VFI®-4478 85 D PROTOTYPING POLYURETHANE PLASTIC

VFI-4478 85 D Prototyping Polyurethane Plastic is a premium urethane plastic for use in a reaction injection molding system. It is capable of being backfilled with a urethane foam to create a light and durable part. VFI-4478 is used to make high-end, fire-retardant plastic housings and parts for a variety of industries, including medical, automotive, and aerospace.

- Works in reaction injection molding applications
- Capable of passing the UL 94-V0 test
- Able to be post-processed with a CNC or general milling machine
- Will flash to white and is paintable
- 1A:1B mix ratio by weight

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Shore Hardness	ASTM D2240	85 ± 2 D
Tensile Strength	ASTM D638	10,000 psi
Tensile Modulus	ASTM D638	N/A
Elongation at Break	ASTM D638	22%
Flexural Modulus	ASTM D790	N/A
Izod Impact, Unnotched	ASTM D256	6.4 ft-lb/in
Linear Shrinkage	ASTM D2566	<0.01 in/in
Heat Deflection Temperature (@ 66 psi)	ASTM D648-18	N/A
Flame Test	UL 94-V0	No
Standard Cured Color	N/A	White

LIQUID PROPERTIES	TEST METHOD	TEST RESULTS
Mix Ratio by Volume	N/A	100A:91B
Mix Ratio by Weight	N/A	1A:1B
Weight per Gallon A Side	ASTM D1475	10.28 lb/gal
Weight per Gallon B Side	ASTM D1475	11.33 lb/gal
Mixed Weight per Gallon	ASTM D1475	10.78 lb/gal
Viscosity A Side	ASTM D2196	400 cps
Viscosity B Side	ASTM D2196	5,340 cps
Mixed Viscosity	ASTM D2196	1,200 cps
Pot Life	N/A	15 minutes
Gel Time	N/A	18 minutes
Demold Time	N/A	2-4 hours
Full Cure Time	N/A	7 days

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THICKNESS REQUIREMENTS

To fully cure the part, it cannot be poured or RIM processed less than a quarter inch thick at room temperature. For thinner pours, you must elevate the mold and molding temperature to 115°F.

MOLD PREPARATION

Release agents are recommended for any molding application to extend the life of the mold, and for prototyping urethane molds, it is a requirement. Heated molds are not recommended for this product or any mold over 115°F.

MIXING

The B side (Poly) must be premixed once daily before each use, being careful not to introduce extra moisture or air. The A side (Iso) does not need to be mixed.

Prepare a container that is an appropriate size for degassing. It is recommended to contain at least 2/3 of headspace in order to vacuum degas. Pour measured A side into the container and promptly follow by pouring measured B side into the same container. Mix until uniform by hand or power mixer. Mixing, vacuum degassing, and pouring must all be completed before the end of the pot life.

POST-CURE

After an initial cure of 16 hours at room temperature, heat curing at 150°F for 24 hours will achieve full physical properties. Physical properties at room temperature will be delayed until after 7 days and may not fully develop without post-curing in an oven.

STORAGE/SHELF LIFE

Store between 60°F - 90°F in a clean, dry building. The shelf life of unopened containers is 12 months after the date of manufacture. Once opened, use immediately. If storing after opening, both sides must be nitrogen purged immediately after use.

PRECAUTIONS

This product contains isocyanate, which may irritate the skin and is toxic if inhaled as particulate matter. Avoid prolonged breathing of vapors or repeated skin contact. Use only with adequate ventilation. Do not add foreign material to the product. See Safety Data Sheet for complete safety data.