Product Datasheet

EpoPro® 105A/B

Heat & Chemical Resistant Epoxy Adhesive

EpoPro® 105A/B is a two part gap-filling adhesive system. This room temperature curing paste creates tough bonds with high strength, environmental stability, and chemical resistance.

This system can be used for both electronic and industrial applications. In electronic applications, EpoPro® 105A/B can be used for wire tacking, ruggedization, and bonding components. It is also suitable for industrial applications including joining Glass Reinforced Plastic (FRP), metals, glass, stone, and ceramics.

EpoPro® 105A/B is an excellent choice for demanding applications that requiring heat resistance up to 140ºC and beyond. It is also resistance to humidity, harsh environments, aggressive chemicals and vibration.

BENEFITS

- Heat resistant with excellent strength up to at least 284ºF (140ºC)
- Chemical, environmental, and moisture resistant
- Bonds to many substrates

HANDLING PROPERTIES	VALUE	TEST METHOD
EpoPro® 105A		
Visual Appearance	Beige Paste	Visual
Density	1.60 g/cm³	ASTM E-201
Viscosity, Part A, at 25ºC	70,000 cP	ASTM D-2393
EpoPro® 105B		
Visual Appearance	Gray Thixotropic Paste	Visual
Density	1.60 g/cm³	ASTM E-201
Viscosity, Part B, at 25ºC	130,000 cP	ASTM D-2393
Mixed Properties		
Mix Ratio	100A:50B by weight and by volume	Calculated
Mixed Viscosity	90, 000 cP	ASTM D-2393
Pot life (180 grams) at 25ºC	40 minutes	ASTM D-2393
Shelf-life	at least 1 year @ room temperature (~ 25ºC)	
Suggested cure times	6 hours @ 40ºC **or** 30 minutes at 60ºC **or** 6 minutes at 100ºC* Achieves handling strength in approximately 4 hours at 25ºC.	

*Note: many other cure schedules are possible. Please contact us for assistance if you'd like to use an alternate cure schedule.

PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	Beige	Visual
Glass Transition Temp. (Tg per DMA)	230ºF (110ºC)	ASTM D-4065
Roller Peel Test, pli (N/mm)	17 (3)	ISO 4578
Dielectric Strength, volt/mil	450	ASTM D-150
Volume Resistivity, ohms-cm	6.1×10^{15}	ASTM D-257
Dielectric Constant, at 1 KHz	1.0	ASTM D-150
Loss Tangent, % at 1 KHz	3.9	ASTM D-150
Lap Shear Strengths		ASTM D-1002

Development:

Cure time	
7 days @ 25ºC (77ºF)	2400 psi
24 hrs @ 25ºC (77ºF) + 30 min @ 80ºC (176ºF)	2600 psi

Effect of Temperature on Lap Shear Strength:

Cure time	Test Temperature	
7 days @ 25ºC (77ºF)	-40ºC (-40ºF)	1900 psi
	-20ºC (-4ºF)	2000 psi
	20ºC (68ºF)	2400 psi
	40ºC (104ºF)	2900 psi
	60ºC (140ºF)	2500 psi
	80ºC (176ºF)	2400 psi
	100ºC (212ºF)	1900 psi
	120ºC (248ºF)	1300 psi
	140ºC (284ºF)	800 psi
24 hrs @ 25ºC (77ºF) + 30 min @ 80ºC (176ºF)	-40ºC (-40ºF)	2400 psi
	-20ºC (-4ºF)	2500 psi
	20ºC (68ºF)	2600 psi
	40ºC (104ºF)	2500 psi
	60ºC (140ºF)	3000 psi
	80ºC (176ºF)	2600 psi
	100ºC (212ºF)	2100 psi
	120ºC (248ºF)	1400 psi
	140ºC (284ºF)	900 psi

After Tropical Aging at 40ºC and in 92% relative humidity:

Aging Period	
Initial results	2700 psi
30 days	3050 psi
60 days	3100 psi
90 days	2900 psi

After Heat Aging at 70ºC:

Aging Period	
Initial results	2700 psi
30 days	2800 psi
60 days	2600 psi
90 days	3000 psi

With Various Metal Substrates:

Metal	Substrate Thickness	
Carbon Steel	1.0 mm	2500 psi
Stainless Steel	1.0 mm	3200 psi
Galvanized Steel[2]	1.5 mm	1300 psi
Copper	1.5 mm	2300 psi
Brass	1.5 mm	2300 psi

[2] Surface degreased only, not roughened.

Chemical Resistance (after Immersion for 90 days)

Chemical	Shear Strength	Chemical	Shear Strength
Control	2700 psi	Xylene	2650 psi
IMS	2750 psi	Lubricating Oil (HD 30)	2300 psi
Gasoline	3200 psi	Paraffin	2600 psi
Ethyl Acetate (30 days)	3300 psi	Water @ 20ºC	2750psi
Acetic Acid, 10%	2300 psi	Water @ 90ºC	2000 psi

NOTE: Typical Properties determined using EpoPro® 105A/B cured 16 hours @ 40ºC cure - unless otherwise stated. Values are based on laboratory or average production results – not for specification purposes.

*Customer colors available by request. Custom viscosity, pot life and cure speeds are also available by request.

SUGGESTED PROCESSING GUIDELINES

EpoPro® 105A/B can be applied by stiff brush, roller, squeegee, knife, or spatula. It is also suitable for meter-mix dispensing and can be supplied in dual syringes cartridges for use with static mixing nozzles.

For manual mixing, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Always use weighing equipment having accuracy in proportion to the amounts being weighted. Blend by using a spatula or stirring stick for 1-2 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Always apply the adhesive to clean, dry surfaces.

For best bond strength, roughen surface to be bonded with wire brush, sand-blasting, etc. After roughening, clean and dry surface and remove and loose material prior to bonding. Optimal bond strengths are typically achieved with an adhesive bondline thickness of 3 – 5 mils, but larger gaps and thicker bondlines are possible with this adhesive without major loss of mechanical strength.

STORAGE GUIDELINES

Store this material in a clean, cool and dry environment in its tightly closed original container. Products may settle during storage and should be thoroughly re-mixed prior to use. Avoid extended exposure to high humidity. Tightly re-seal after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 24 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® 105A
WARNING! Can cause skin irritation, eye irritation, and allergic skin reaction. May be harmful if absorbed through skin or if swallowed.

EpoPro® 105B
DANGER! Corrosive - causes eye burns. Causes irritation if inhaled and can cause skin irritation. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

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 supercedes 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.

Specialty Polymers & Services, Inc. (SP&S)
27822 Fremont Court **Tel: 661-294-1790**
Valencia, CA 91355 **Fax: 661-294-0640**
www.spolymers.com **info@spolymers.com**