

Product Bulletin

CASS POLYMERS

ADTECH
Plastic Systems
SC-9001 Registered



Phone: 800 344 7776
Fax: 248 588 5909
815 West Shepherd Street
Charlotte, MI 48813-0523
plastic@casspolymers.com
www.casspolymers.com

EL-315-2
EPOXY LAMINATING - HIGH TEMP
COLOR: DARK AMBER
(For use in high performance autoclave
composite tools)

0302

DESCRIPTION

EL-315-2 HIGH TEMPERATURE LAMINATING RESIN SYSTEM is a superior high temp resin for use in heat environment tools, jigs and fixtures. The low mixed viscosity coupled with a long open (working) pot life allows adequate time for construction of large tools. However, a preliminary cure to 150°F on the model is required in order to stabilize the tool prior to full recommended post cure schedule. EL-315-2 does not contain MDA or VCHD. Test results show the physical and mechanical properties to be among the highest attainable in high temperature epoxy laminating systems.

HANDLING CHARACTERISTICS @ 25°C/77°F

Mix Ratio (parts by weight)	100R/24H
(parts by volume)	3.44R/1H
Density	9.5 lbs/gal
.....	0.041 lbs/cu in
Mixed Viscosity	4,000-5,000 cps
Work Life	180-210 minutes
Tack Free Time	5-6 hours
Color	Amber
Shelf Life (Stored at ambient temperature)	One year

PHYSICAL PROPERTIES

Ultimate Tensile Strength (ASTM D-3039.93)	56,090 psi
Tensile Modulus (ASTM D-3039.93)	3,900,000
Ultimate Flexural Strength (ASTM D-790.92)	76,200 psi
Flexural Modulus (ASTM D-790.92)	3,504,000 psi
Ultimate Compressive Strength (ASTM D-695.91)	12,020 psi
Coefficient of Thermal Expansion (ASTM-696.91)	39.3 x 10 ⁻⁶ in/in/°F
Heat Deflection Temperature (ASTM D-648.82) @ 66 psi	388.6°F
T ^g By DMA	137°C/279°F
Impact Strength (Notched Izod) (ASTM D-256.93a)	4.5 in lbs
Moisture Absorption (ASTM D-570.88)	0.300%
Shrinkage	0.0036 in/in
Hardness	88-90 Shore D

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CURE SCHEDULE

To insure proper heat curing temperatures are met, install a thermocouple directly in the center of the tool.

*All temperatures stated should be monitored to center of tool.

IMPORTANT NOTE: HEATING RATE not to exceed 5°F/minute
COOLING RATE not to exceed 10°F/minute
Remove from oven when tool reaches 100°F or less.

PRELIMINARY CURE

24 Hours @ 77°F
6 Hours @ 150°F**

**You may attach support structure and demold tool after this schedule completed.

POST CURE(*See above)

1 Hour @ 200°F
1 Hour @ 250°F
1 Hour @ 300°F OPTIONAL***
3 Hours @ 350°F → 1 Hour @ 350°F
3 Hours @ 400°F

***Curing at 400°F may sometimes be necessary to condition tool 25°F above required service temperature.

Always allow tools made with ADTECH high temp systems to gel at room temperature before subjecting them to post cure (24 hours is sufficient). This will prevent excessive exotherm and shrinkage from occurring.

When taking tools through a preliminary or post cure phase always place tool in a room temperature oven and increase temperature at a rate of 5°F/minute.

When cooling tools always allow tool to remain in heat environment and decrease temperature at a rate of 10°F/minute. Do not remove tool from heat environment until tool has reached 100°F. Removing tool heated above 100°F can result in thermal shock and warpage.