VFI®-178 90 A POLYURETHANE CASTING RUBBER

VFI-178 90 A Polyurethane Casting Rubber is a fast-setting urethane rubber with good rebound properties. The urethane's viscosity allows for easy processing when pouring or injecting and the creation of larger castings that maintain final properties. VFI-178 has superior tensile strength, tear strength, and elongation, providing castings with increased durability and resilience. With a high amine content, the rubber provides good chemical resistance and low-temperature flexibility for extended use of a mold or part. The material's fast setting capabilities allow for a quick demold time that increases part production.

- Excellent physical properties for making industrial parts and prototypes
- Highly durable, versatile urethane with good rebound properties
- 1:1 mix ratio for easy processing and to avoid costly off-ratio mixes
- Room temperature cure eliminates the need for post curing
- Great chemical resistance and low-temperature flexibility

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Hardness Shore A	ASTM D2240	91 A
Tensile Strength	ASTM D412	2,711 psi
Elongation	ASTM D412	630%
Tear Strength	ASTM D624	408 pli
Yield Strength	N/A	812 psi
Elastic Modulus	N/A	3,821 psi
Permanent Set	N/A	32%
Shrinkage	N/A	0.50%

LIQUID PROPERTIES	TEST METHOD	TEST RESULTS
Solids by Weight	ASTM D1644	100%
Solids by Volume	ASTM D2697	100%
Mixed Liquid Density	ASTM D2939	9.00 lbs/gal
Specific Gravity A Side	N/A	1.09 g/mL
Specific Garvity B Side	N/A	1.08 g/mL
Mixed Specific Gravity	N/A	1.08 g/mL
Ratio by Volume (A:B)	N/A	1A:1B
Viscosity A Side	ASTM D2196	1,200 cps
Viscosity B Side	ASTM D2196	1,250 cps
Gel Time	N/A	3.5 minutes
Demold Time	N/A	20 minutes
Full Cure	N/A	10 days
VOC	N/A	0

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THICKNESS REQUIREMENTS

There is no limit to thickness when using VFI-178, but if you are pouring or injecting less than 1/16th of an inch thick, you will have to post-cure the material. When casting by hand, pour the material into a single spot at the lowest point of the mold.

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 open, use immediately, but if storing after opening, both sides must be nitrogen purged.

MOLD PREPARATION

All surfaces must be clean and free of dirt, debris, and oils that could contaminate the material. When demolding, the surface must be sealed with a release agent. A release agent will help extend the life of the mold and prevent unwanted adhesion. Compatible molds for casting include urethane and metal when properly prepared. The material can be used with platinum silicone molds but will create a surface tack, so it must be removed from the silicone mold and post-cured. You may heat the mold between 70°F-150°F to accelerate the cure process and achieve a quicker demold. However, heating the mold will shorten the pot life.

MIXING

Premix the B side (Poly) until uniform before combing with the A side (Iso). We recommend injecting this material due to the short work time, but it can also be hand poured. When pouring by hand, pour the weighed B side into the weighed A side and mix until uniform. You may mix smaller amounts by hand, but we recommend using a power mixer if you are using over ½ a gallon of material. Transfer the material into a new container and mix again until uniform. The material must be fully mixed and used before the duration of the pot life, which will shorten at temperatures above 72°F.

POST-CURE

Allow the material to cure for at least 20 minutes at room temperature before demolding. Thinner pours will need more time to cure to develop the necessary green strength to demold. VFI-178 will reach full physical properties after 10 days. To achieve final properties faster, the material can be post cured in an oven at 150°F for 16 hours. Silicone molds must be post-cured at room temperature for one day or at 150°F in an oven for 2 hours to remove surface tack.

PRECAUTIONS

VFI-178 contains isocyanate, which is irritating to the skin and toxic if inhaled. Avoid prolonged breathing of vapors and repeated skin contact. Use only with adequate ventilation. Do not thin or add foreign material to the product. The material is not UV color stable and has no long-term UV testing. It is sensitive to moisture and cannot be cross mixed with other materials. See Safety Data Sheet for complete safety instructions.

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