VFI®-6170 70 D SPRAY HARD COAT

VFI-6170 70D Spray Hard Coat is a fast-setting, two-component, spray-applied polyurethane coating for theming and industrial design. When sprayed thick, the coating provides a durable, protective shell-like layer over structural shapes, 3-D sculptures, or other entertainment props primarily made with EPS foam. It is meant to be used by trained professionals familiar with high-pressure spray equipment. VFI-6170 is great for interior applications where Class A fire testing is necessary. The coating cures in seconds, so it can be sanded and painted shortly after spraying to achieve the desired finish and aesthetic.

- Provides fine detailing and less sag on verticals for theming designs and fabrication
- Provides a highly rigid surface that is resistant to impacts
- Can be easily sanded to create a desirable finish to paint over and improve aesthetics
- Meets strict indoor and outdoor fire safety requirements through ASTM E84
- Cures to touch in 20 seconds and cures to handle in 2-3 minutes

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Shore Hardness	ASTM D2240	70 D
Tensile Strength	ASTM D412	3,600 psi
Tensile Modulus	ASTM D638	120,000 psi
Elongation at Break	ASTM D412	10%
Flexural Strength	ASTM D790	4,700 psi
Flexural Modulus	ASTM D790	125,000 psi
Abrasion Resistance	ASTM D4060	N/A
Impact Resistance (Falling Dart, EPS backing)	ASTM D1709	<6 in•lb
Weathering	N/A	Not UV Stable
Linear Shrinkage	N/A	N/A
Heat Deflection Temperature	ASTM D648	N/A
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:1B
Weight per Gallon A Side	ASTM D1475	9.86 lb/gal
Weight per Gallon B Side	ASTM D1475	9.77 lb/gal
Viscosity A Side	ASTM D2196	1,000 cps
Viscosity B Side	ASTM D2196	3,000 cps
Gel Time	N/A	N/A
Tack Free Time	N/A	20 seconds
Cure to Handle	N/A	2-3 minutes
Recoat Window	N/A	20 minutes
Full cure Time	N/A	3 days
Volatile Organic Compounds	N/A	0

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THICKNESS REQUIREMENTS

Apply an average of 40-80 mils to the surface to create a uniform film that protects the piece. If the finished piece is to be placed on the ground or in a high-traffic area, 60-120 mils is required to increase impact resistance. If more coats are needed, apply them within the 20-minute recoat window. Adhesion issues may occur past 20 minutes, but applying a primer can help generate adhesion.

EQUIPMENT

VFI recommends a high-pressure, plural component spray rig run at 150°F-155°F and 2,500 psi of constant pressure with high-pressure heated hoses and 10 ft whip hoses. Gun tips vary by project and will need to be adjusted on-site. The following machines are capable of meeting these specifications:

- Graco A-XP1 air sprayer, Graco Reactor 2 E-XP2 electric sprayer, or Graco Reactor 2 H-XP2/XP3 hydraulic sprayers provide up to 3,500 psi of constant pressure and temperatures between 170°F-190°F with varying gal/min output and hose sizes, depending on the equipment chosen. Use with any Probler P2 or Fusion gun.
- PMC PHX-2 or 25 hydraulic sprayers, ideal for small or medium-scale applications, provide up to 3,000 psi of constant pressure and 190°F with outputs just under 2 gal/min and 210-410 ft hoses. Use with the AP-2 Air Purge, PX-7 Mechanical Purge, or Xtreme Spray Gun.

SURFACE PREPARATION

- EPS – The foam must be aged for at least 30 days so any gas can escape. We recommend using non-recycled EPS bead 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 spraying.
- Wood – The wood should be dry and contain less than 11% moisture; otherwise, it should be primed or mist-coated (a light dusting followed by the main application of the coating).

MIXING

Bring VFI-6170 to a minimum temperature of 65°F and premix the Poly (B side) components before use. The time it takes to mix the product until it is uniform will depend on the mixing method and the volume of the product. The A side does not need to be premixed.

APPLICATION & CLEANUP

Make sure the surface and ambient temperatures stay between 40°F - 100°F. Once cured, VFI-6170 must be top-coated with paint or an equivalent coating for protection from UV rays. The object can be moved within the first hour of spraying, but requires extra care until full cure, which could take up to 3 days. After application, clean your tools and spray equipment with xylene or MEK. We recommend flushing VFI-8005 Pump Flush through spray lines to prevent material from clogging the equipment.

STORAGE/SHELF LIFE

The material shelf life is 12 months from the date of manufacture. Store in a dry, temperature-controlled space in unopened containers between 60°F - 90°F. Once open, use it immediately and reseal containers with a nitrogen purge. Moisture contamination can occur in both sides if you don't nitrogen purge the material. Moisture may create a hardened film over and in the A side (Iso). If there is moisture contamination within the B side (Poly), it will cause pinholes and foaming once mixed and sprayed. VFI-8403 Dryer can be used to reduce undesired effects in the B side.

PRECAUTIONS

This product contains isocyanate, which can be irritating to the skin and toxic if inhaled. Avoid prolonged breathing of vapors and repeated skin contact. When spraying, use a supplied air respirator or respirator with forced air ventilation in a chemically approved spray booth. Do not thin or add foreign material to the product. See the Safety Data Sheet for all safety information.