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 that can be easily primed and top coated
- 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
Shore Hardness	ASTM D2240	85 D
Tensile Strength	ASTM D638	10,500 psi
Tensile Modulus	ASTM D638	383,000 psi
Elongation at Break	ASTM D638	13%
Flexural Modulus	ASTM D790	392,000 psi
Izod Impact, Notched	ASTM D256	2 ft-lb/in
Izod Impact, Unnotched	ASTM D256	N/A
Linear Shrinkage	ASTM D2566	<0.01 in/in
Heat Deflection Temperature (@ 66 psi)	ASTM D648-18	205°F ± 2°F
Flame Test	UL 94-V0	No
Standard Cured Color	N/A	Off White

LIQUID PROPERTIES	TEST METHOD	TEST RESULTS
Mix Ratio by Volume	N/A	177.26A:100B
Mix Ratio by Weight	N/A	2A:1B
Weight per Gallon A Side	ASTM D1475	10.16 lb/gal
Weight per Gallon B Side	ASTM D1475	9.00 lb/gal
Mixed Weight per Gallon	ASTM D1475	9.75 lb/gal
Viscosity A Side	ASTM D2196	120 cps
Viscosity B Side	ASTM D2196	800 cps
Mixed Viscosity	ASTM D2196	500 cps
Pot Life	N/A	6 minutes
Gel Time	N/A	7 minutes
Demold Time	N/A	2 hours
Full Cure Time	N/A	7 days

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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

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 120°F because it will cause an uneven cure.

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.