Product Datasheet

SP&S Specialty Polymers and Services

EpoPro® 255A/B

EXPANDING/FOAMING EPOXY POTTING & CASTING SYSTEM

EpoPro® 255A/B is a two part, filled epoxy system that expands during curing by about 150%. This system is room temperature curing and yield very low shrinkage and low pressure/stress on embedded components. The cured material has good mechanical and excellent electrical properties. It also demonstrates good resistance to temperature cycling.

The EpoPro 255A/B system is available in many standard and custom colors and the viscosity and flow properties can be factory adjusted to suit your application process. 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:

- Casting of low density components
- Potting/encapsulating proximity switches, sensors, and filters

HANDLING PROPERTIES	VALUE	TEST METHOD
EpoPro 255A (resin)		
Visual Appearance	beige Paste	
Density, Part A	1.7 g/cm³	ASTM E-201
Viscosity, Part A, @ 25ºC	83,000 cps	ASTM D-2393
Flash Point	>200°C	ASTM D-92
EpoPro 255B (hardener)		
Visual Appearance	reddish yellow Liquid	
Density,	0.97 g/cm³	ASTM E-201
Viscosity, Part B, @ 25ºC	550 cps	ASTM D-2393
Flash Point	>150°C	ASTM D-92
Mix Ratio - part by weight	100A :18B	
Mix Ratio - part by volume	3A: 1B	
Typical expansion @ 25C	130 – 180%**	

Processing Paramaters	@ 25ºC	@ 40ºC	@60ºC	@ 80ºC
Viscosity Mixed:	8000 cp	3000 cp	1000 cp	600 cp
Pot life (100g):	35 minutes	25 minutes	15 minutes	10 minutes

Suggested Cure Conditions: optimal cure is 24 hours at room temperature + 6 hours @ 80ºC. However, for many applications curing for 3-7 days at room temperature will produce excellent results and for small applications or where faster cures are required, 2 hours @ room temperature + 2 hours @ 100ºC will also be suitable. Many other cure schedules are possible please contact us for suggestions to suit your application and processing requirements.)

** Note that the total expansion rate will vary with the geometry and mass of the EpoPro 255A/B that is being applied. The temperature of the material during the gelling process will also affect the total expansion rate as will the atmospheric pressure.

PHYSICAL PROPERTIES (Tested at 25C unless otherwise noted)		TEST METHOD
Appearance	Beige foam	Visual
Density	0.5 g/ml	ASTM D792
Shore Hardness	77D	ASTM D-2240
Tensile Strength	580 psi	ISO R527
Tensile Elongation	1 %	ISO R527
Elastic Modulus from tensile	96,600 psi	ISO R527
Flexural Strength	1,130 psi	ISO 178
Flexural Modulus	111,200	ISO 178
Glass Transition Temperature (Tg)	60ºC	ASTM D-648
Coefficient of Thermal Expansion (CTE):		ASTM E-831
Below Tg (alpha 1):	45 ppm / ºC	
Above Tg (alpha 2):	120 ppm / ºC	
Suggested Usage range	-55ºC to +105ºC	
Moisture absorption (% weight gain)		ASTM D-570
24 hours @ @ 25ºC	0.2%	
30 min @ 100C	1.0%	
Thermal Conductivity	0.2 W/mk	ASTM F-433
Electrolytic Corrosion	Grade A-1	DIN 53 489
Surface Resistivity @ 25ºC	4 x 10^{16} Ω	ASTM D-257
Volume Resistivity @ 25ºC	7 x 10^{15} Ω-cm	ASTM D-257
Tracking Resistance	CTI > 600	IEC 112
Dielectric Strength	3.9 V/mm	ASTM D-149
Dielectric Constant		ASTM D-150
@ 25ºC - 50 Hz / 1kHz / 100 kHz	1.8 / 1.8 / 1.8	
@ 100ºC - 50 Hz / 1kHz / 100 kHz	2.6 / 2.48 / 2.1	
Dissipitation Factor		ASTM D-150
@ 25ºC - 50 Hz / 1kHz / 100 kHz	0.02 / 0.015 / 0.015	
@ 100ºC - 50 Hz / 1kHz / 100 kHz	0.3 / 0.08 / 0.04	

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

SUGGESTED PROCESSING GUIDELINES:

The EpoPro 255A should be thoroughly re-mixed prior to use because it may sediment or separate during storage and transportation. Using a paint shaker or mixer may be helpful in achieving a fully re-mixed 255A.

This system may be mixed manually or by suitable meter-mix equipment. To prepare manually, weigh out Part A & Part B in the ratio suggested into a clean mixing container. 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 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.

For increased foaming, air may be injected into the part A prior to mixing with the Part B or may be injected by suitable automatic mixing equipment into the mixed system.

Apply by pouring or dispensing into your components. For best adhesion, apply to clean dry surfaces only. If improved adhesion is desired, lightly abrade the surface to be bonded with a scouring pad, steel wool or fine sand paper. After abrasion, clean the surface of any loose material and degrease with solvent or detergent to remove any contaminants.

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 of 255A or 255B for 4 hours at 60ºC to re-liquefy the material. Allow to cool to ambient temperature and re-mix prior to using. 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.

SAFETY & PERSONAL HYGIENE:

EpoPro 255A

CAUTION! May cause eye irritation. Prolonged or repeated skin contact may cause irritation, and may cause allergic skin reaction. Harmful if inhaled, if swallowed. In accordance with good industrial practice, handle with care and avoid unnecessary personal contact. Do not inhale mists. Use with adequate ventilation. For industrial use only.

EpoPro 255B

WARNING! May cause eye & skin irritation. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor and mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

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**