

EpoPro[®] 116A/B



2 PART FLEXIBLE EPOXY ADHESIVE

EpoPro[®] 116A/B is a two part epoxy system that cures at room temperature or with heat into a tough, semi-flexible adhesive & staking compound. The cured polymer provides excellent mechanical and electrical properties and is resistant to moisture and many chemicals. The EpoPro 116A/B demonstrates excellent adhesion & peel strength with most materials including metals, wood, rubber, glass, and many plastics.

The EpoPro 116A/B system is supplied in a standard gray color and is also available in Black. Other colors and viscosities are available by request. Please contact us to discuss your application if you'd like to receive samples of a custom color or other variant that would be suitable for your application.

SUGGESTED APPLICATIONS

- Multipurpose adhesive and staking compound – excellent for many uses
- Conforms to Mil-A-82720, and DOD A-82720
- Excellent for semi-flexible, impact resistant, & excellent for cryogenic applications
- Complies with FDA 21 CFR 175.105 & 175.300 for use on food contact surfaces

HANDLING PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
<u>EpoPro 116A (resin)</u>		
Visual Appearance	White Paste	Visual
Density, Part A	1.36 g/cm ³	ASTM E-201
Viscosity, Part A, @ 25°C	98,000 cps	ASTM D-2393
Flash Point	>93°C	ASTM D-92
<u>EpoPro 116B (hardener)</u>		
Visual Appearance	Gray Paste	Visual
Density,	1.24 g/cm ³	ASTM E-201
Viscosity, Part B, @ 25°C	60,000 cps	ASTM D-2393
Flash Point	>93°C	ASTM D-92
Mix Ratio (part by weight)	7A:5B	Calculated
Mix Ratio (part by volume)	3A:2B	Calculated
Viscosity Mixed @ 25°C	84,000 cps	ASTM D-2393
Pot life (100 grams) @ 25°C	90 minutes	Gardner
Time to handling Strength	8 – 12 hours	
Cure Schedule:	3-7 days @ 25°C or 2 hours @ 65°C or 30 minutes @ 93°C	

Product Datasheet

PHYSICAL PROPERTIES (Tested at 25°C unless otherwise noted)		TEST METHOD	
Appearance	Gray	Visual	
Hardness, Shore D	50D – 70D	ASTM D-2240	
Thermal Shock	Passes >10 cycles	Olyphant Washer	
Cycle from 100°C to -55°C			
Glass Transition Temperature (T _g)	41°C	ASTM D-648	
Coefficient of Thermal Expansion (CTE)		ASTM E-831	
below T _g / above T _g (ppm/°C)			
	102 / 134		
Moisture absorption	0.16%	ASTM D-570	
(24 hour immersion - % weight gain)			
Thermal Conductivity	0.28 W/mK	ASTM D-2214	
Thermal Rating	105°C-130°C	EIC 216	
Fungus Resistance	Non-Nutrient	ASTM G-21	
Surface Resistivity (ohms)	>5.0 x 10 ¹⁶	ASTM D-150	
Volume Resistivity @ 25°C	2.0 x 10 ¹² ohm-cm	ASTM D-150	
Dielectric Strength	>400 V/mil	ASTM D-149	
Dielectric Constant @ 25C		ASTM D-150	
at 1 KHz / 10 KHz / 1 MHz			
	5.51 / 5.2 / 4.9		
Dissipation Factor at 25C		ASTM D-150	
at 1 KHz / 10 KHz / 1 MHz			
	0.11 / 0.28 / 0.24		
Lap Shear Strength at 25C (psi)		ASTM D-1002	
<u>Various Substrates:</u>			
Concrete	1100*	Etched Aluminum	3000
FR-4 laminate	3200*	Galvanized Steel	1800
Polyester laminate	1600*	Copper	1050
Wood (maple)	1800*	ABS	990*
PVC	940*	Polycarbonate	1100*
<i>*Indicates substrate failure</i>			
<u>Effects of Temperature:</u> (Aluminum lap shear panels – mix ratio 3A:2B by volume)			
-423°F (-253°C)	2400	77°F (25°C)	3200
-100°F (-73°C)	3000	105°F (40°C)	1625
-67°F (-53°C)	3000	180°F (82°C)	500
77°F (25°C)	3200	300°F (149°C)	420
<u>Effects of Thermal Aging @ 300F:</u> (Aluminum lap shear panels – mix ratio 3A:2B by volume)			
Test Temperature	<u>Initial Value</u>	<u>14 days</u>	<u>30 days</u>
-67°F (-53°C)	3000	3300	3100
77°F (25°C)	3200	5100	4900
180°F (82°C)	500	980	800
300°F (149°C)	420	440	560
T-Peel Strength	25 lbs/linear inch	ASTM D-1876	

