



WBG²⁵⁰
WATERBORNE

Waterborne Urethane

Technical Data Sheet

WBS²⁵²
WATERBORNE

686 S. Adams St. | Kansas City, KS 66105 | (913) 321-9000 | www.versaflex.com

Selection and Specification Data

Description

VersaFlex Waterborne Urethane is a color stable, low odor, non-toxic, waterborne urethane used for coating or sealing. It may be applied directly to most substrates and may be used as a topcoat for existing coatings, including polyurea systems. Waterborne Urethane displays excellent UV weathering characteristics and is abrasion and chemical resistant. The product is to be applied in a thin film (5 mils or less). Apply in multiple applications when thicker applications are needed.

Waterborne Urethane may be used to overcoat other coating systems to either enhance gloss or to provide additional UV stability. It may be used as a thin mil stand-alone coating for concrete, non-ferrous metal, wood and other properly prepared substrates.

VersaFlex Waterborne Urethane is available in two sheen levels. WBG 250 has a high gloss sheen and can be pigmented with a full range of colors. WBS 252 has a semi-gloss sheen and is only available in clear.

Typical Uses

- Any areas where a thin mil, abrasion resistant coating or sealer is required
- Food processing facilities
- Walkways, balconies & patios
- Kennels and other animal enclosures
- Graffiti resistant properties
- May be used with CrobeFlex in hospitals and other institutional environments

Color & Stability

Standard colors are Light Gray (VF7221), and Very Very Light Gray (VF7089). Custom colors are available upon request. Note: Custom colors are not returnable; custom color options can be viewed at www.versaflex.com. For optimal durability, pigmented films should be top-coated with clear. WBS 252 (semi-gloss) cannot be pigmented or have CrobeFlex anti-bacterial agent added.

Limitations:

Waterborne Urethane is sensitive to cold temperatures. Material shall be maintained above 45°F (7°C) during transport.

Requires dry, sound, and clean substrate. WBG 250/252 are not to be used for constant immersion environments.

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

Description	Test Method	Results
VOC		Zero
Solids Content		62 %
Pot Life (with recommended distilled water reduction)	@77°F	1 hour
Tack Free	ASTM D1640	1 - 2 hours
Full Cure	ASTM D1640	7 days
Tensile Strength, psi	ASTM D638	4,400 - 7,200
Tensile Elongation, %	ASTM D638	3 - 5 %
Modulus of Elasticity, %	ASTM D638	175 - 300
Tear Strength (lb./in.)	ASTM D624	150 - 300 lb./
Adhesion to Aluminum	ASTM D3359	Class 5B
Taber abrasion, mg wt. loss (1000g, 1000revs,CS-17)	ASTM D4060	25
Taber abrasion, mg wt. loss (1000g, 1000 revs,H-18)	ASTM D4060	260

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



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Substrate and Surface Preparation

General

Prior to coating, the substrate must be prepared in a manner that provides a uniform, clean, sound, neutralized surface suitable for the specified coating. The substrate must be free of all contaminants, such as oil, grease, rust, scale or deposits. In general, coating performance is proportional to the degree of surface preparation.

Concrete

New concrete should be cured for a minimum of 28 days. Testing for moisture vapor emission or relative humidity according to ASTM F1869 or ASTM F 2170 is recommended. A moisture mitigating primer is recommended if:

- RH is greater than 75%
- Calcium chloride test measures greater than 3 lb. / 24 hours / 1000sq feet
- Tramex concrete moisture meter reading over 5% (ASTM F2659)

Provide a dry, clean, sound concrete substrate. Repair spalls and other defects with approved patching material, such as VersaFlex **QuickMender**. Prepare concrete surfaces to SSPC SP13/NACE No. 6. standards. For application direct to concrete, surface should have a profile that meets SSPC-SP2-5 standards or a profile suitable for the applied coating thickness as stated in ICRI guideline No. 310.2R-2013.

Surface Contaminants

Check for soluble salts on surfaces to be coated. Test with Chlor*Test. If amount of soluble salts exceeds recommended limits, treat with Chlor*Rid. Repeat process until acceptable limits are reached.

