

Starting Formulation

SF 4010 Equal Volume Adhesive 828 505 3125 and 3271 Equal Volume Adhesive – Bonds to Oily Surfaces

EPON™ Resin 828 / HELOXY™ Modifier 505 / EPIKURE™ Curing Agents 3125 and 3271

Introduction The equal volume combining ratio of this adhesive facilitates proportioning in the field and reduces the effect of small measuring errors on cured state properties. Good adhesion to metal surfaces which have not been specially prepared is the primary feature of this formulation.

Maximum bonding strength is obtained on freshly cleaned substrates, usually within 24 hours at normal room temperature. Good adhesion to polystyrene foam, paper honeycomb and other low density insulating materials suggests use in sandwich panel construction.

Suggested Uses

- Bonding of metals at room temperature. Also bonds well to wood, concrete, ceramics and many rigid plastics.

Features

- One-to-one mix ratio by volume
- Tolerance to trace amounts of residual oil on metal bond surfaces
- 40 minute room temperature gel time (180 grams)

Formula	Material	Supplier	Pounds	Gallons
Part A				
	EPON Resin 828	Hexion	54.0	5.60
	HELOXY Modifier 505	Hexion	6.0	0.70
	ASP-101 (kaolin clay)	ENGELHARD Corp.	<u>40.0</u>	<u>1.86</u>
		Total A	100.0	8.16
Part B				
	EPIKURE Curing Agent 3125	Hexion	54.0	6.66
	EPIKURE Curing Agent 3271	Hexion	4.5	0.52
	Dyhard 100SF (dicyandiamide micronized)	Degussa Corp., Fine Chemicals	1.5	0.13
	ASP-101 (kaolin clay)	ENGELHARD Corp.	16.0	0.75
	Titanium Dioxide	DuPont	2.0	0.05
	Cab-O-Sil M5 (fumed amorphous silica)	CABOT Corp.	<u>1.0</u>	<u>0.05</u>
		Total B	79.0	8.16

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Mixing Instructions Part A

Combine the ASP-101 clay filler with the EPON Resin 828 and HELOXY Modifier 505 and mix using a high shear or planetary mixer until the filler is thoroughly dispersed.

Part B

Dissolve the dicyandiamide into the EPIKURE 3271 Curing Agent with heat and agitation.

Add EPIKURE 3125 Curing Agent and blend until homogeneous. Add ASP-101 and titanium

dioxide, and disperse with a high shear or planetary mixer. Add Cab-O-Sil and continue mixing until all fillers are thoroughly dispersed. Package the converter portion in sealed metal, polyolefin plastic, or glass containers and store at normal room temperatures.

Typical Handling Table 1 / Handling Properties Properties

	<u>Units</u>	<u>Value</u>
Resin : Curing Agent mix ratio	by weight by volume	100 : 80 1 : 1
Gel Time @ 77°F (180 grams)		40 minutes
Form		
Part A		Thixotropic paste
Part B		Thixotropic paste
Pounds per gallon		11.0

Application Instructions All surfaces to be bonded should be free of dirt, grease, oil or other contaminants to ensure maximum adhesion. Coat both substrates and press together. Contact pressure is sufficient to achieve maximum bond strength. When bonding surfaces which have not been etched, abraded or vapor degreased, apply adhesive to both surfaces and continue the coating process until the adhesive wets the substrates as indicated by "grab." This coating action helps to displace the surface film of contamination.

Cure Schedule Room Temperature: 2-3 days @ 77°F. or Elevated Temperature: Adhesive can be heat cured to shorten cure time. Maximum cure temperature should not exceed 250°F.

Typical Cured State Table 2 / Adhesive Properties Properties

<u>Test Property</u>	<u>ASTM</u>	<u>Tested at</u>	<u>Units</u>	<u>Value</u>
Tensile Shear Strength	D-1002			
Etched Aluminum Alloy				
Cured 3 days @ 77°F		67°F	psi	2000
Cured 1 days @ 77°F		77°F	psi	2900
Cured 3 days @ 77°F		125°F	psi	1500
Cured 3 days @ 77°F		150°F	psi	890
Oil Treated Specimens ¹				
Cured 1 days @ 77°F		77°F	psi	2500

¹ Etched aluminum tensile shear specimens wiped with a cloth saturated with RPM Aviation Oil No. 2; adhesive

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applied with spatula to both surfaces prior to
joining and curing under contact pressure

Storage Recommendations regarding storage conditions can be obtained by visiting our web site
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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.

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