FlexTain™
Polyurea Sprayed Geotextile
Technical Data Sheet

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Selection and Specification Data

Description

VersaFlex FlexTain™ is a pre-sprayed composite panel system comprised of non-woven polypropylene geotextile and a 100% solids polyurea membrane system. FlexTain may be used by itself or in combination with other materials to produce wearing courses and resilient surfaces on a variety of substrates. FlexTain membrane panel systems are designed to provide a seamless, monolithic membrane once the panels are seamed together with the polyurea membrane. FlexTain panel systems are relatively moisture and temperature insensitive, allowing installation in the most problematic ambient conditions. Standard FlexTain panels utilize a 10 oz. geotextile to ensure durability and protect against handling damage. The standard 15' X 50', 750 square foot panels weigh approximately 300 pounds and can be conveniently moved and handled by the field crew. The approximate 4" – 6" seaming edge strips provide sufficient overlap to allow quality installation even in the most challenging geometries.

Typical Uses

- Secondary Containment
- Penetrations & Terminations
- Industrial Facilities
- Unsalvageable Concrete Substrates
- Below Grade Waterproofing
- Above Grade Waterproofing
- Water & Wastewater Treatment

Color & Stability (Limitations)

Standard colors are Tan and Shale Green. Other colors are available upon request. FlexTain is produced with an aromatic based polyurea. Discoloration from exposure to ultraviolet light may occur, however the physical properties are unaffected.

Ensure the VersaFlex **FlexTain** panel rolls remain covered and protected from weather until ready for installation.

Physical Properties (Typical)

Cured Composite Film	Test	Result
Fabric Burst Strength, psi	ASTM D751	**4,300 - 4,600**
Puncture Resistance, lbs.	ASTM D751	**95 - 110**
Ready for Use		**1 hour**
Tensile strength, psi	ASTM D638	**1,000 - 1,200**
Elongation at break (%)	ASTM D638	**320 - 400**
Tear strength, lbf/in	ASTM D624	**355 - 385**
Shore D hardness	ASTM D2240	**35**
Tabor abrasion, mg wt. loss (1000g, 1000 revs, H-18)	ASTM D4060	**180**

The value ranges stated in this Technical Data Sheet are based on system processing under controlled laboratory conditions. Equipment configuration and/or field application conditions may produce variances in the final system values.

Surface Preparation

Soil & Earthwork

After excavation, the soil shall be compacted to a smooth surface. If a layer of clay, sand, or gravel is specified under the membrane, it shall be placed at a uniform depth on the compacted soil and the slope established according to the design recommendations of the owner, specifier, or engineer.

The **FlexTain** composite panel membrane system will not provide protection against dangerous conditions such as instability of the surrounding soil or prevention of the ground sliding under the liner.

All surfaces in contact with the **FlexTain** panel system must be free of sharp stones, sticks, and other debris that can puncture or tear the liner. Remove potentially harmful plant life and trees that could Rupture the membrane.

The installer must ensure a method for adequately anchoring the FlexTain panel system to the host surface.

Installation

Do not begin installation until all materials and equipment necessary to perform the installation are at the job site, and all required repairs have been completed.

Ensure **FlexTain** panel rolls remain covered and protected from weather until ready for installation. Only place rolls that can be installed that day. Ensure all rolls are adequately anchored at the end of each day.

Panel Setting & Seaming

FlexTain panels shall be flat in place on the surface area. Care shall be taken to ensure the composite panels is positioned to conform to surface irregularities. Uniform wrinkling of the composite panel is considered normal and acceptable; however, excessive wrinkling, especially at the tie-in and perimeter, must be avoided. Ensure all areas to receive the VersaFlex Polyurea Membrane (for seaming or repair) are clean, dry, and free of any dirt, dust, debris, or other contamination.

