

VFI®-5100 RIGID POLYURETHANE FOAMS

The VFI-5100 Series of rigid foams are two-component, water-blown, expanding polyurethane foams available in different densities pounds per cubic foot (PCF). Rigid foams have good compression strength and can be hand poured or used in a machine injection system. With a slow initial rise and a fast cure speed, the foams have a generous work time while allowing parts to be demolded within the same day for a quick return to service. These rigid foams help decrease the cost of producing plastic parts and are machinable. VFI-5100 Series can be used to make parts and shapes for manufactured stone, precast, artificial replication, prototyping, and other industrial applications. VFI offers formulas in fast (VFI-5103-5120) and slow (VFI-5153-5170) speeds depending on application needs.

- Works as a lightweight casting, void filling, or backfilling material
- Provides a uniform surface that can be sanded, painted, or top coated
- Convenient 1:1 mix ratio by volume for quick and easy application
- Fast demold time for a quick turnaround on parts
- Slower foam speeds allow for easy pouring of larger castings or parts

Product Name	Approx. Poundage	A:B Mix Ratio by Weight	Mixed Viscosity ASTM D2393	Specific Gravity ASTM D1475	Pot Life Cream Time	Handling Tack Time	Approx. Volumetric Expansion	Compression at Yield	Liquid Density #/gal	Approx. Rise Time
VFI-5103	3 lb/ft ³	100A:84.12B	750 cps	1.13	1:00 min	5:30 min	23.64	35	9.48	4:30 min
VFI-5104	4 lb/ft ³	100A:85.12B	750 cps	1.14	1:00 min	5:30 min	17.82	65	9.53	4:00 min
VFI-5105	5 lb/ft ³	100A:85.17B	750 cps	1.14	1:00 min	5:30 min	14.27	85	9.54	4:00 min
VFI-5106	6 lb/ft ³	100A:85.18B	750 cps	1.14	1:00 min	5:30 min	11.89	110	9.54	4:00 min
VFI-5108	8 lb/ft ³	100A:85.26B	750 cps	1.14	1:00 min	5:30 min	8.92	165	9.54	3:30 min
VFI-5110	10 lb/ft ³	100A:85.36B	750 cps	1.14	1:00 min	5:30 min	7.14	235	9.55	3:00 min
VFI-5115	15 lb/ft ³	100A:85.38B	750 cps	1.14	1:00 min	5:30 min	4.76	505	9.55	3:00 min
VFI-5120	20 lb/ft ³	100A:86.38B	750 cps	1.14	1:00 min	5:30 min	3.58	935	9.58	3:00 min
VFI-5153	3 lb/ft ³	100A:86.34B	1850 cps	1.14	1:30 min	20:00 min	23.63	35	9.48	7:00 min
VFI-5154	4 lb/ft ³	100A:88.07B	1850 cps	1.12	1:30 min	20:00 min	17.82	45	9.37	6:30 min
VFI-5155	5 lb/ft ³	100A:89.09B	1850 cps	1.13	1:30 min	20:00 min	14.27	60	9.42	5:45 min
VFI-5156	6 lb/ft ³	100A:90.17B	1850 cps	1.12	1:30 min	20:00 min	11.89	80	9.36	6:45 min
VFI-5158	8 lb/ft ³	100A:90.19B	1850 cps	1.12	1:30 min	20:00 min	8.91	120	9.36	7:00 min
VFI-5160	10 lb/ft ³	100A:90.21B	1850 cps	1.12	1:30 min	20:00 min	7.14	165	9.36	6:30 min
VFI-5165	15 lb/ft ³	100A:91.09B	2200 cps	1.12	1:30 min	20:00 min	4.76	325	9.32	6:30 min
VFI-5170	20 lb/ft ³	100A:91.09B	2200 cps	1.12	1:30 min	20:00 min	3.58	825	9.32	7:00 min

**Unless otherwise specified: Cure time is 2 hours; Color is beige/yellow; A:B mix ratio by volume is 1:1*



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MOLD PREPARATION

Porous materials must be sealed and released to prevent unwanted adhesion. Porous molding surfaces such as wood, natural stone, and concrete must be sealed and released to prevent unwanted adhesion. Molds must be dry and should be coated with a release agent to extend the life of the mold. Spray a uniform layer of release across the entire surface and wait for it to dry before adding more.

The mold should be strong enough to hold shape when subject to packing pressure. Some rubber molds may require a stiffer outer mold, as the expanding foam may push and deform the mold if it is not rigid enough. A cold mold will provide less expansion and a less uniform skin on the foam, so the mold should be heated to at least room temperature. You can use heated molds up to 120°F, but heating the mold past 72°F will decrease the pot life. Compatible molds for casting include metal, urethane, and platinum silicone, with a release agent recommended.

MIXING

The material, mold, and work area should be at least room temperature for the best results. Before combining the Poly (B side) and Iso (A side), the B side must be premixed until uniform. Fast and slow rigid foams should be mixed with a drill or power mixer. Pour the measured B side into the measured A side and mix rapidly, moving the mixer through the center until uniform. Transfer the mixture to a new container and mix again before use. The material must be completely mixed before cream time (initial rise), which will vary the mixing time.

POURING & CURING

Once mixed, the material should be poured immediately into a mold or form. Pour in one spot at the lowest point of the mold and allow space for the foam to expand. Do not overload foam into closed molds to prevent distortion. Avoid scraping material from the container, as the material may not be totally mixed, and the foam may begin to expand before you are done pouring.

Avoid moving the foam as it rises since movement could cause cells to collapse. Allow castings to remain in the mold or form until fully cured to prevent deformation. Demold time will vary based on material volume, temperature, mold type, etc. Thinner pours may require a longer cure time.

CLEANUP

Use xylene or MEK to clean application equipment before foam cures. If the foam has cured, you can break it off the surface and wipe the rest off with xylene.

STORAGE/SHELF LIFE

VFI-5100 Series rigid foams should be stored in a clean, dry building between 60°F - 90°F. As a water-based material, the Iso (A side) must be protected from freezing and kept above 60°F. The shelf life is 12 months from the date of manufacture. Opened containers can be resealed with a nitrogen purge immediately after use.

PRECAUTIONS

The VFI-5100 Series is not UV color stable and has no long-term UV testing. The A side material contains isocyanate, which causes skin irritation and is toxic when inhaled as particulate matter. The material must be protected from freezing. Wear proper personal protective equipment to 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 information and follow all precautions/directions.