Product Datasheet

EpoPro 7200

Electrically Insulating, Thermally Conductive Epoxy Adhesive (Formerly Epibond 7200/7200-4)

Typical Properties

(Not for specification purposes. All tests run at 25°C unless otherwise noted)

Properties:

Appearance	Visual	Off-white
Specific Gravity	STM-D-1475	2.5 g/cm^3
Viscosity	ASTM-D-1824	17,000 cP
Spindle #/RPM (Model RVT)		14/10
Gel time at 150°C, 10 gm	ASTM D-2471	5 minutes
Work life @ 25°C, 10 gm 50% RH,	FTM-203	1-2 days
Flash Point, open cup	ASTM-D-92	>120°C (248°F)

Recommended Cure Schedules:

1 hour @ 165°C

Please note: any cure schedule selected for use should be confirmed through testing as being appropriate for your particular processing methods and for your intended application.

Cured Properties

Lap shear (Aluminum to aluminum)	ASTM-D-1002	> 2000 psi
Die shear, gold to silicon	Mil STD-883-B	
area 0.0225 in^2		1800 psi
area 0.0050 in^2		3550 psi
Glass Transition Temp (TMA)	Perkin Elmer Appl.Cast #20	145°C
Coefficient of Thermal Expansion (CTE) (per °C)	ASTM-E-381	
Alpha 1		30 x 10^{-6}
Alpha 2		96 x 10^{-6}
Thermal Conductivity, Colora	ASTM D-2214	16 x 10^{-4} cal/cm-sec-°C
Weight loss at 300°C by TGA	Mil STD-883-C Method 5011	0.04%
Volume resistivity	ASTM-D-257	
@ 25°C		3.9 x 10^{15} Ω-cm
@ 125°C		6.6 x 10^{13} Ω-cm
Dielectric Strength	ASTM-D-149	350 volts/mil 14,000 V/mm
Arc resistance	ASTM D-495	190 sec.
Dielectric Constant @100Hz / 1KHz / 1MHz	ASTM-D-150	5.9 / 5.76 / 5.46
Dissipation Factor @100Hz / 1KHz / 1MHz	ASTM-D-150	0.003 / 0.008 / 0.012

EPOPRO 7200 is a premixed, frozen, one-component, mineral-filled epoxy adhesive designed for die attach and other applications where thermal conductivity and electrical insulation characteristics are required. This 100% solids system contains no solvents or diluents, greatly reducing the chance of outgassing and void formation during cure and operational life. EpoPro 7200 has been formulated with extremely pure resins and fillers to provide the utmost in ionic purity for high reliablility in contact with microelectronic chips and circuitry.

Suggested Applications:

- Microelectronics bonding requiring high reliability
- Meets requirements of MIL STD 883C Method 5011

Benefits:

- High Purity
- Low CTE
- Thermally conductive
- 100% Solids (no volatiles)

Outgassing and Contaminant Data:

Outgassing @ 10^{-6} Torr (ASTM E-595)		
Total Mass loss	ASTM E-595	0.21%
Collectable condensable Volatile materials	ASTM E-595	0.00%

RGA analysis MIL STD 883C Method 5011	After 168 hours @ 125°C		After 1000 hours @ 150°C	
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	186	<167	ND	ND
Helium, ppm	ND	ND	ND	ND
Fluorocarbons, ppm	ND	ND	ND	ND
Ammonia, ppm	ND	ND	ND	ND
ND = none detected	1% = 10.000 ppm			

Extractable Ionic Contaminants, ppm Extraction Ratio:100 gm of deionozed water to 1g of sample. Sample Preparation: Cured on Teflon®; pulverized to –40/+60 mesh.		
Test Method MIL STD 883C Method 5011		
Ion	**24 hours @100°C**	**48 hours @ 121°C / 2 atm**
Sodium	5	10
Potassium	2	3
Ammonium	1	3
Iron	3	3
Chloride	7	10
Bromide	ND	ND

Storage Guidelines:

EpoPro 7200 is considered non-hazardous for shipping purposes. However, this product is packaged in special styrofoam cartons containing enough dry ice for a limited storage life of approximately 72 to 96 hours during shipment. Upon receipt, frozen syringes must be transferred to freezer storage at or below -40°C to ensure the product's shelf life is maintained. Special care should be taken when handling dry ice in order to

avoid severe skin damage or potential of asphyxiation in unventilated areas. Under these conditions the products will have a minimum shelf-life of unopened containers at -40°C is 12 months from the date of shipment.

Processing Guidelines:

EpoPro 7200 is premixed, frozen and packed in dry ice at the factory for your convenience. Avoid handling dry ice or frozen syringes from factory container with bare hands. Temperature is below -75°C and serious skin burns and permanent damage could occur. Always store frozen syringes below -40°C for best shelf life.

When ready to use, remove syringe(s) from freezer storage and allow to thaw at room temperature (20 -30°C maximum). Do not attempt to quick thaw by heating, as this will greatly reduce work life. Typical thawing time for a 3cc syringe is approximately 1 hour at 25°C.

EpoPro 7200 is also as a two part system that does not require refrigeration in its unmixed, as supplied form. This system is known as EpoPro 7201A/B, and exhibits all the same cured properties as EpoPro 7200. Please contact SP&S for more information or pricing and availability.

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 7200

WARNING! Causes eye irritation. Causes skin irritation and possible allergic skin reaction. Harmful if inhaled or if 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 container closed when not in use. Use only with adequate ventilation. 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 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

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