



AroStruct

Spray Polyurea

Technical Data Sheet

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Selection and Specification Data

Description

VersaFlex AroStruct is a fast set, rapid curing, 100% solids, semi-structural, two-component performance modified polyurea spray coating/lining material. Its fast gel time makes it suitable for applications down to -20°F without special conditioning of the component resins and isocyanates. **AroStruct** produces an extremely tough rigid film at all thicknesses.

Ideal For

- Water & Chemical Containment
- Industrial Facilities
- Water Treatment
- Food Processing Facilities
- Bottling and Canning Facilities
- Internal Pipe Coating
- Reinforcement Applications (with chopped fiberglass added)

Color & Stability

Standard colors are Tan (VF1223), and Black (VF1280). Custom colors are available upon request. Note: Custom colors are not returnable; custom color options can be viewed at www.versaflex.com. The A-side (Iso) color could vary from clear to amber.

Limitations

AroStruct is an aromatic polyurea and discoloration from exposure to ultraviolet light may occur, however the physical properties are unaffected. **AroStruct** should not be used for direct contact with extremely high or low pH levels.

Physical Properties (Typical) -(Post cured at 225°F for 24 hours)

Description	Method	Result
VOC (g/l)	Theoretical	0
Solid Content	Theoretical	100%
Gel Time	ASTM D1640	~20 sec.
Tack Free Time	ASTM D1640	~2 min.
Light Traffic	ASTM D1640	~60 min.
Tensile Strength	ASTM D638	5800 psi
Elongation	ASTM D638	2.5%
Flexural Modulus	ASTM D790	225
Die C Tear Strength	ASTM D624	475
Shore D Hardness	ASTM D2240	77

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.

Coverage Rate

AroStruct is designed for a variety of substrates and applications. Application method, substrate roughness, profile, and porosity will effect coverage rates. Always consult the specification and contract documents prior to installation.

Recommended Dry Film Thickness (Typical exposure)

Concrete:	80-100+ mils dft.
Steel (Carbon)	40-60 mils dft.



Substrate and Surface Preparation

General

Prior to coating, the substrate must be prepared in a manner that provides a uniform, clean, sound, and neutralized surface suitable for the specified coating. The substrate shall be free of all contaminants, such as oil, grease, rust, scale or deposits. The substrate shall be free of all dirt, dust, debris, and deleterious material. Coating performance is dependent on the degree of surface preparation.

Concrete & Masonry

Reference SSPC SP-13/NACE No. 6 Surface Preparation of Concrete. Surfaces must be sound and contaminant-free with a surface profile equivalent to a minimum CSP3 to CSP5 in accordance with ICRI Technical Guideline No. 310.2R-2013. This can generally be achieved by abrasive blasting, shot blasting, high-pressure water cleaning, water jetting, or a combination of methods. The pH of the concrete must be >7.

Steel (Atmospheric/Non-Immersion Service)

Visible deposits of oil, grease, or other contaminants shall be removed according to SSPC-SP 1. Prepare in accordance with SSPC-SP6/NACE No. 3 Commercial Blast Cleaning. Provide a sharp angular anchor profile of 3.0 mils or greater.

Non-Ferrous Metals

Reference SSPC SP-16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steel, and Non-Ferrous Metals. Only use non-metallic blast media. Contact VersaFlex Technical Services for primer recommendation and additional information.

Primers (Suggested)	
Concrete & Masonry	VF 20
	Raven 175
	Raven 171
Steel (Carbon)	PW-1
	AquataPoxy 190 Raven 490
Ferrous Metal (Optional)	AquataPoxy 190
Wood and Fiberglass	VF 15
	VF 20
	Raven 175

Substrate composition and moisture, application temperature, exposure temperature, and site conditions may effect primer selection.

VersaFlex is part of a family of companies. Specific primers may be available for different substrates or service conditions.

Contact VersaFlex Technical Service for more information and recommendations.

Mixing, Thinning and Pre-Warming

Components & Mix Ratio:

Mix ratio is 1:1 by volume

Mixing:

B Side must be mixed prior to use. Mix using a 3-tier, collapsible blade power mixer for at least 30 minutes prior to processing. Mixer diameter should be ½ diameter of the vessel.

