



EpoPro[®] 103A/B

EpoPro[®] 103C/B

EpoPro[®] 103C/D

RAPID SETTING, TRANSPARENT EPOXY ADHESIVES

The EpoPro[®]103 series are rapid setting epoxy adhesives that provides a transparent to translucent bond line and 3 level of viscosity and sag resistance. They are designed to adhere to many different materials and will cure at temperatures as low as 40[°]F (5[°]C). The EpoPro 103 series have a convenient 1:1 by weight and volume mix ratio and are easy to apply with a spatula, stiff brush or from a dual cartridge.

EpoPro[®]103A/B is the standard product and is a medium viscosity that is flowable. EpoPro[®] 103C/B is a thickened version of the standard product that still has some flow and is easy to spread but has increased run and sag resistance. EpoPro[®]103C/D is a high viscosity, gel like system designed for little to no running or sagging even on vertical surfaces.

Alternate hardeners are available to achieve faster or slower cures than the standard EpoPro[®] 103 systems. Specialty hardeners are also available for exceptional heat or chemical resistance and other specialty applications. Please contact us to discuss your application if you think such a variation might be needed.

TYPICAL APPLICATIONS

- Bonding small parts
- Excellent for rapid repairs
- Bonds metals, ceramics, wood, cardboard, glass, plastics and many other materials.

HANDLING PROPERTIES	VALUE	TEST METHOD
<u>EpoPro[®] 103A/B</u>		
Density Mixed, g/cm ³	1.15	ASTM E-201
Viscosity Mixed at 25 [°] C, cps	14,000	ASTM D-2393
<u>EpoPro[®] 103C/B</u>		
Density Mixed, g/cm ³	1.17	ASTM E-201
Viscosity Mixed at 25 [°] C, cps	90,000	ASTM D-2393
<u>EpoPro[®] 103C/D</u>		
Density Mixed, g/cm ³	1.19	ASTM E-201
Viscosity Mixed @ 25 [°] C, cps	paste (>200,000 cps)	ASTM D-2393
<u>Mixed Properties</u>		
Mix Ratio By Weight	1A:1B or 1C:1B or 1C:1D	Calculated
Mix Ratio By Volume	1A:1B or 1C:1B or 1C:1D	Calculated

Product Datasheet

Gel Time at 25°C, 50g mass	3-4 minutes	ASTM D-2471
Gel Time at 25°C, 1/16" thick film	5-6 minutes	ASTM D-2471
Sag Resistance (1/8" bead on a vertical aluminum panel)		
EpoPro® 103A/B	0.57"	
EpoPro® 103C/B	0.25"	
EpoPro® 103C/D	≤ 0.125"	
Time to achieve Handling Strength	10-15 minutes	
Lap Shear Strength Development at 25C		ASTM D-1002

<u>Cure time</u>	<u>Shear Strength at 25C</u>
30 minutes	1710 psi (12 mPa)
1 hour	2700 psi (19 mPa)
4 hours	3840 psi (27 mPa)
8 hours	4120 psi (29 mPa)
16 hours	2700 psi (19 mPa)
24 hours	2700 psi (19 mPa)

Recommended Cure Schedule: Functional cures are achieved in as little as 30 minutes and full strength is developed within 4-8 hours at 25°C.

PHYSICAL PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
Color	Clear to very little yellow* (*custom colors available)	Visual
Shore D Hardness	83	ASTM D-2240
Tensile Strength, psi	4,600	ASTM D-638
Tensile Elongation at break	7%	ASTM D-638
Lap Shear Strength (aluminum to aluminum)		ASTM D-1002
	<u>Test Temperature</u>	<u>Shear Strength</u>
	-55°C (-67°F)	1350 psi (9.5 mPa)
	-40°C (-40°F)	1560 psi (11 mPa)
	25°C / 77°F	2700 psi (19 mPa)
	40°C /104°F	1280 psi (9 mPa)
	60°C /140°F	570 psi (4 mPa)
	82°C /180°F	250 psi (1.5 mPa)
After Aging at 25°C & 92% Relative Humidity:		
	<u>Aging Period</u>	<u>Shear Strength at 25°C</u>
	0 Days	2700 psi (19 mPa)
	10 days	2700 psi (19 mPa)
	30 days	1280 psi (9 mPa)
After Aging at 60°C:		
	<u>Aging Period</u>	<u>Shear Strength at 25°C</u>
	0 Days	2700 psi (19 mPa)
	10 days	4850 psi (34 mPa)
	30 days	5120 psi (36 mPa)
	60 days	4850 psi (34 mPa)
T-Peel Strength	2 pli	
Glass Transition Temp. (Tg)	136°F (58°C)	ASTM D-648

Product Datasheet



Coefficient of Thermal Expansion (CTE):	72.3 ppm/°C	ASTM E-831
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NOTE : Typical Properties determined using EpoPro 103 adhesives cured for 24 hours at 25°C and tested at 25°C unless otherwise noted. Values based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES

The EpoPro® 103 series can be applied by stiff brush, roller, squeegee, knife, or spatula. They are also suitable for meter-mix dispensing and can be supplied in dual syringes cartridges for use with static mixing nozzles and precision dispensing tips.

If mixing manually, weigh the components 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 about 1 minute using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture.

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 adhesive may then be applied with any suitable application method.

Optimal bond strengths are typically achieved with an adhesive bond line thickness of 3 – 5 mils, but larger gaps and thicker bond lines are possible with this adhesive. The EpoPro® 103C/B and EpoPro® 103C/D versions are especially good for gap filling applications.

Allow to cure at room temperature for at least 10 minutes before handling. Allow 30-60 minutes before subjecting the bond to significant stress and if possible allow 4-8 hours for a functional cure to be achieved before applying significant stress to the bond. After the EpoPro 103 adhesive has cured at least 4 hours at 25°C, it may be post cured for 1-2 hours at 60°C to yield even higher bond strengths and increased thermal and chemical resistance.

PACKAGING AVAILABLE

This product is available in a wide range of kits including pints, quarts, gallons, and 5-gallon pails. It can also be supplied in dual syringe cartridges in 50ml, 200ml, and 400ml sizes. Dual syringe cartridges eliminate the need for hand mixing and can be used with manual, electric, or pneumatically operated dispensing guns.

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

STORAGE GUIDELINES

Store this material in a clean, cool and dry environment in its tightly closed original containers. 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 103A & 103C

CAUTION! May cause eye irritation. Prolonged or repeated skin contact may cause irritation, may cause allergic skin reaction. 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 103B & 103D

WARNING! Causes skin and eye irritation. May cause allergic skin and respiratory reactions. Harmful if inhaled or swallowed. Do NOT get in eyes, on skin, or clothing. Wear chemical splash goggles and impervious gloves when handling. Wash skin and clothing thoroughly after handling. Avoid breathing vapor or mist. Use only with adequate ventilation. Keep containers closed when not in use. 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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