Product Datasheet

EpoPro® 7200-85

Electrically Insulating, Thermally Conductive Epoxy Adhesive

EpoPro® 7200-85 is a filled epoxy adhesive designed for die attached, and other electronic applications. It provides excellent electrical insulation combined with high thermal conductivity. The formulation is produced with high purity resins and filler and the finished adhesive meets the ionic content requirements of Mil Std 883C Method 5011 as well as meeting NASA's low outgassing requirements. The cured adhesive has excellent chemical and environmental resistance and provides good mechanical strength up to 180ºC.

EpoPro® 7200-85 is a has good flow properties combined with good run and sag control. It is available in both lower (7200) and higher (7200-100) viscosity versions and variants with optimized run and sag resistance to meet specific end user requirements can be provided upon request. EpoPro® 7200-85 is supplied as frozen one component syringes in a wide range of sizes and syringe types. A two component version is also available by request.

APPLICATIONS & BENEFITS

- Die Attach
- Low Ionics / High Purity
- Microelectronics
- Low CTE
- Thermally Conductive
- NASA compliant Low Outgassing

HANDLING PROPERTIES

EpoPro® 7200-85	VALUE	TEST METHOD
Visual Appearance	Off-White Paste*	Visual
Viscosity, Part A, at 25ºC	85,000 cps	ASTM D-2393
Density, Part A	2.50 g/cm³	ASTM E-201
Mix Ratio:	Once Component – thaw and then use as-is	
Pot life (10 grams) at 25ºC	~1-2 days	Gardner Gel timer
Gel Time (10 grams) at 150ºC	5 minutes	Gardner Gel timer
Recommended Cure Schedules:	1 hours at 165ºC **or** 30 minutes 180ºC.	

Many other cure schedules are possible. Please contact us to discuss alternatives.

*Alternate colors available by request

PHYSICAL PROPERTIES

	VALUE	TEST METHOD
Shore D Hardness	88D	ASTM D-2240
Lap Shear Strengths at 25ºC / 77ºF (AL: AL) :	> 2000 psi	ASTM D-1002
Die Shear, Gold to Silicone		Mil-Std 883C
Area 0.0225 in²	1800 psi	
Area 0.0050 in²	3500 psi	

Dielectric Strength	350 V/mil	ASTM D-149
Dielectric Constant		ASTM D-150
At 100Hz / 1KHz / 1MHz	5.9 / 5.76 /5.46	
Dissipation Factor		ASTM D-150
At 100Hz / 1KHz / 1MHz	0.003 / 0.008 / 0.012	
Volume Resistivity at 25ºC	3.9 x 10^{15} Ω-cm	ASTM D-257
Volume Resistivity at 125ºC	6.6 x 10^{13} Ω-cm	ASTM D-257
Arc Resistance	190 seconds	ASTM D-495
Thermal Conductivity	0.75 W/mK	ASTM D-2214
Glass Transition Temperature (Tg) by TMA	145ºC	
Coefficient of Thermal Expansion		ASTM E-381
Alpha 1 (below Tg)	30 ppm/ºC	
Alpha 2 (above Tg)	96 ppm/ºC	
Weight Loss at 300ºC by TGA	0.04%	Mil STD 883C Method 5011
Suggested Temperature Range of Use:	-40ºC to +180ºC	

RGA Analysis — Mil-Std 883C method 5011

	After 168 hours at 125ºC		After 1000 hours at 150ºC	
Gas	Sample	Control	Sample	Control
Nitrogen, %	99.9	99.9	99.9	99.9
Oxygen, %	ND*	ND	ND	ND
Argon, ppm	152	206	199	149
CO_2, ppm	<115	123	613	419
Water, ppm	<100	<172	401	<163
Hydrogen, ppm	ND	ND	ND	ND
Helium, ppm	ND	ND	ND	ND
Fluorocarbons, ppm	ND	ND	ND	ND
Ammonia, ppm	ND	ND	ND	ND

Note: ND = Non detected

Extractable Ionic Contaminants in ppm — Mil-Std 883C method 5011

Extraction ratio 100 grams of deionized water to 1g of sample. Sample prepared by curing on Teflon sheet then pulverizing to -40/+60 mesh powder.

Ion	24 hr. at 100ºC	48 hrs. Pressure Cooker(121ºC&2atm)
Sodium	5	10
Potassium	3	3
Ammonium	1	3
Iron	3	3
Chloride	7	10
Bromide	ND	ND

NASA Outgassing:		ASTM E 595
Total Mass Loss (TML)	< 0.21%	
Collectible Volatile Condensable Material (CVCM)	< 0.01%	

NOTE : Typical Properties determined using EpoPro® 7200-85 cured for 1 hour at 165ºC. Values are based on laboratory or typical production results and are not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

EpoPro® 7200-85 is supplied in frozen syringes that are shipped on dry ice. Avoid handling dry ice and frozen syringes with bare hands as serious skin damage could occur. When ready to use, remove a syringe from the freezer and allow to thaw to room temperature. Depending on syringe size and the ambient temperature this may take 15 – 60 minutes. Larger diameter syringes will typically take longer to fully thaw then smaller syringes. Do not use heat to speed thawing as this could negatively affect the material. If more rapid thawing is desired a conductive thawing plate can be used to speed the process without risking any negative effects. When thawed the syringe is ready to use and will remain suitable for use at room temperature for 24 – 48 hours at approximate 25ºC.

EpoPro® 7200-85 can be applied using a spatula, stiff brush, roller, squeegee, or knife. It can also be dispensed directly from the syringe through a dispensing needle. Apply the adhesive to clean, dry surfaces. The adhesive may be applied to one or all surfaces to be bonded. In most applications only even contact pressure is required to create a good bond. If bond-line thickness control is important to your application this product can be supplied with glass spacer beads in a range of sizes from 1.5 mil to 25 mil in thickness. If this option is desirable, please contact us for a list of the spacer bead sizes available.

STORAGE GUIDELINES:

Store this material at -40ºC to maintain its shelf-life. At -40ºC/-40ºF or colder, the EpoPro® 7200-85 will have a minimum shelf-life of 12 months from 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. See SDS for more information.

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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