

MTB Castable Epoxy

Print & Cast is a thermoset material designed for tooling production with the MTB. The formulation is a mixed Epoxy resin that reaches green strength during the mold-making process, and subsequently reaches its final properties after thermal post cure.

Advantages

- High mechanical properties
- High dimensional stability
- Easy post processing

Properties of Epoxy 120°C

	Method	Metric Units		Imperial Units	
Viscosity of components*		cP	A – 2,000 – 5,000 B – 100 – 200	lbf/ft*s	A – 1.35 – 3.36 B – 0.07 – 0.13
Green Strength time		min @60°C	15	min @140°F	15
Tensile strength*	ISO 527	MPa	33 ± 9	psi	4,786 ± 1,305
Elongation at break*	ISO 527	%	0.3 ± 0.1	%	0.3 ± 0.1
Curing Shrinkage*	-	%	0.2-0.9	%	0.2-0.9
Flexural strength*	ASTM C880	MPa	90 ± 6	psi	13,050 ± 870
Flexural modulus*	ASTM C880	MPa	12,600 ± 1,800	psi	1.8 x10 ⁶ ±0.26x10 ⁶
Glass transition, Tg	ASTM D3418	°C	131	°F	268
HDT* @0.45 MPa	ISO 75/ ASTM D 648	°C	125	°F	257
Izod Impact* (Un-Notched)	ASTM D4812	Kj/m ²	5.6 ± 1.6	Ft-lbf/in ²	3.3 ± 0.8
Thermal expansion, CTE	ASTM D696	1/°C	6.2 ppm @ 0-15°C 126 ppm@100-106°C	1/°F	6.2 ppm @ 32-59°F 126 ppm@212-223°F
Density of mixture	ASTM D792	g/cm ³	1.8	lb/ft ³	112

* All measurements were done on lab specimens of cured material

** Internal lab testing

Storage

The material base-A and hardener-B should be stored in a dry place, in the sealed original container, at temperatures between +2°C and +40°C. Under these storage conditions, the shelf life is 2 years. The product should not be exposed to direct sunlight. Mix well before use!

Mixing Ratio and Post Cure Conditions

Base:Hardener 68:32

The mixture curing time is 24 hrs at room temperature, followed by ramping up the temperature for 2 hrs at 80°C, 2 hrs 100°C and 2 hrs 130°C.

Precautionary Statement

Massivit 3D printing technologies maintains up-to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

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