Product Datasheet

EpoPro® 100HP-A/B

2 PART HIGH PERFORMANCE, EPOXY ADHESIVE SYSTEM

EpoPro® 100HP-A/B is a two part epoxy system that cures at room temperature or with heat to form strong, resilient adhesive bonds. The cured polymer provides excellent mechanical and electrical properties and has very good shock, impact, and peel resistance. The cured adhesive is heat resistance up to at least 100ºC and has very good resistance to moisture, solvents, and most chemicals. The EpoPro 100HP system provides a long work-life and demonstrates excellent adhesion to most materials including metals, wood, rubber, glass, and most plastics.

The EpoPro 100HP-A/B system is available in many standard colors including amber, white, black & gray. For your specific application, we can recommend custom variations of this product to fit your processing or cured property requirements. Please contact us to discuss your application if you'd like to receive samples of a custom color or to discuss the development of a custom variant that would be suitable for your application.

SUGGESTED APPLICATIONS

- Multipurpose adhesive and small volume potting compound
- Excellent for impact & peel resistant bonding of metals, glass, plastic, etc.

HANDLING PROPERTIES	VALUE	TEST METHOD
EpoPro 100HP-A (resin)		
Visual Appearance	off-white to beige liquid or as ordered	Visual
Density, Part A	1.10 g/cm³	ASTM E-201
Viscosity, Part A, @ 25ºC	50,000 cps	ASTM D-2393
Flash Point	>100°C	ASTM D-92
EpoPro 104B (hardener)		
Visual Appearance	Amber Liquid	Visual
Density,	1.00 g/cm³	ASTM E-201
Viscosity, Part B, @ 25ºC	3,000 cps	ASTM D-2393
Flash Point	>100°C	ASTM D-92
Mix Ratio (part by weight)	100A:46B	
Mix Ratio (part by volume)	100A:50B	
Viscosity, Mixed, at 25ºC	25,000 cps	ASTM D-2393
Working life at 25ºC	120 minutes	
Tack-free time (low humidity)	140 – 180 minutes	
Time to handling strength at 25ºC	10-12 hours (~25% of final strength)	

Cure Schedule: 24 hours at room temperature achieves about 95% of final bond strength. Remaining strength achieved within 3-7 days at room temperature. Can also be heat cured for 2-12 hours at 65ºC or 1-4 hours at 80ºC. Excellent bond strength is achieved with the shorter end of the heat cures, but longer heat cures will improve heat and chemical resistance.

PHYSICAL PROPERTIES (Tested at 25ºC unless otherwise noted)

Mix Ratio (parts by weight)				**TEST METHOD**
Appearance	Amber-beige or as ordered			Visual
Hardness, Shore D	82D			ASTM D-2240
Tensile Strength	5900 psi			ASTM D-638
Tensile Elongation	10%			ASTM D-638
Glass Transition Temperature (Tg)	90ºC			ASTM E-1640
Thermal Conductivity	0.21 W/mK			ASTM D-2214
Insulation Resistance (ohms)	$>1.0 \times 10^{15}$			ASTM D-150
Volume Resistivity (ohm-cm)				ASTM D-150
@ 25ºC	1.2×10^{15}	-		
@ 100ºC	2×10^{12}	-	-	
Dielectric Strength (kV/mm)	25		-	ASTM D-149

Lap Shear Strength at 25ºC (psi), cured 12 hours at 65ºC — ASTM D-1002

Various Substrates:

Concrete	1100*	Aluminum, anodized	2100
Glass block	3300*	Aluminum, acid etched & abraded	4800
FR-4 laminate	3200*	Steel, grit blast	4300
Polyester laminate	2800*	Stainless Steel	3400
Wood (fir)	1600*	Nylon	330*
Acrylic	220*	Polycarbonate	980*
ABS	1100*	PVC	1700*

*Indicates substrate failure, where the bonded material failed before the adhesive bond did.

Effect of Temperature: (Aluminum lap shear panels, acid etched & abraded, cured 12 hours at 65ºC)

-40°F (-40°C)	3600	180°F (82°C)	2800
77°F (25°C)	4800	212°F (100°C)	2380
105°F (40°C)	4800	212°F (125°C)	1190
150°F (65°C)	3680	302°F (150°C)	560

Effect of Heat Aging: (Aluminum lap shear panels, acid etched & abraded, cured 12 hours at 65ºC)
Aged at the temperature shown, lap shear testing run at room temperature. Results compared to original

Aging Temperature	aged: 250 Hours	500 hours	1000 hours
150°F (65°C)	108%	114%	124%
200°F (93°C)	80%	76%	126%
248°F (120°C)	112%	125%	142%
302°F (150°C)	108%	111%	120%
350°F (177°C)	99%	97%	95%

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

CHEMICAL RESISTANCE

(Samples cured for 12 hours at days at room temperature then soaked 30 days in the fluids indicated at 23ºC (75ºF)

Ammonia	Excellent
Vinegar (5% Acetic Acid)	Good
Hydrochloric Acid (10%)	Fair
Sodium Hydroxide (10%)	Good

Rubbing Alcohol (70% Isopropyl Alcohol & 30% Water)	Good
Ethanol	Good
Toluene	Good

Sodium Hydroxide (50%)	Fair
Sulfuric Acid (10%)	Poor
Boric Acid	Excellent
Kerosene	Excellent
Transmission Fluid (Type A & F)	Excellent
Power Steering Fluid	Excellent
Brake Fluid	Good
Simple Green cleaner (undiluted)	Excellent

Acetone	Good
Paint Thinner/Mineral Spirits	Excellent
Turpentine	Good
Carbon tetrachloride	Fair
Water	Good
Mineral Oil	Excellent
Corn Oil	Excellent
Window Washer Fluid	Excellent

Excellent = Recommended for applications requiring long term immersion. Bond Strength > 90% of original after immersion.
Good = Recommended for applications with short term immersion or prolonged minor exposure (ex. spills, vapor, etc.) Strength ~70% - 90% after immersion.
Fair = Recommended only for short term spillage or other minor exposure applications. Bond Strength ~45% - 70% of original after immersion.
Poor = Not recommend (samples dissolved or dramatically weakened by long term exposure) Bond Strength 0% - 50% of original after immersion.

PROCESSING AND APPLICATION INSTRUCTIONS

To use, weigh (or proportion by volume) Part A and Part B in the indicated ratio 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 ±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 sand paper. 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 1/2-pints, pints, quarts, 1-gallons, 5-gallons, and drums. It is also available in dual syringe cartridges in 50ml, 200ml, or 400ml sizes.

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). Syringe and cartridge styles manual and air operated syringes from EFD, Techcon, Semco, Iwashita, and other major manufacturers.

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 15ºC (59ºF). Crystallization may occur if the material is exposed to cold for extend periods. If this occurs, heat the entire container for 4 hours at 60ºC to re-liquefy the material. Allow to cool to ambient temperature prior to using. Also protect the EpoPro® 100HP-A/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® 100HP-A

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® 100HP-B

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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