NOTE: Values are based on laboratory or average production results – not for specification purposes.

Product Datasheet

NASA OUTGASSING

(Results after 24 hours @ 125°C and 10⁻⁶ torr per ASTM E-595)

Mix ratio	Cure Schedule	Total Mass Loss (TML) %	Collectible Condensable Volatile Materials (CCVM), %	Water Vapor Release (WVR) %
3 :2 by volume	7 days at 25°C	0.78%	0.04%	0.22%

PROCESSING AND APPLICATION INSTRUCTIONS

To use, weigh (or proportion by volume) Part A and Part B in the suggest mix into a clean mixing container. Mixing containers should preferably be made of polypropylene, polyethylene, glass, or non-corroding metal. (Stainless steel, aluminum, etc.) Always use weighing equipment having accuracy that is $\pm 1\%$ or less of the smallest quantity that you will be weighing. Blend Part A & B thoroughly by using a spatula or stirring stick for at least 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Vacuum de-gassing after mixing may be helpful for best electrical and physical properties.

Apply to clean, dry surfaces. For best adhesion, abrade the surface with a wire brush, scouring pad, steel wool or coarse sandpaper. After abrasion, clean the surface of any loose material and degrease with solvent or detergent to remove any contaminants. The material may then be applied with any suitable application method include brushes, spatulas, trowels, etc.

PACKAGING AVAILABLE

This product is available in a wide range of kits including pints, quarts, ½-gallons, 1-gallons, and 5-gallon pails

It can also be supplied in dual syringe cartridges of 50ml, or 400ml with a 3:2 by volume mix ratios to eliminate the need for hand mixing.

In addition, pre-mixed and frozen syringes and cartridges are available in a wide variety of sizes (1ml, 3ml, 5ml, 10ml, 20ml, 30ml, 50ml and 55ml syringes, as well as 2.5 oz, 6 oz, and 12 oz cartridges) and styles (manual or air operated, EFD, Techcon, Semco, Iwashita, etc.)

Please call use with any special packaging requests, or for information on custom kitting.

STORAGE GUIDELINES

Store these materials in a clean, cool and dry environment in their tightly closed original containers. Protect from extended exposure to temperatures below 15°C (59°F). Crystallization may occur if the material is exposed to cold for extend periods. If this occurs, heat the entire container for 4 hours at 60°C to re-liquefy the material. Allow to cool to ambient temperature prior to using. Also protect the EpoPro® 116A&B from exposure to moisture or high humidity. Tightly re-seal containers after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 months from the date of shipment.

HANDLING PRECAUTIONS

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

PERSONAL HYGIENE

EpoPro® 116A

CAUTION! May cause eye & skin irritation. Prolonged or repeated skin contact or inhalation of vapors may cause allergic skin or respiratory reactions. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Use only with adequate ventilation. Do not take internally.

EpoPro® 116B

WARNING! May cause eye & skin irritation. Prolonged or repeated skin contact or inhalation of vapors may cause allergic skin or respiratory reactions. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Use only with adequate ventilation. Do not take internally.

FIRST AID

In case of contact: **Skin** – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather. **Eyes** – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention. **Inhalation** - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician. **Ingestion** - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER

IMPORTANT: The following supersedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

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