

## EpoPro® 105C/D

### Heat & Chemical Resistant Epoxy Adhesive

EpoPro® 105C/D is a two part, thixotropic, gap-filling adhesive system. This room temperature curing paste creates rigid bonds with high strength, heat, environmental, and chemical resistance. The adhesive cures with negligible shrinkage and low outgassing that meets NASA and ESA requirements.

This system can be used for both electronic and industrial applications. In electronic applications, EpoPro® 105C/D is used for wire tacking, ruggedization, and bonding components. It is also suitable for industrial applications including structural bonding of composites, metals, glass, stone, ceramics, and many rigid plastics.

EpoPro® 105C/D is an excellent choice for demanding applications that requiring heat resistance up to 150°C and beyond while only requiring a room temperature cure. It is resistant to humidity, harsh environments, outdoor weathering, chemicals, vibration, and fatigue.

#### BENEFITS

- Heat resistant with excellent strength to at least 302°F (150°C)
- Chemical, environmental, moisture, and weathering resistant
- Bonds to many substrates
- Gap filling
- Low out-gassing

HANDLING PROPERTIES	VALUE	TEST METHOD
<b>EpoPro® 105C</b>		
Visual Appearance	Beige Paste	Visual
Density	1.70 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part A, @ 25°C	500,000 cps	ASTM D-2393
<b>EpoPro® 105D</b>		
Visual Appearance	Gray Thixotropic Paste	Visual
Density	1.70 g/cm <sup>3</sup>	ASTM E-201
Viscosity, Part B, @ 25°C	60,000 cps	ASTM D-2393
<b>Mixed Properties</b>		
Mix Ratio	100A:40B by weight and by volume	Calculated
Mixed Viscosity	125, 000 cap	ASTM D-2393
Pot life (100 grams) @ 25°C	40 - 60 minutes	ASTM D-2393
Time to handle:	Achieves handling strength in approximately 8 hours at 25°C.	
Suggested cure times:	Temperature	Minimum Cure
	77°F / 25°C	24–48 hours
	104°F / 40°C	4 hours
	176°F / 80°C	15 minutes
	212°F / 100°C	10 minutes
	Optimum Cure	
		7 days
		16 hours
		1 hour
		30 minutes

Note: Minimum cure time will produce room temperature lap shear strengths in excess of 1500 psi, but additional cure time at room temperature or with heat will be required to achieve the full cure strength and chemical resistance. Also, many other cure schedules are possible. Please contact us for assistance if you'd like to consider an alternate cure schedule.

# Product Datasheet



PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	Grey	Visual
Shore Hardness	85D	
Glass Transition Temp. (Tg per DMA)	239°F (115°C)	ASTM D-4065
Roller Peel Test, pli (N/mm)	10 (1.8)	ISO 4578
Dielectric Strength, volt/mil	500	ASTM D-150
Volume Resistivity, ohms-cm	1 x 10 <sup>16</sup>	ASTM D-257
Lap Shear Strengths		ASTM D-1002
Development:		
	<u>Cure time</u>	
	7 days @ 25°C (77°F)	2400 psi
	24 hrs @ 25°C (77°F)	
	+ 30 min @ 80°C (176°F)	2600 psi
Effect of Temperature on Lap Shear Strength:		
	<u>Cure time</u>	<u>Test Temperature</u>
	7 days @ 25°C (77°F)	-40°C (-40°F) 2100 psi
		20°C (68°F) 2300 psi
		40°C (104°F) 2500 psi
		60°C (140°F) 2700 psi
		80°C (176°F) 2400 psi
		100°C (212°F) 1900 psi
		120°C (248°F) 1200 psi
		140°C (284°F) 800 psi
		150°C (302°F) 740 psi
	24 hrs @ 25°C (77°F)	-40°C (-40°F) 2200 psi
	+ 30 min @ 80°C (176°F)	20°C (68°F) 2500 psi
		40°C (104°F) 2500 psi
		60°C (140°F) 2800 psi
		80°C (176°F) 2600 psi
		100°C (212°F) 2100 psi
		120°C (248°F) 1400 psi
		140°C (284°F) 900 psi
		150°C (302°F) 850 psi
After Tropical Aging at 40°C and in 92% relative humidity:		
	<u>Aging Period</u>	
	Initial results	2500 psi
	30 days	3000 psi
	60 days	3100 psi
	90 days	3150 psi
After Heat Aging at 70°C:		
	<u>Aging Period</u>	
	Initial results	2500 psi
	30 days	2600 psi
	60 days	2800 psi
	90 days	3000 psi

# Product Datasheet



With Various Metal Substrates:

<u>Metal</u>	<u>Substrate Thickness</u>	
Carbon Steel	1.0 mm	3000 psi
Stainless Steel	1.0 mm	2700 psi
Galvanized Steel <sup>2</sup>	1.5 mm	2700 psi
Copper	1.5 mm	2700 psi
Brass	1.5 mm	2700 psi

<sup>2</sup> Surface degreased only, not roughened.

Chemical Resistance (after Immersion for 90 days, unless otherwise noted)

<u>Chemical</u>	<u>Shear Strength</u>	<u>Chemical</u>	<u>Shear Strength</u>
Control	2500 psi	Xylene	2650 psi
Mineral Spirits	2750 psi	Lubricating Oil (HD 30)	2500 psi
Gasoline	2350 psi	Paraffin	2600 psi
Ethyl Acetate (30 days)	2800 psi	Water @ 20°C	2750psi
Acetic Acid, 10%	2000 psi	Water @ 90°C	2600 psi
Methanol	2500 psi	Trichloroethylene	2400 psi

**NOTE:** Typical Properties determined using EpoPro® 105C/D cured 16 hours @ 40°C 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® 105C/D 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 C and Part d 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.

# Product Datasheet



## PERSONAL HYGIENE

### EpoPro® 105C

**WARNING!** Can cause skin irritation, eye irritation, and allergic skin reaction. May be harmful if absorbed through skin or if swallowed.

### EpoPro® 105D

**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

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