

TYPICAL FILLED MIXED PROPERTIES @ ROOM TEMPERATURE 77°F/25°C (with N-60 & N-6 Fillers)

Mix Ratio by weight (Resin/Hardener/N-60/N-6 Fillers)	100/30/140/686
Viscosity (cps)	Pourable
Density (ASTM D-792)	21.6 lbs/gal
Density	0.094 lbs/cu.in
Density	162 lbs/cu.ft
Specific Gravity (ASTM D-792)	2.59 gr/cc
Linear Shrinkage	0.001(4650 cm ³ mold)
Hardness	91 Shore D

RECOMMENDED CURE SCHEDULE

Allow EC-439 tools to gel at room temperature before subjecting them to a post cure. 24 hours is recommended. This will prevent excessive exotherm and shrinkage from occurring. The recommended minimum 66°C/150°F post cure schedule for EC-439 systems is as follows (refer to section on heating and cooling rates):

- Cure for 24 hours at room temperature 25°C/77°F
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- Before moving or de-molding your EC-439 cast mold, you must first heat cure the tool internally for 8 hours @ 66°C/150°F by using the temperature control system built into the mold (i.e. copper tubing or electrical grid).

A conditioning post cure at a temperature equivalent to the constant operational temperature of your production mold is advised. If an additional post cure is necessary beyond the preliminary cure schedule, the recommended cure schedule is as follows (refer to section on heating and cooling rates):

- Ramp up and cure for 2 hours at 93°C /200°F
- Ramp up and cure for 2 hours at 121°C /250°F
- Ramp up and cure for 2 hours at 149°C/300°F

HEAT CONDITIONING OF CAST EPOXY MOLDS

It is always advisable to heat cure cast epoxy molds internally, using the temperature control system built into your working mold (i.e. copper tubing or insulated electrical grid). If oven curing is your only option, it is advisable to complete the initial cure on the model at 52°C/125°F for 6-8 hours or overnight before increasing the oven temperatures. Extremely large cast molds should always be heat cured internally and should not be moved or transported to another location prior to an internal heat cure process of 66°C/150°F.

RATES OF HEATING AND/OR COOLING OF CAST EPOXY MOLDS

When taking molds through the post cure phase, always place mold in a room temperature oven and increase the temperature at a rate of no more than 13°C/25°F per hour. When cooling, allow the mold to remain in the heated environment and decrease the temperature at a rate of no more than 27°C/50°F per hour. Never remove the mold from the oven until it has reached 38°C/100°F. Removing a mold heated above 38°C/100°F can result in thermal shock and warp. Ensure proper curing temperatures are met by installing a thermocouple directly in the center of the mold casting. Please contact our Technical Service department with any questions regarding post curing.

MATERIAL ESTIMATOR

The mixed density of the EC-439 at the appropriate mix ratio(by weight) of 100 parts resin: 30 parts hardener: 156 parts N-60 fine bulk filler: 687 parts N-6 chipped bulk filler is 21.6 lbs/gal or 162 lbs/cu.ft. To determine the number of pounds of EC-439 that is required, calculate the amount of material that will be cast(in cubic feet) and multiply this number by 162. This gives you the total number of pounds needed for the job.

CRYSTALLIZATION

Epoxies may form small crystals when exposed to moisture, dirt, low temperatures, or temperature cycling. To return the material back to its original state, heat to 130°F and stir until the crystals disappear. **Do not use an epoxy if the crystals will not return to liquid form.**