Overlap the FlexTain composite panels 4-6 inches. Fold back the top panel and spray the VersaFlex Polyurea Membrane over the base panel at a minimum thickness of 60 mils (27 ft² per gallon). Firmly press the two panels together along the joining area and seal the lap together while the polyurea membrane is still "wet" and hold in place until set.

Spray the VersaFlex Polyurea Membrane over the joining area at a minimum thickness of 60 mils (27 ft² per gallon) for Flextain60 or 80 mills (20ft² per gallon) for Flextain80. Ensure the entire joining area is coated and free of any pinholes or voids. "Fish Mouths" or areas that are rounded at the seams and do not form a continuous liquid-tight seal are unacceptable and shall be eliminated. Areas of incompletely coated geotextile are not acceptable.

Steps shall be taken to avoid more than three layers of geotextile in any area and minimizing the number of joints.

For substrates to directly receive VersaFlex Spray Polyurea Membrane: spray the polyurea membrane over the prepared substrate at a minimum thickness of 60 mils (26 ft² per gallon) or 80 mils (20 ft² per gallon). Spray additional base coats as required to achieve the specified thickness. Ensure the membrane is free of voids, pinholes, or defects. Vents and other penetrations through the FlexTain composite panels shall be treated following installation diagrams and details.

Repair Procedure

Remove any damaged or questionable membrane. If the removal exposes the sub-base, follow the procedure for more extensive repairs in section 3.5.A. Abrade the membrane surrounding the damage at least six (6) inches from the damaged area using a wire wheel or sanding pad. Ensure the membrane is sound, clean, dry, and free of any oil, dirt, dust, debris. Thoroughly wipe the abraded area with Acetone or MEK using clean, lint-free, rags. Carefully wipe the abraded area with VersaFlex Surface Activator. Allow the membrane to "tack up." Spray the VersaFlex VF380 over the repair area at a minimum thickness of 60 mils (27 ft² per gallon) for Flextain60 or 80 mils (20ft² per gallon) for Flextain80. Ensure the entire repair area is coated and free of any pinholes or voids. "Fish Mouths" or areas that are rounded at the seams and do not form a continuous liquid-tight seal are unacceptable and shall be eliminated. Areas of incompletely coated geotextile are not acceptable. Take care not to apply the polyurea membrane beyond the prepared area.

Larger Areas

Remove any damaged or questionable membrane. Place FlexTain panel or geotextile of similar weight and construction under the removed area, ensuring the new membrane extends at least six (6) inches past the edge of the existing membrane. Abrade the membrane surrounding the damage at least six (6) inches from the damaged area using a wire wheel or sanding pad. Ensure the membrane is sound, clean, dry, and free of any oil, dirt, dust, debris. Thoroughly wipe the abraded area with Acetone or MEK using clean, lint-free, rags. Carefully wipe the abraded area with VersaFlex Surface Activator. Allow the membrane to "tack up." VersaFlex composite panels shall be flat in place on the surface area. Care shall be taken to ensure the composite panels are positioned to conform to surface irregularities. Uniform wrinkling of the composite panel is considered normal and acceptable; however, excessive wrinkling, especially at the tie-in and perimeter, must be avoided. Ensure all areas to receive the VersaFlex Polyurea Membrane are clean, dry, and free of any dirt, dust, debris.

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Installation (continued)

Fold back the top panel and spray the VersaFlex Polyurea Membrane over the base panel at a minimum thickness of 60 mils (27 ft² per gallon). Firmly press the two panels together along the joining area and seal the lap together while the VF 380 is still wet.

If using uncoated geotextile, apply the VF 380 over the burnished side (Flat smooth side) of the geotextile at a minimum thickness of 60 mils (27 ft² per gallon) for Flextain60 or 80 mills (20 ft² per gallon) for flextain80. Ensure the panel is free of any voids or pinholes. Leave approximately four (4) inches on each edge of the geotextile fabric uncoated for proper joining. Follow Field Quality Control procedures in Section 3.4 E of VersaFlex FlexTain Specification to ensure the appropriate membrane thickness.

