

# Product Bulletin

# CASS POLYMERS

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SC-9001 Registered



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ESR-217-AL  
EPOXY SURFACE COAT REPAIR  
HIGH TEMP - ALUMINUM FILLED

REV: 0302

## DESCRIPTION

ESR-217-AL EPOXY SURFACE COAT REPAIR SYSTEM is designed for use in repairing surface defects and for engineering changes in tools and dies which are cast for high temperature use. ESR-217-AL is a thixotropic paste which is easy to apply, and which hangs up well on vertical surfaces. When cured, ESR-217-AL can be sanded or machined back to the original surface for an undetectable repair. ESR-217-AL is ideal for permanent repairs and engineering changes because of its excellent adhesion.

## USES

Repairs or engineering changes to High Temp Mass Cast tools and dies.

## HANDLING CHARACTERISTICS @ 25°C/77°F

Mix Ratio (parts by weight)	100:9
(parts by volume)	6.49:1
Density (Mixed) (lbs/gallon)	14.69
(lbs/in3)	0.063
Specific Gravity (g/cc)	1.76
Viscosity	
Resin (cps)	>600,000
Hardener(cps)	300,000
Mixed (cps)	thixotropic
Work Life (minutes)	50-60
Tack Free Time (minutes)	60-70
Demold Time (hours)	2-3
Color	
Resin	Gray
Hardener	Amber
Mixed	Gray
Shelf Life (Months - Unopened at 25°C/77°F)	12

## PHYSICAL PROPERTIES

Ultimate Tensile Strength (psi) (ASTM D-638.91)	9,326
Tensile Modulus (psi) (ASTM D-638.91)	1,096,000
Tensile Elongation (psi) (ASTM D-638.91)	1.51
Ultimate Compressive Strength (psi) (ASTM D-695.91)	3,130
Compressive Modulus (psi) (ASTM D-695.91)	283,100
Ultimate Flexural Strength (psi) (ASTM D-790.92)	14,730
Flexural Modulus (psi) (ASTM D-790.92)	1,046,000
CTE (in/in/F)	0.0000116

CONTINUED ON REVERSE

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**PHYSICAL PROPERTIES (CONT.)**

Heat Deflection Temperature @ 66 PSI (°C/°F) (ASTM D-648.82).....	116/240
Heat Deflection Temperature @ 264 PSI (°C/°F) (ASTM D-648.82).....	101/214
Notched Izod Impact Strength (in-lb/ft) (ASTM D-256.93A).....	7.72
Moisture Absorption (%) (ASTM D-570.88).....	0.083
Hardness (Shore D).....	89-91
Shrinkage (in/in).....	0.003

**INSTRUCTIONS FOR CURING ADTECH PLASTIC TOOLING SYSTEMS**

CURE SCHEDULE

Preliminary Cure

- 24 Hours @ 25°C/77°F
- 3 Hours @ 66°C/150°F

You may attach support structure and demold tool after the preliminary schedule is complete.

Post Cure

- 3 Hours @ 121°C/250°F
- 3 Hours @ 177°C/350°F

Insure proper heat curing temperatures are met by installing a thermocouple directly in the center of the tool.

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 or less. Removing tool at temperatures above 100°F can result in thermal shock and warpage.