



**ES-225
HIGH TEMP
SURFACE COAT
POLISHABLE
ALUMINUM**



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DESCRIPTION

ES-225 is an aluminum filled, epoxy system designed for tool makers. This new high temperature product produces an abrasion resistant surface that can be polished to a high gloss. ES-225 features a fast cure time, modest tack time, excellent brushing characteristics, and inter-layer open time exceeding one hour. This system was developed for use with Adtech casting resins, such as the EC-433 system. **Typical applications include: vacuum form molds, blow molds, autoclave high temperature tolling and bond fixtures.**

HANDLING CHARACTERISTICS @ 77°F/25°C

Mix Ratio (parts by weight).....	100R/9H
Mixed Viscosity (ASTM D-2392)	54,000 cps
Density (ASTM D-792)	14 lbs/gal
Specific Gravity (ASTM D-792).....	1.69 grams/cc
Work Life	25 minutes
Tack Time.....	75 minutes
Demold Time	24 hours
Shelf Life ES-225 Resin (in original unopened containers)	1 year
Shelf Life ES-225 Hardener (in original unopened containers)	2 years

TYPICAL PHYSICAL PROPERTIES (Cast Bar)

Tensile Strength (ASTM D-638).....	8,100 psi
Tensile Modulus (ASTM D-638).....	876,000 psi
Tensile Elongation (ASTM D-638)	1.6%
Flexural Strength (ASTM D-790.92)	15,570 psi
Flexural Modulus (ASTM D-790.92)	570,000 psi
Compressive Strength (ASTM D-695.91)	21,300 psi
Compressive Modulus (ASTM D-695)	256,000 psi
Glass Transition Temperature (Tg by DMA).....	238°F/114°C
IZOD Impact Strength (ASTM D-256).....	8.4 in-lbs/inch
Heat Deflection Temperature @ 66 psi (ASTM D-648.82)	221°F/105°C
Heat Deflection Temperature @ 264 psi (ASTM D-648.82)	208°F/98°C
Hardness (ASTM D-2240).....	88 Shore D
Shrinkage (ASTM D-2566).....	0.0028 in

POST CURE SCHEDULE

PRELIMINARY CURE SCHEDULE

On Model Cure for 24 hours @ 25°C/77°F
+ 2 hours 66°C/150°F

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 @ 93°C/200°F
2 hours @ 121°C/250°F

Install thermocouples to monitor the mold temperature throughout the post cure process.

HEATING AND COOLING RATES DURING POST CURE

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

When oven curing laminated molds, always place the mold in a room temperature oven increasing the temperature at a rate of no more than 13°C/25°F per hour. When finished, allow molds to remain in the heated oven, decreasing the temperature at a rate of no more than 27°C/50°F per hour. Never remove the mold from the oven until temperature has been lowered to less than 38°C/100°F.

Once a mold has been heat cured and conditioned, during the production curing cycles of composite parts you can revert to the heating/cooling rates prescribed for the production pre-preg or two component resin.

ES-225 Tech/Revised 3/9/10
Supercedes 5/23/06