Spray the VersaFlex Polyurea Membrane over the joining area at a minimum thickness of 60 mils (27 ft² per gallon) for Flextain60 or 80 mills (20ft² per gallon) for Flextain80. Ensure the entire joining area is coated and free of any pinholes or voids. "Fish Mouths" or areas that are rounded at the seams and do not form a continuous liquid-tight seal are unacceptable and shall be eliminated. Areas of incompletely coated geotextile are not acceptable. Take care not to apply the spray-applied membrane beyond the prepared area.

Mixing Instructions

VersaFlex Polyurea materials **MUST** be spray applied using approved equipment. Use approved 1:1 ratio pump with appropriate material heaters, as required for individual application. For more information contact VersaFlex Technical Service.

Process Equipment (contact VersaFlex Sales Representative for other approved equipment)

Recommended Proportioners	
Graco	Reactor E-XP2
	Reactor H-XP2
	Reactor H-XP-3

Recommended Spray Gun Configuration		
Graco	Fusion AP	AR/AF 2929
		AR/AF 3737
		AR/AF 4242
	Fusion MP	XR/XF 3535
		XR/XF 4747
	Probler P2	00 - 02

Recommend Equipment Operating Parameters	
A Side Primary Heat	160˚F
B Side Primary Heat	160˚F
Hose Heat	160˚F
Dynamic Pressure	2,000—2500 psi
Dynamic Pressure Differential	< 200 psi
Inlet Pressure	> 90 psi

Application Temperature: Greater than -40°F. The VersaFlex Polyurea Membrane will cure at sub-freezing temperatures, but the effects from these conditions may impact the application in a variety of ways. It is recommended that material and equipment ambient temperatures be kept at 60°F or above. Frozen concrete substrates with high moisture content will affect coating adhesion and long-term performance.

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Cleanup and Safety

Cleanup

Cured product may be disposed of without restriction. Excess liquid 'A' & 'B' material should be mixed together and allowed to cure, then disposed of in the normal manner. Product containers that are "drip free" may be disposed of according to local, state, and federal laws.

Safety - Review SDS at www.versaflex.com.

- Wear Long sleeve overalls or disposable Tyvex suit
- Rubber gloves
- Protective eye wear
- Rubber or leather boots
- Respirator
- Do not use near high heat or open flame
- Do not take internally
- Keep out of reach of children

Packaging, Handling, and Storage

Packaging

Pre-sprayed panels

Up to 50 ft lengths

- 5 or 15 feet widths
- 60 or 80 mils membrane thicknesses
- With and without Stipple

Polyurea Membrane (for seaming and repairing)

110-gallon kits. Drum containers filled by weight, volume is closely approximated.

Shelf Life

One year from shipment date, in original, unopened factory containers.

Storage Temperature & Humidity

Under normal storage conditions of 70°F to 95°F (21° - 35°C).

Warranty

Limited Warranty. Company warrants its goods to be free of manufacturing defects. Goods manufactured by Company will comply with all applicable federal, state and local laws and regulations. Company makes no warranty as to any parts or equipment manufactured by others. Customer shall look solely and only to the manufacturer of such parts or equipment with respect to any warranty claims. Company hereby assigns to Customer the original manufacturer's warranties to all such equipment and parts, to the full extent permitted. THE AFORESAID IS THE EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. SPECIFICALLY, THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Limitation of Liability. COMPANY'S LIABILITY FOR DEFECTIVE OR NON-CONFORMING GOODS SHALL BE LIMITED TO, AND SHALL IN NO EVENT EXCEED, THE AMOUNT PAID BY CUSTOMER FOR SUCH DEFECTIVE OR NON-CONFORMING GOODS. UNDER NO CIRCUMSTANCES SHALL COMPANY BE LIABLE FOR ANY SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOST PROFITS. In no event may any claim by Customer arising from or relating to any sale of any goods or services referenced herein be brought more than one year after the date of delivery of such Goods.