

EpoPro[®] 653 A/B

Two-Component clear Liquid Epoxy Encapsulant for LED's

Typical Properties

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

EpoPro[®] 653 A/Resin Properties:

Appearance	Visual	Pale Blue Liquid
Specific Gravity	ASTM-D-1475	1.16 g/ccm ³
Viscosity @ 25°C	ASTM-D-2393	6,000 cP
Flash Point, open cup	ASTM-D-92	252°C (486°F)
Percent Solids	ASTM-D-2584	100

EpoPro[®] 653 B/Hardener Properties:

Appearance	Visual	Clear Colorless Liquid
Specific Gravity	ASTM-D-1475	0.94 g/ccm ³
Viscosity @ 25°C	ASTM-D-2393	150 cP
Flash Point, open cup	ASTM-D-92	175°C (347°F)
Percent Solids	ASTM-D-2584	100

Mix Ratio:

Parts by weight (by volume) 100 A / 35 B (100 A / 43 B)

Mixed Properties:

Initial Viscosity @ 25°C	ASTM-D-792	1,050 cps
Pot Life	@ 25°C	>6 hours
Gel Time, 10 gm	@121°C	5 minutes

Recommended Cure Schedules:

Discrete Devices	Demold	N/A
	Post Cure	N/A
Display @ 85°C		3 hours

Please Note: Actual oven cure is dependent upon applications and substrate/component design.

Cured Properties

Shrinkage		0.33 %
Tg, by TMA	ASTM-D-696	145°C
CTE, by TMA	ASTM-D-696	
	Alpha 1	66 x 10 ⁻⁶
	Alpha 2	170 x 10 ⁻⁶
Thermal Conductivity	ASTM D-2214	N/A cal/cm ² sec ² x°C
Shore Hardness	ASTM D-2240	89 D
Moisture %	ASTM D-570	N/A
Tensile Strength @ 25°C		N/A psi
Tensile Modulus @ 25°C		N/A psi
Volume Resistivity @ 25°C	ASTM-D-257	7.6 x 10 ¹⁵ Ωcm
Volume Resistivity @100°C	ASTM-D-257	8.0 x 10 ⁸ Ωcm
Dielectric Constant	ASTM-D-150	3.10 (@ 1 KHz)
Dissipation Factor	ASTM-E-150	0.025
Index of Refraction	Mix wet	1.55
Light Transmissibility		1/8" thick specimen
Wave Length, nm		
% Transmission		N/A

EpoPro[®] 653 A/B is a low-temperature cure, two-component epoxy resin casting system exhibiting long pot-life and designed to yield in a cured polymer with superior mechanical, optical and electrical performance.

EpoPro[®] 653 A/B is available with a comprehensive series of colors and diffusants in order to meet any customer need.

Suggested Applications:

EpoPro[®] 653 A/B is designed specifically for the encapsulation of discrete and display light emitting diodes. It is suggested for use in any application that requires the environmental protection properties of an epoxy, coupled with high efficiency visible light transmission.

Benefits:

- Non-yellowing and high-clarity retention after long-term exposure at elevated temperatures (as high as 125°C).
- Long pot life for increased ease of handling in a production environment.
- Easy de-airing
- Low temperature cure
- No polycarbonate attack, allowing it to be used as the substrate.
- Available in a spectrum of colors and diffusant concentrations.

Storage Guidelines:

Store this material in a clean, cool, and dry environment in its tightly closed original container. Products which may crystallize during storage may be reliquified by warming the contents of the shipping containers, loosely covered, to 65°C for 1-4 hours. Allow contents to cool to 30°C or less before continuing. Avoid extended exposure to extreme humidity. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 months from the date of shipment.

Processing Guidelines:

Weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Always use weighing equipment having an accuracy that is in proportion to the amounts being weighed.

Blend by hand for 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Alternately, you can use a power mixer to blend the material. When using a power mixer be sure to scrape the sides and bottom of the mixing container and the blades and shaft of the mixer and mix thoroughly. Avoid excessive mixing speeds which could introduce large amounts of air or cause heating of the mixture which would result in a reduced working life.

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® 653 A

WARNING! Causes skin and eye 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® 653 B

DANGER! Corrosive - causes eye burns and skin irritation. May cause skin burns. Causes respiratory irritation. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep container closed when not in use. 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:

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