



CSO-300, 310, 320 Polycarbosiloxane Liquid Resins

Typical Applications: Medium viscosity liquid resins used as an intermediate to higher temperature matrix resin (250°C-315°C /480°F - 600°F) for glass and carbon fiber composites. Used in the manufacture of flame-resistant glass fiber composites, carbon fiber composites, and molding compounds. These resins cure to very tough, resilient matrixes or seal/protective coatings. Our CSO type resins can be used to coat, insulate, protect many metals including copper, steel, brass, bronze, and aluminum. CSO 300 can also be used as a protective insulating/sealing resin for high temperature motor, generator, and electromagnet windings.

Attributes of CSO-300 / 310 /320 series Polycarbosiloxanes:

- Medium viscosity, air stable liquid
- Low odor
- Can be B-staged for pre-pregging
- Can be partially cured into a “heat moldable” polymer for use in compression molding compounds
- Can be used as a pre-pregging resin for laminating and layup of ceramic composites
- Compatible with most fillers depending on processing temperature

Typical Polymer Specification:

Parameter	Standard value
Appearance	clear, or slightly amber liquid
Viscosity	90-120 cps (CSO-320); 160-220 cps (CSO-310); 600-900 cps (CSO 300) at 23°C
Specific Gravity @ 25°C	1.04 – 1.15
Flammability	V 0
Volume Resistivity @ 25°C	10 ¹⁷ ohm cm
Dielectric Strength @ 25°C	27 kV/mm
Flash Point	> 92°C (>197°F)

All are sold as a 100% solids / neat resin - can be diluted in solvents if needed

- Recommended Solvents: hexane, acetone, THF, toluene, xylenes, some alcohols, insoluble in water

PO Box 2351
Wilton, NY 12831
Phone: 518.450.1055

Extreme Environment Materials Solutions, LLC
www.EEMS-LLC.com

Curing CSO Type Resins

CSO-300 will cure at 210°C in 4 hours or at 180°C in 10 hours without catalysts.

CSO-310 and CSO-320 will cure at 250°C in 4 hours or at 210°C in 10 hours without catalysts

CSO-310 will “B-stage at 160°C in 10 to 30 minutes a tacky rubberlike material, which will flow when heated.

Heating to 180°C for 10 – 30 minutes forms a stiffer, less tacky, but still flowable material.

CSO-320 will “B-stage” at 180°C in roughly 10 minutes to a tacky material, heating to 200°C for 10 minutes to 30 minutes will give a slightly tacky, melt flowable resin

Recommended Catalysts** - Catalysts will improve hardness and stiffness of cured resins but will decrease the “B-staging” window and may decrease shelf life of pre-pregs and molding compounds.

CLC-PL005 - Pt based catalyst typically used at 1% concentration based on resin mass

CLC-PB055 - A combination catalyst typical usage at 1% concentration based on resin mass

****Contact EEMS for specific guidance based on your particular needs**

Suggested Uses:

Non-catalyzed Resins can be partially cured to form melt processable resins or mixed with fillers while still low viscosity then partially cured to produce powder and chopped fiber molding compounds that can be warm pressed/compression molded into near net shape components.

Catalyzed resins can be cured in the 200°C range for 30-120 minutes to produce tough, slightly compressible gasket materials and seals.

Catalyzed resins can to be used to produce “fire-resistant” fiberglass without the use of halogenated fire-retardants by curing at 250-300°C.

Catalyzed resins can be filled with ceramic or metal powder fillers to produce protective coatings on metals or other materials for protection from many solvents and corrosive materials up to 300°C

Warranty:

The data provided relates only to the product noted above. The information is correct to the best of our knowledge, EEMS™, Inc. does not guarantee any properties. Because conditions and methods of use of our products are beyond our control, this information should not be used as a substitution for users own tests to ensure that EEMS products are safe, effective, and fully satisfactory for the intended end use. EEMS's sole warranty is that the product will meet sales specifications in effect at the time of shipment.

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