

AzoCap 181 CLR / Azo-Cast R3200

Electrical Encapsulation Compound

Product description

AzoCap 181 CLR is a clear, high-performance, polyurethane encapsulation compound specifically engineered for electrical potting applications. Designed to protect sensitive electronic components from moisture, vibration, and thermal cycling, AzoCap cures to a tough, flexible material that maintains excellent adhesion to a variety of substrates.

AzoCap remains stable in liquid form and has an adjustable cure time, driving greater production efficiency. Ideal for use in automotive, marine, industrial, and LED lighting applications, AzoCap delivers long-lasting protection and reliability in demanding environments.

Table 1: Physical properties of uncured materials

	Azo-Cast R3200	AzoCap 181 CLR	Measurement
Appearance	clear liquid	clear liquid	
Specific gravity at 77°F (25°C)	1.09 ± 0.005	1.123 ± 0.003	
Viscosity at 77°F (25°C)	1400 ± 100	700 ± 100	centipoise

Table 2: Processing parameters*

	Value	Measurement
Ratio AzoCap 181 CLR per Azo-Cast R3200 (weight)	100 / 101	grams
Ratio AzoCap 181 CLR per Azo-Cast R3200 (volume)	100 / 104	milliliters
Azo-Cast R3200 temperature	25 (77)	degrees Celsius (Fahrenheit)
AzoCap 181 CLR temperature	25 (77)	degrees Celsius (Fahrenheit)
Gel time (100 gram sample)	3 ± 0.33	minutes
Tack free time (100 gram sample)	30 ± 10	minutes

*Gel time and tack free time may vary slightly due to changes in ambient conditions and chemical temperatures.

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Table 3: Physical properties of cured materials*

	Value	Test method
Tensile strength	4200 ± 400 psi	ASTM D-412
Elongation at break	150% ± 10%	ASTM D-412
Adhesion (Lap shear)		
Polycarbonate	>500 psi	ASTM D-3163
Flammability	Passes	UL 94
Mixture density	9.18 lb/gal (1.106 g/cc)	
Hardness (Shore D)	53 - 57	ASTM D-2240
Dielectric Constant (@1 MHz)	3.7 ± 0.2	ASTM D150-22
Dielectric Strength	293.6 V/mil	ASTM D149-25

*Typical values when cured for seven days at room temperature.

Storage and Handling

AzoCap 181 CLR and Azo-Cast R3200 should be stored in clean, dry environments with consistent temperatures and adequate airflow. To prevent contamination from moisture and foreign materials, containers must remain tightly sealed and protected with an inert gas blanket when not in use.

AzoCap 181 CLR and Azo-Cast R3200 should be stored between 50°F (10°C) and 95°F (35°C). Under these conditions, Azo-Cast will remain clear and stable for a minimum of six months, and AzoCap will remain in liquid form and have a shelf life of up to 12 months.

Both products are hygroscopic and must not be exposed to atmospheric moisture, as this can cause Azo-Cast R3200 to harden or result in foaming during the curing of AzoCap 181 CLR. To preserve material integrity, minimize moisture exposure throughout all stages of handling and storage.

Disposal

Care should be taken to protect our environment. The user of this product has the responsibility to dispose of unused material or residue in compliance with local governmental guidelines regarding the disposal of nonhazardous and hazardous waste.

Health and safety

Azo-Cast R3200 is isocyanate-terminated and may cause respiratory and skin irritation. Safety data sheets and product labels must be reviewed prior to use or handling the material. Avoid breathing of vapors, prolonged contact with the skin, contact with open breaks in the skin and ingestion. Use with adequate ventilation.

