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Technical Data Sheet EPOXY MODELING PASTE

Master Models – Plugs – Direct to Mold
Density 67 lbs/ft³ (1.08 g/cc / 8.9 lbs/gal.), Low CTE

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 1.2 in. (30 mm).
- High use temperature
- Low CTE with good dimensional stability

PHYSICAL PROPERTIES

Composition		RESIN	HARDENER	MIXED
Mix ratio by weight		100	100	100/100
Mix ratio by volume at 77° (25°C)		1	1	1/1
Aspect		viscous paste	viscous paste	viscous paste
Color		gray	white	gray
Viscosity at 77°F (25°C) (cPs)	ASTM 2393	9,000,000	7,000,000	7,000,000
Density at 77°F (25°C) (Lbs/gal)	ASTM D792	9.0	8.9	8.9
Specific gravity at 77°F (25°C) (g/cm ³)	ASTM D792	1.08	1.08	1.08
Pot life at 77°F (25°C) on 500 g (min)	-			140

MECHANICAL AND THERMAL PROPERTIES at 74°F (23°C)¹

Applied thickness			1.2 in. (30 mm)	0.6 in. (15 mm)
Glass transition temperature (Tg)	TMA	°F (°C)	160 (71)	129 (54)
24 hrs at 77°F (25°C)			181 (83)	180 (82)
+16 hours at 140°F (60°C) or +16 hours at 176°F (80°C)			192 (89)	196 (91)
Coefficient of thermal expansion (CTE)	ISO 11359 : 1999	10 ⁻⁶ .F ⁻¹ /(10 ⁻⁶ .C ⁻¹)	33 (59)	34 (61)
24 hrs at 77°F (25°C)			29 (53)	33 (59)
+16 hours at 140°F (60°C) or +16 hours at 176°F (80°C)			31 (55)	32 (58)
Hardness	ISO 868 : 2003	Shore D1 (D15)	73 (71)	69 (65)
24 hrs at 77°F (25°C) +16 hours at 176°F (80°C)			75 (74)	75 (74)
Heat deflection temperature	ISO 75 : 2004	°F (°C)	172 (78)	
Tensile strength	ISO 527 : 1993	PSI (MPa)	3,000 (21)	
Tensile modulus	ISO 527 : 1993	PSI (MPa)	348,000 (2,400)	
Elongation at break	ISO 527 : 1993	%	2.2	
Flexural strength	ISO 178 : 2001	PSI (MPa)	5,200 (36)	
Flexural modulus	ISO 178 : 2001	PSI (MPa)	290,000 (2,000)	
Compressive strength	ISO 604 : 2002	PSI (MPa)	5,200 (36)	

¹Average values obtained on standard specimens cured 24 hours at 77°F (25°C) + 16 hours at 176°F (80°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:

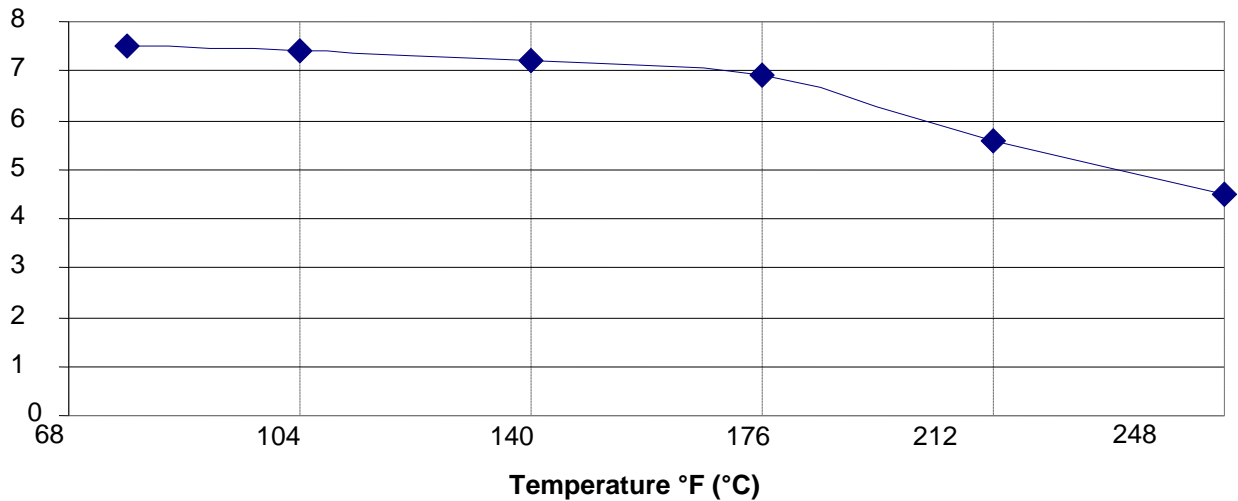
- Room temperature.
- Insulating property of frame.
- The mixture temperature (depending on the type of mixer: static or dynamic) and the speed of mixing and output
- Applied thickness

EXOTHERMIC PEAK AND HARDENING TIME *

Thickness In. (mm)	Product temperature °F (°C)	Exothermic peak (minutes)	Exothermic peak °F (°C)	Workability (hours)
1.2 (30)	84 (29)	140	180 (82)	12
0.6 (15)	84 (29)	140	115 (46)	16

*Room temperature: 77°F (25°C); polystyrene support.

SC 390 Hardness vs. Temperature





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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 1.2 in. (30 mm).

A pre-cure of 16 hours at 104°F (40°C) is recommended before filling shrinkage relief gaps and rough machining. Final postcure temperature and duration are dependent on tool construction and size. Please see note below.

TOOL CONSTRUCTION

The overall stability of a tool is dependent on the size, construction materials, construction techniques, applied paste depth and temperature, and post cure time and temperature. Generally as the tool gets larger the need for increased rigidity of the tool and support structure and closer matching the coefficient of thermal expansion of the materials as well as reducing the maximum post cure temperature need to be evaluated for tool durability. In many instances, equivalent thermal performance can be achieved at a lower post cure temperature for a longer period of time. Please consult Axson for additional information.

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

STORAGE CONDITIONS

Use within 9 months of the manufacturing date. Expiry date indicated on the packaging.

DISCLAIMER

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