SC 175

Technical Data Sheet
EPOXY MODELING PASTE
Master Models – Plugs – Direct to Mold
Density 39 lbs/ft^3, (0.63 g/cc, 5.2 lbs/gal)

DESCRIPTION

Extrudable epoxy paste for models, tools, and plug production by extrusion process.

PROPERTIES

- *Very good surface aspect.*
- *Good behavior on vertical support up to 1.18 in. (30 mm)*
- *Two hardener color options* (orange and white)
- *Separate resin and hardener colors aid in good mix indication*
- *Application of 1.18 in. (30 mm) in one pass*
- *Maximum of 1.57 (40 mm) applied per pass under optimum conditions*

PHYSICAL PROPERTIES				
	Test Method	Test Result	Test Result	Test Result
Composition		**RESIN**	**HARDENER**	**MIXED**
Mix ratio by weight Mix ratio by volume at 77° (25°C)(nominal)		100 1	100 1	100/100 1/1
Aspect		viscous paste	viscous paste	viscous paste
Color		gray	orange or white	orange or gray
Viscosity at 77°F (25°C) (cPs)	ASTM 2393	3,000,000	3,000,000	3,000,000
Density at 77°F (25°C) (Lbs/gal)	ASTM D792	5.2	5.2	5.2
Specific gravity at 77°F (25°C) (g/cm^3)	ASTM D792	0.63	0.63	0.63

MECHANICAL AND THERMAL PROPERTIES at 74°F (23°C)				
	Test Method	Units	Test Result	Test Result
			7 days at 74°F (23°C)	24 hours at 140°F (60°C)
Hardness	ASTM D2240	Shore D	55	60
Glass transition temperature (Tg) TMA	ASTM E1545	°F/(°C)	131/(55)	181/(83)
Coefficient of thermal expansion TMA	ASTM E1545	$10^{-6}.F^{-1}$ /($10^{-6}.C^{-1}$)	114/(46)	39/(70)
Tensile strength	ASTM D638	Psi/(MPa)	1,000/(6.9)	1,375/(9.5)[1]
Tensile modulus		Psi/(MPa)	114,700/(791)	131,400/(906)[1]
Elongation		%	1.8	2.3[1]
Flexural strength	ASTM D790	Psi/(MPa)	2,025/(14)	2,466/(17)[1]
Flexural modulus		Psi/(MPa)	107,900/(744)	119,700/(825)[1]
Compressive strength	ASTM D695	Psi/(MPa)	1,670/(11.5)	1,900/(13)[1]
Compressive modulus		Psi/(MPa)	6,860/(475)	59,660/(411)[1]
Impact resistance	ASTM D-256-05	ft Lb. f / in/(J/m)	0.124/(6.65)	0.177/(9.45)[1]

[1]12 hours at 140°F (60°C)

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During extrusion, the dispensing nozzle must be maintained perpendicular to the surface on which the product is applied. Ensure overlap of ribbon.

CAUTION: Exotherm mostly depends on the type of machine and on the working parameters such as:

- *Room temperature.*
- *Insulating property of frame.*
- *The mixture temperature (depending on the type of mixer: static or dynamic) and the speed of mixing and output.*
- *Applied thickness.*

EXOTHERMIC PEAK AND HARDENING TIME *				
Thickness In. (mm)	Product temperature °F (°C)	Exothermic peak (hours)	Exothermic peak °F (°C)	Workability (hours)
1.18 (30)	77 (25)	3	158 (70)	24
1.18 (30)	68 (20)	3.5	122 (50)	48

**Room temperature: 68 – 72°F (20 – 22°C); polystyrene support.*

PROCESSING CONDITIONS

On vertical support, it is recommended to apply a thin coat of product with a spatula; this will help to reinforce the bonding on the support.

For ceiling application, we recommend a maximum thickness of 1.18 in. (30 mm).

An elevated temperature cure of 24 hours at 140°F (60°C) after initial room temperature cure is highly recommended to allow the paste to develop its full properties for demanding applications.

(See page 3 for further pumping processing conditions)

HANDLING PRECAUTIONS

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

- *ensure good ventilation,*
- *wear gloves, safety glasses and protective clothes.*

For additional information, please consult the Safety Data Sheet (SDS).

STORAGE CONDITIONS

Use within 6 months of the manufacturing date. Expiration date indicated on the packaging.

DISCLAIMER

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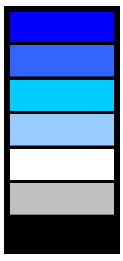
Influence of Flow Rate and Dynamic Mixer Speed on the Temperature of the Mixed Paste

Flow Rate GPM	(lpm)	Dynamic Mixer Speed in RPM										
		1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000
0.26	1.00	81 (27)		84 (29)		88 (31)		93 (34)		99 (37)		104 (40)
0.33	1.25											
0.40	1.50	77 (25)		81 (27)		84 (29)		88 (31)		93 (34)		97 (36)
0.46	1.75											
0.53	2.00	75 (24)		79 (26)		82 (28)		86 (30)		88 (31)		92 (33)
0.59	2.25											
0.66	2.50			75 (24)		81 (27)		84 (29)		86 (30)		90 (32)
0.73	2.75											
0.79	3.00					77 (25)		81 (27)		84 (29)		88 (31)
0.86	3.25											
0.90	3.40							77 (25)		81 (27)		84 (29)

Note 1 Temperatures in cells are actual test values at given rpm and flow rate
Note 2 Initial product temperature 70 - 72°F (21 - 22°C)



Excessive exotherm when applied at any usable thickness
Risk of excessive exotherm when applied at greater than 0.79 inches (20 mm) thick
Risk of excessive exotherm when applied at greater than 1.18 inches (30 mm) thick
Risk of excessive exotherm when applied at greater than 1.38 inches (35 mm) thick
Optimum for dispensing up to 1.57 inches (40 mm) thick
Risk of insufficient mixing

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