

TECHNICAL DATA SHEET

EL-325 HTTC

HIGH TEMPERATURE USE COMPOSITE TOOLING COMPOUND LIGHTWEIGHT TOOLING DOUGH

DESCRIPTION

EL-325HTTC is an epoxy "Composite Tooling Compound" designed for the construction of tools, jigs, models and other tooling that will see elevated temperatures. Use of EL-325HTTC allows a considerable time and labor saving in tool construction. The neutral resin and black hardener give a uniform dark gray color when thoroughly mixed that is pliable and can be applied to the tool surface without crumbling or cracking. Tools constructed with EL-325HTTC maintain a very high degree of dimensional stability, are light weight, can be machined as well as drilled and tapped. All of these qualities allow EL-325HTTC to be used in a variety of tooling applications. EL-325HTTC offers the toolmaker a safer alternative to standard high temperature epoxy laminating systems since both resin and hardener are syntactic compounds which minimize splash hazards. EL-325HTTC does not contain MDA or VCHD however, the hardener is corrosive and gloves should be worn when handling.

APPLICATIONS

- *Ideal for lightweight composite sandwich tools and structures*
- *Used for tools, jigs, models and other tool types*

PROPERTIES

- *Colored resin/hardener/mix for improved mixing and color indication*
- *High temperature use*
- *Pliable and formable with no crumbling or cracking when mixed and applied*
- *Machinable and can be drilled and tapped*
- *Low density with high dimensional stability*
- *Very low CTE*
- *Low exotherm build*

PHYSICAL PROPERTIES

PHYSICAL PROPERTIES HANDLING					
Property	Test Method	Unit(s)	EL-325 HTTC Resin	EL-325 HTTC Hardener	Mixed System
Mix ratio – by weight			100	100	100/25
Mix ratio – by volume			100	27	100/27
Aspect			Dough	Dough	Syntactic
Color		Visual	White	Black	Gray
Specific Gravity (25°C)		lbs/in ³ (g/cc)			.023 (.633)
Work Life (400 g) at 77°F (25°C)		Hours			1.5 - 2.0
Demold Time		Hours			12 - 16
Peak Exotherm (1 lb. mass)		°F (°C)			130 (54)

MECHANICAL and THERMAL PROPERTIES ⁽¹⁾ (Cast Bar: 5" x ½" X ½")			
Property	Method	Units	EL-325 HTTC (mixed)
Volumetric weight		lbs/in ³ (g/cc)	.023 (.633)
Hardness	ASTM D2240	Shore D	65 - 70
Flexural Strength	ASTM D790	psi (MPa)	9,600 (66)
Flexural Modulus	ASTM D790	psi (MPa)	540,000 (3,723)
Compressive Strength	ASTM D695	psi (MPa)	4,900 (34)
Coefficient of Thermal Expansion	TMA	ppm/°F (°C)	9 (16)
Heat Deflection Temp. (HDT)	ASTM D648	°F (°C)	425 (218)

⁽¹⁾ The above properties were obtained under laboratory conditions using standardized specimens. Cured 24 hr @ R.T. + 6 hour @ 150°F (65.5°C) + 1 hour @ 200°F (93°C) + 1 hour @ 250°F (121°C) + 1 hour @ 300°F (149°C) + 3 hours @ 350°F (177°C)

Note: It will be necessary to apply a slurry mixture to be used as a bond coat between the laminate and EL-325HTTC Tooling Compound. A slurry mixture is a 50/50 by volume mixture of catalyzed EL-337 high temperature epoxy laminating resin and EL-325HTTC. This slurry helps to insure the strongest bond between laminate and EL-325HTTC tooling compound (a product application guide is available for EL-325HTTC tooling compound applications).

PRELIMINARY CURE SCHEDULE: On Model Cure for 24 hours @ 77°F (25°C) + 6 hours 150°F (66°C) Tool support structure can be attached and tool de-molded after this schedule is completed. (See full post cure schedule)

POST CURE SCHEDULE: After completing the Preliminary Cure Schedule, complete the following: 1 hour @ 200°F (93°C) 1 hour @ 250°F (121°C) 1 hour @ 300°F (149°C) 3 hours @ 350°F (177°C) Thermocouples can be installed to monitor mold temperature throughout the post cure process.

HEATING AND COOLING RATES DURING POST CURE: Allow tools made with EL-325HTTC high temperature tooling compound to cure 24hrs at room temperature before subjecting them to post cure. When oven curing laminated molds, always place mold in a room temperature oven and increase temperature at a rate of 50°F (30°C) per hour. When finished, allow molds to remain in the heated oven, decreasing temperature at a rate of 50°F (30°C) per hour. Never remove the mold from the oven until temperature has been lowered to less than 100°F (38°C)

HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products:

- Ensure good ventilation.
- Wear gloves, glasses and protective clothes.

For further information, please consult the Safety Data Sheets.

STORAGE CONDITIONS

- This product has a shelf life of 24 months for the resin and hardener as indicated by the expiration date on the container when stored in original unopened containers.

PACKAGING

Packaging information on request, please contact your local sales representative or find your local contact on www.sikaadvancedresins.us

LEGAL NOTICE

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