Thinning:

DO NOT THIN.

Pre-warming:

A and B components should be warmed to a minimum of 70°F prior to processing.



Application and Equipment Guidelines

General

VersaFlex AroStruct must be installed using plural component, direct impingement mix application equipment.

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

- Material supply capacity should be 4x the material output of the selected spray gun configuration.
- Processing equipment should be capable of maintaining set temperatures and pressures at rest and during operation.
- Proper equipment selection and maintenance is critical to achieve material properties.
- Additional equipment manufacturers and set-ups are acceptable. Contact VersaFlex Technical Services for additional information and recommendations.

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

Apply in a uniform manner to desired thickness. Coating material thickness is determined by the spray gun configuration and speed of application. Lower output configurations are recommended for vertical and overhead applications to avoid runs, drips and sags. Excessive thickness does not negatively impact the material properties.

Application and Service Conditions

Environmental & Substrate Conditions

Substrate temperatures must be greater than -20°F. Lower substrate and ambient temperatures will increase the ultimate cure time.

Do not install over damp, wet, or saturated substrates. Concrete and masonry substrate moisture content shall be less than 5% when measured with a Tramex CME meter or equal. If the substrate is below freezing, traditional methods of determining moisture content are not effective. Additional steps should be taken to validate moisture readings.

The substrate must be 5°F above dew point and rising before application of coating materials.

Service Temperatures (Temperature Resistance):

Dry temperature resistance is -40°F to 250°F.

Limitations:

VersaFlex AroStruct is not recommended for direct contact with extremely high or low pH chemicals.

Refer to the VersaFlex Chemical Resistance Technical Bulletin or contact Technical Services for more information and recommendations.



Curing Schedule, Re-Coat Windows, and Top Coats	
<p>Cure Time</p> <p>Return to service is determined by ambient temperature, the service environment and exposures. Foot and light vehicle traffic can typically be allowed within 1 hour. Full cure is achieved in 7 days at 72°F.</p> <p>Top Coating</p> <p>VersaFlex AroStruct can be built to thickness or touched up immediately during application. AroStruct may be top-coated with non-solvent based coatings after curing for 30 minutes.</p>	<p>Recoat Time (Maximum)</p> <p>AroStruct can be recoated up to 8 hours after the initial application. If the recoat window is exceeded, additional preparation is required. Prior to recoating over AroStruct, the surface shall be clean, dry, and free of all dirt, dust, debris, contamination, or deleterious material. Mechanical scarification and the use of VersaFlex Tack Coat or VF 161 as a re-activating primer is recommended. Reference VersaFlex Industrial Coatings Application Guide for more details.</p>
Cleanup and Safety	
<p>Cleanup</p> <p>Cured product may be disposed of without restriction. Excess material should be mixed together and allowed to cure and disposed of in a normal manner. Product containers that are “drip free” may be disposed of according to local, state, and federal laws.</p> <p>Caution: VersaFlex AroStruct contains isocyanate. All safety precautions must be followed including proper skin protection and breathing protection. Consult SDS for proper safety suggestions.</p>	<p>Safety</p> <p>Read, understand, and follow all recommendations on the SDS. Review SDS at www.versaflex.com</p> <p>Wash thoroughly after handling, and before eating, drinking, or smoking. Have proper First Aid and PPE on site prior to opening or processing the material. Use chemical safety glasses, or goggles with splash shields. Use impervious body coverings including long sleeve clothing and boots. Use neoprene or nitrile chemical resistant gloves. Use a combination particulate filter and organic vapor respirator.</p>
Packaging, Handling and Storage	
<p>Packaging</p> <p>AroStruct is available in 10-gallon, 60-gallon, and 110-gallon kits. Containers filled by weight.</p>	<p>Shelf Life and Storage</p> <p>One year from date of shipment, in original, unopened factory containers, stored in a sheltered area between 60°F - 80°F. Seal tightly after use to prevent introduction of moisture laden air. Store open ‘A’ side with a nitrogen cap after each use.</p>
Warranty	
<p>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.</p> <p>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.</p>	