

VFI®-6185 80 D MACHINABLE HARD COAT

VFI-6185 80 D Machinable Hard Coat is a 1A:5B by volume, two-component, trowelable polyurethane coating. It is applied to EPS foam to create a durable, hardened surface that can be sanded, machined, or CNC'd. When machined, the coating can be used for advanced shaping, fine detailing, and complex geometries on precast forms and theming applications. VFI-6185 offers an extended pot life for improved workability on larger projects and can be applied vertically without sagging. It can be painted to achieve a desired finish or aesthetic.

- Sands easily and machines smooth without gumming up tooling and equipment
- Machinable for creating intricate designs on forms or theming applications
- Long pot life and recoat window for improved workability on large projects
- Convenient trowel-on application with no need for large, expensive spray equipment
- High rigidity with the ability to flex for molding applications

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Shore Hardness	ASTM D2240	80 D
Tensile Strength	ASTM D412	1,930 psi
Tensile Modulus	ASTM D412	N/A
Elongation at Break	ASTM D412	9.80%
Flexural Strength	ASTM D790	N/A
Flexural Modulus	ASTM D790	N/A
Abrasion Resistance	ASTM D4060	N/A
Impact Resistance (Notched Izod)	ASTM D256	0.53 ft-lb/in
Weathering	N/A	Not UV Stable
Standard Color	N/A	Neutral
Class A Fire Testing	ASTM E84	Yes

LIQUID PROPERTIES	TEST METHOD	TEST RESULTS
Solids by Volume	ASTM D2697	100%
Mix Ratio by Volume	N/A	1A:5B
Mix Ratio by Weight	N/A	17.98A:100B
Weight per Gallon A Side	ASTM D1475	10.26 lb/gal
Weight per Gallon B Side	ASTM D1475	11.24 lb/gal
Viscosity A Side	ASTM D2196	200 cps
Viscosity B Side	ASTM D2196	3,000,000 cps
Pot Life	N/A	12-16 minutes
Tack-Free Time	N/A	30 minutes
Cure to Handle	N/A	24 hours
Recoat Window	N/A	12 hours
Full Cure Time	N/A	2-3 days
Volatile Organic Compounds	N/A	0

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THICKNESS REQUIREMENTS

To develop a uniform film over the surface for machining, apply the coating at a minimum of 3/8 - 1/2 inch. If subsequent coats are needed, they can be applied up to 12 hours after the initial application. The final thickness after machining cannot be lower than 1/8 of an inch; otherwise, the coating will be too brittle.

EQUIPMENT

VFI-6185 can be applied to a prepped substrate with a trowel or putty knife.

SURFACE PREPARATION

Surfaces should be clean and free of oils, dirt, debris, or other contaminants. Additional sanding prep may be required, depending on the surface.

- EPS foam – The foam must be aged for at least 30 days to allow any gas to escape from the manufacturing process. We recommend using 2 PCF foam for an optimal cost-to-quality ratio, but 1-3 PCF is acceptable. Ensure that the surface is clean and dry before you begin applying.
- HDPU foam – High density polyurethane foam does not need to be aged before application, but the surface must be machined and sanded. Ensure the foam is clean and dry before you begin applying.
- Existing hard coat – Sand and/or prime surfaces before application to ensure adequate adhesion.

MIXING

Mix times will vary depending on material volume and mixing method. A paddle or helix mixer is recommended for the full mix, but smaller quantities can be mixed by hand with a gallon paint stick. The pot life can be extended by mixing smaller quantities.

Thoroughly mix the POLY “B” component before mixing with the ISO “A” component. Whether you measure by weight or volume, pour the Iso into the Poly since it is easier to pour the lower quantity into the larger. Pour 1 part of “A” component into 5 parts of “B” component by volume, 17.98 parts “A” component to 100 parts “B” component by weight. Mix the two until uniform, then transfer to a new container and mix until uniform again before use. VFI-6185 must be fully mixed and used before the pot life ends.

POST-CURE

For proper adhesion, the temperature must stay between 50°F - 100°F during application. After the material cures, it can be sanded or machined. It is machinable the next day but will need to sit at room temperature for 2-3 days to obtain full physical properties. If there are any air gaps present on the surface after post-processing, they can be filled with more VFI-6185 and sanded smooth the next day. It can also be painted with architectural or automotive paint to improve the aesthetics of the piece for theming purposes.

CLEANUP

Tools and equipment used to apply VFI-6185 can be cleaned with xylene, MEK, or mineral spirits.

STORAGE/SHELF LIFE

The shelf life of unopened containers is 12 months after the date of manufacture. Store the product between 60°F - 90°F in a clean, dry building. Once open, use it immediately. After opening, it is possible to store unused material by nitrogen purging both containers immediately after use.

PRECAUTIONS

VFI-6185 is not a UV color-stable product and has no long-term UV testing. If applied to a surface meant for outdoor use, it must be top-coated. Isocyanate in the A side may be irritating to the skin and toxic if inhaled. Avoid prolonged breathing of vapors or repeated skin contact. Use only with adequate ventilation. Do not thin or add foreign material to this product. See the Safety Data Sheet for complete safety instructions.