EL-336
EPOXY LAMINATING SYSTEM
HIGH TEMPERATURE, UNFILLED

PRODUCT BULLETIN

ADTECH Plastic Systems

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DESCRIPTION

EL-336 is an unfilled, non-staining, high temperature epoxy laminating system specifically developed for room temperature hardening (B Stage). The system also possesses high temperature properties for high temperature tooling applications. EL-336 has excellent handling properties and fabric wet-out to produce a void free tool with high dimensional stability. EL-336 can be used in the construction of large or small tools, as well as production parts. EL-336 can also be used with ADTECH High Temperature Surface Coat ES-219. Tools made with EL-336 can be used at continuous temperatures of 320°F (160°C) and intermittent temperatures up to 375°F (191°C). While EL-336 will gel at room temperature, it must be post-cured to achieve ultimate strength. **Typical applications include: vacuum form molds, prototype injection molds, high temperature bonding fixtures, spray metal molds, compression molds, high temperature laminating molds and parts for high temperature applications.**

TYPICAL HANDLING CHARACTERISTICS @ 77°F (25°C)

Mix Ratio (parts by weight)	100R:22H
Mix Ratio (parts by volume)	4.024 R:1H
Specific Gravity	1.14 g/cc
Mixed Viscosity	2000-3000 cps
Work Life (228 gram mass)	35-50 minutes
Demold Time	16-24 hours
Complete Cure	3-5 days
Mixed Color	Amber
Shelf Life Resin and Hardener (in original unopened container)	2 years

TYPICAL PHYSICAL PROPERTIES

6 Layer, 10 Ounce Glass Fabric Laminate:

Tensile Strength	36,620psi (253MPa)
Tensile Modulus	1,850,000psi (12,755MPa)
Flexural Strength	47,190psi (325MPa)
Flexural Modulus	1,820,000psi (12,548MPa)
Tg by DMA	262°F (128°C)

Cast Bar:

Ultimate Compressive Strength	13,390psi (92MPa)
Izod Impact Strength (notched)	7 in-lbf/in
Hardness	88 Shore D
Coefficient of Thermal Expansion (TMA) (ppm/°F (°C))	30 (54)
Tensile Elongation	3%
Glass Transition Temperature (Tg by DMA)	241°F (116°C)
Shrinkage	0.0019 in/in

Tested @ 300°F (149°C) (ASTM D-790)

Ultimate Flexural Strength	7,417psi (51MPa)
Flexural Modulus	530,000psi (3,654MPa)

Product Technical Bulletin Cont.

PRELIMINARY CURE SCHEDULE

On model: Cure for 24 hours @ 77°F (25°C)
+ 2 hours @ 150°F (66°C)

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

POST CURE SCHEDULE

After completing the Preliminary Cure Schedule, complete the following:

2 hours @ 200°F (93°C)
2 hours @ 250°F (121°C)
3 hours @ 300°F (149°C)

HEATING AND COOLING RATES DURING POST CURE

Always allow tools made with ADTECH high temperature systems to gel at room temperature before subjecting them to post cure (24 hours is usually sufficient). This will prevent excessive exotherm and shrink stress from occurring.
When oven curing laminated molds, always place mold in a room temperature oven and increase temperature at a rate of no more than 50°F (30°C) per hour. When heat cure is completed, turn off oven and allow molds to remain in the oven. Never remove mold from oven until mold temperature has been lowered to less than100°F (38°C).

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