VFI®-4286 85 D POLYURETHANE CASTING PLASTIC

VFI-4286 85 D Polyurethane Casting Plastic is a high-impact urethane plastic with high heat deflection and tensile strength. This material works well when vacuum-degassed and pressure-potted to provide a repeatable, uniform, void-free cast. It is a multi-faceted plastic capable of being used in rapid prototyping, production parts, and equipment housings for large part runs. VFI-4286 has a working time of 6 minutes. It is capable of passing UL 94 V-0 and can be used to make high-end, fire-retardant plastic parts for a variety of industries, including medical, automotive, and aerospace.

- Usable in platinum-cured silicone, metal, or prototyping urethane molds
- High heat deflection temperature (HDT) at 205°F (96.1°C)
- Neutral color for easy priming and top coat application
- Excellent processing and demold times at 1-2 hours
- Non-mercury based, TDI-free, MOCA-free, odorless polymer
- Non-filled fire-retardant material

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Hardness Shore D	ASTM D 2240	85 D
Tensile Strength	ASTM D 638	10,500 psi
Tensile Modulus	ASTM D 638	383,000 psi
Elongation	ASTM D 412	13%
Flexural Strength	ASTM D 790	16,000 psi
Flexural Modulus	ASTM D 790	392,000 psi
Shrinkage Linear (12" x 1/2" x 1/2")	ASTM D 2566	<0.0100 in/in
Izod Impact, Notched	ASTM D 256	2ft-lb/in
Heat Deflection Temperature (@ 66 psi)	ASTM D 648	205°F

LIQUID PROPERTIES	TEST METHOD	TEST RESULTS
Specific Gravity A Side	ASTM D 1475	1.15 g/mL
Specific Gravity B Side	ASTM D 1475	1.08 g/mL
Mixed Specific Gravity	ASTM D 1475	1.13 g/mL
Liquid Density A Side	ASTM D 2939	10.13 lbs/gal
Liquid Density B Side	ASTM D 2939	8.98 lbs/gal
Ratio by Volume (A:B)	N/A	177.26A:100B
Ratio by Weight (A:B)	N/A	2A:1B
Viscosity A Side (cps @ 77°F)	ASTM D 2196	120 cps
Viscosity B Side (cps @ 77°F)	ASTM D 2196	800 cps
Mixed Viscosity (cps @ 77°F)	N/A	500 cps
Pot Life (150g mass @ 77°F)	N/A	6 min
Gel Time (150g mass @ 77°F)	N/A	7 min
Demold	N/A	2 hr

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THICKNESS REQUIREMENTS

To create the necessary exotherm to fully cure the part, it cannot be poured 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

Using release agents is recommended for any molding application to extend the life of the mold, and for prototyping urethane molds, it is a requirement. Heated molds or any mold over 120°F are not recommended because it will cause an uneven cure.

MIXING

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

Prepare a container that is an appropriate size with at least 2/3 of head space for vacuum degassing. Pour the measured A side into the container, and promptly follow by pouring the measured B side into the same container. Mix the material 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 at room temperature for 16 hours, a heat cure at 150°F for 24 hours is recommended to 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.

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