VFI®-4690 90 A MDI CASTING ELASTOMER

VFI-4690 90 A MDI Casting Elastomer is a 1A:2B by volume, cold-castable urethane with high durability to make strong, abrasion-resistant parts and molds. It is best cast in room-temperature-controlled, high-production environments with little moisture interaction. The material maintains a workable viscosity for easy processing, allowing you to cast intricate parts or large parts quickly. Its viscosity also helps dissipate air bubbles without using a vacuum chamber. With a 4-hour demold time, parts can be demolded the same day for increased part production. VFI-4690 can be used to make industrial parts, prototypes, and more.

- Superior physical properties for making parts and molds
- Moderate viscosity for casting intricate parts or large parts quickly
- Easy processing at room temperature
- Does not need to be freeze-protected for shipments
- Neutral color capable of being pigmented and colored as needed

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Shore Hardness	ASTM D2240	88-93 A
Tensile Strength	ASTM D412	1,480 psi
Elongation at Break	ASTM D412	420%
Tear Strength (Die C)	ASTM D624	180 pli
Shrinkage (12" x 1/2" x 1/2")	ASTM D2566	<0.0010%
Standard Color	N/A	Neutral

LIQUID PROPERTIES	TEST METHOD	TEST RESULTS
Mix Ratio by Volume	N/A	1A:2B
Mix Ratio by Weight	N/A	56.1A:100B
Weight per Gallon A Side	ASTM D1475	9.76 lb/gal
Weight per Gallon B Side	ASTM D1475	8.63 lb/gal
Mixed Weight per Gallon	ASTM D1475	9.01 lb/gal
Specific Volume	N/A	25.64 in^3/lb
Viscosity A Side (cps @ 77°F)	ASTM D2196	5,500 cps
Viscosity B Side (cps @ 77°F)	ASTM D2196	1,060 cps
Mixed Viscosity (cps @ 77°F)	ASTM D2196	2,050 cps
Pot Life (150g mass @ 77°F)	N/A	6 minutes
Gel Time (150g mass @ 77°F)	N/A	10 minutes
Demold Time @ 77°F	N/A	4 hours
Full Cure Time	N/A	7 days

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THICKNESS REQUIREMENTS

Cast the liquid elastomer in one spot at the lowest point of the mold until it is filled.

MOLD PREPARATION

The mold must be clean, dry, and free of dirt, oils, and debris. The elastomer is compatible with most molds as long as the mold is sprayed with a proper release agent to prevent adhesion. We recommend Chem-Trend MR-515 Aerosol or a similar release agent. Spray several layers over the entire mold, waiting for the surface to dry before adding more. The release will help protect and extend the life of the mold and allow the part to release easily. However, spraying too much release on the mold can produce a shiny/glossy surface on the cured elastomer.

MIXING

The material should be at least 65°F before use for proper mixing and application. Mixing times may vary depending on volume and mixing method. Vacuum degassing can further reduce air entrapment to achieve bubble-free parts, but it is not required.

Thoroughly mix the POLY "B" component before mixing with the ISO "A" component. Usually, this takes a minimum of 3 minutes per "B" container with proper mixing equipment. Power mixing or meter mixing equipment is recommended for quantities over 1 gallon. Once the "B" component is thoroughly mixed, properly pour 1 part of the "A" component into 2 parts of the "B" component by volume, 56.1 parts "A" component into 100 parts "B" component by weight. Thoroughly mix for at least 30 seconds while scraping the sides and bottom of the container, ensuring the mix is uniform and homogeneous. Transfer to a separate, clean mixing container and mix again before use.

POST-CURE

Allow the cast part to sit in the mold at room temperature for a minimum of 4 hours before demolding. It will develop full physical properties after 7 days at room temperature. It is required that the part sit for 3 days at room temperature before use or shipping.

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. VFI-4690 does not need to be freeze-protected, and if it has frozen, bring it up to 65°F before use. Once open, use it immediately. If you plan to store open containers after use, we recommend sealing both sides with a nitrogen purge; otherwise, the pot life will be greatly reduced.

PRECAUTIONS

This product contains isocyanate, which can irritate the skin and is toxic if inhaled as particulate matter. Avoid prolonged breathing of vapors and repeated skin contact. It is not UV color stable and has no long-term UV testing. Urethane is moisture-sensitive and may foam when exposed to too much moisture, so use VFI-4690 in a controlled, high-production environment to limit moisture interaction. Use only with adequate ventilation. Do not thin or add foreign material to the product. See the Safety Data Sheet for complete safety information.