

VFI®-1678 80 D INJECTABLE PLASTIC

VFI-1678 80 D Injectable Plastic is a fast-setting, highly durable urethane plastic with a quick demold time to increase part production rates. With a good viscosity for injecting, this material is able to fill molds with little to no air entrapment during the manufacturing process. A high amine content provides the plastic with good temperature stability and chemical resistance, allowing it to be used in a variety of industrial part-making and prototyping applications. Depending on need, VFI-1678 can produce a smooth, glossy or matte finish that is fully paintable when primed or sanded.

- Superior physical properties ideal for industrial part making and prototyping
- High amine content offers good temperature stability and chemical resistance
- Ultra-easy 1A:1B formulation helps to eliminate costly off-ratio mixes
- Room temperature cure without the need for post-curing
- Fast setting for quicker demold times to increase part production rates
- Fully cured castings are tough, durable, and easily paintable

PHYSICAL PROPERTIES

| | TEST METHOD | TEST RESULTS |
|--|--------------|---------------|
| Shore Hardness | ASTM D2240 | 77 D |
| Tensile Strength | ASTM D638 | 6,660 psi |
| Tensile Modulus | ASTM D638 | 321,000 psi |
| Elongation at Break | ASTM D638 | 10% |
| Flexural Modulus | ASTM D790 | 286,000 psi |
| Izod Impact, Notched | ASTM D256 | 38.5 ft-lb/in |
| Linear Shrinkage | ASTM D2566 | <0.010 in/in |
| Heat Deflection Temperature (@ 66 psi) | ASTM D648-18 | N/A |
| Flame Test | UL 94-V0 | No |
| Standard Cured Color | N/A | Neutral |

LIQUID PROPERTIES

| | TEST METHOD | TEST RESULTS |
|--------------------------|-------------|--------------|
| Mix Ratio by Volume | N/A | 1A:1B |
| Mix Ratio by Weight | N/A | 100A:88.49B |
| Weight per Gallon A Side | ASTM D1475 | 10.08 lb/gal |
| Weight per Gallon B Side | ASTM D1475 | 9.08 lb/gal |
| Mixed Weight per Gallon | ASTM D1475 | 9.58 lb/gal |
| Viscosity A Side | ASTM D2196 | 550 cps |
| Viscosity B Side | ASTM D2196 | 750 cps |
| Mixed Viscosity | ASTM D2196 | N/A |
| Pot Life | N/A | N/A |
| Gel Time | N/A | 1 minute |
| Demold Time | N/A | 5 minutes |
| Full Cure Time | N/A | 3 days |

MANUFACTURER OF HIGH-PERFORMANCE POLYMERS
Toll-Free 800-307-9218 | www.volatilefree.com | info@volatilefree.com

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THICKNESS REQUIREMENTS

VFI-1678 does not have a thickness limit, but if the injected part exceeds 5 pounds, we recommend using a different material with a longer working time.

MOLD PREPARATION

The molding surface should be clean and free of oil, dirt, or debris. Seal and release any porous surfaces. A release agent should be used for demolding and to extend the life of the mold. You may heat the mold between 70°F-150°F before injecting for a quicker demold. However, heating above 72°F will also shorten the pot life of the material. Compatible molds include urethane, metal, and platinum silicone when properly prepared.

MIXING

The material should be brought to a minimum temperature of 65°F before use. Premix the B side material (Poly) until uniform. With a short pot life, the recommended application method is to inject the material. A proportioner is required to inject the material into a mold. There is not enough time to vacuum degas the material.

POST-CURE

The casting can be demolded after 5 minutes at room temperature if injected greater than 1/8 of an inch thick or 10 minutes if less than 1/8 of an inch. Thinner sections or parts may require a longer cure time in the mold. After demolding, allow the material to fully cure at room temperature outside the mold for at least 16 hours. Full physical properties can be achieved in 3 days without post-curing.

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 it immediately. Both sides must be nitrogen purged to store after opening.

PRECAUTIONS

VFI-1678 contains isocyanate that may irritate the skin and is toxic when inhaled as particulate matter. Avoid prolonged breathing of vapors and repeated skin contact. Use only with adequate ventilation. Do not thin or add foreign material to the product. This product is not UV color stable and has no long-term UV testing. For complete UV stability, it will require a UV-stable topcoat. See Safety Data Sheet for complete safety instructions.