cleaned thoroughly. The preferred method for steel surfaces is sand- or grit-blasting.

The application methods for an EPON Resin 1001F/EPI-CURE™ Curing Agent 3115 Zinc-Rich Primer can involve the use of air or airless spray equipment. 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>
Nonvolatile content by weight	%	89.9

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Nonvolatile content by volume	%	59.5
Weight per gallon	lb./gal.	28.6
Pigment : Binder Weight Ratio		14.2:1.0
Pigment volume concentration (PVC)	%	70
Volatile Organic Compound (VOC)	lb/gal	2.89
	g/L	347
Potlife	hrs	8+
Viscosity @ 25°C		
Part A + B + C	KU	100

Cure Schedules Table 2 / Cure Schedules

At ambient temperatures of 70°F to 80°F, this coating will dry to handle in about six hours. Physical properties will be fully developed in about two days. Chemical and solvent resistance will be fully developed in seven days. At ambient temperatures of 55°F, several weeks may be required to produce full cure, as the adduct curing agent used in the formulation has low volatility and will remain in the film to react with the epoxy resin.

	<u>Units</u>	<u>Value</u>
Force dry, to a sandable stage		
100°F	hrs	1.5 – 2
110°F	hrs	1 – 1.5
120°F	min.	45
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

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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