Maximum amounts of soluble salts (micrograms per square centimeter):

- Chlorides - 3 immersion, 7 non-immersion
- Nitrates - 5 immersion, 10 non-immersion
- Sulfates - 10 immersion, 20 non-immersion

Metal Surfaces

Provide a clean, sound metal substrate. Sand blast metal to remove laitance and other contamination. Prepare metal surfaces to SSPC-SP10 Near White Blast or better. Surfaces should have a profile suitable for the applied coating thickness as stated in ICRI guideline No. 310.2R-2013. Test prepared surfaces using Elcometer adhesion testing (ASTM D 4541).

Primers

WBG 250 / WBS 252 are self priming products, so in general a primer is not required. For highly porous substrates, a primer such as **VF 15, VF 20, Raven 171,** or **Raven 175** primer is recommended. For concrete slabs with high RH or high moisture vapor emissions, a moisture mitigating primer such as **Milamar MVE1** or **Raven 175** is recommended.

If use of a primer is necessary on metal surfaces, **Milamar ICO Rust Guard** or **Raven 190** is recommended.

Dilution With Water

The WBG 250 and WBS 252 Waterborne Urethanes are shipped in a concentrated form and are intended to be diluted with water before application.

The product can be diluted using 20% to 50 % water. This allows the installer to adjust the viscosity of the mixed product to provide the best match the application method. The dilution rate table shows the final dry film thickness for each dilution rate when applied at the recommended rate of 5 wet mils.

Added water %	Wet Film Thickness	Sq. Foot Spread Rate / gallon	DFT Dry Film Thickness
20%	5 mil	320	2.6 mils
30%	5 mil	320	2.4 mils
50%	5 mil	320	2 mils



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Mixing Instructions

FOR WBG 250 and WBS 252 CLEAR MATERIAL

Mix ratio for clear product is 1A : 2B

Drill mix Part 'A' with Part 'B' for 3 to 5 minutes. Use a jiffy mixer at slow speed (max 650 RPM to avoid creating bubbles).

Gradually add in and mix the desired volume of water to the combined 'A' & 'B' mixture to achieve a workable viscosity. See dilution/application rates on Page 2. If available, using distilled water will provide maximum clarity in the coating. Mix thoroughly. Mixed material is white in color but dries clear.

FOR WBG 250 PIGMENTED MATERIAL

Mix ratio for pigmented product is 1A : 3B

If the WBG250 was pre-pigmented at the factory, drill mix Part 'A' with Part 'B' for 3 to 5 minutes. Use a jiffy mixer at slow speed (max 650 RPM to avoid creating bubbles). If the pigment was ordered separately, add the pigment to the Part B and mix thoroughly before adding the Part A. Continue mixing Part A with the pigmented Part B for 3-5 minutes.

Gradually add in and mix the desired volume of water to the combined 'A' & 'B' mixture to achieve a workable viscosity. See dilution/application rates on Page 2. Mix thoroughly.

It is recommended that distilled water be used when lowering product viscosity. If available tap water is used, contaminants may affect the final desired color. Latex paint shall not be added to the system. Overall pot life is dependent upon temperature of distilled water that is added and ambient temperature of the environment.

Important: DO NOT use the material without adding the pigment. This material is not intended to be used as a clear coating.

Application Methods

Application Recommendations

Waterborne Urethane may be applied by airless spray, hopper gun, brush or roller. Expect longer dry times between coats if multiple applications made. Product can normally be re-coated in 4 hours. If maximum recoat window of 24 hours is exceeded, the surface should be lightly abraded for best adhesion. Apply at recommended wet film thickness of 5 mils or 320 square feet per gallon. For moderate to heavy duty use applications, two coats are recommended, followed by waiting 24 - 48 hours before being placed back into service. Not to be used for constant immersion environments.

Non Slip

Fine transparent slip resistant aggregate can be used in the final coat of the urethane. Finely ground polyethylene grit works best. The product should be thoroughly mixed before adding the slip resistant aggregate to the mix. We recommend a sample of the slip resistant mix be tested for appearance and texture prior to application for approval by the floor owner.

Application Temperature

Surface & ambient temperatures must be 40°F and rising. Do not apply to frozen concrete or high moisture content substrates, as this will affect coating adhesion and long term performance. Low temperature applications will extend drying time.



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Process Equipment	
<p>Floor Coaters Padco™ Big Foot Professional Floor Coater</p> <p>Roller Application Use lint-free 1/4 or 3/8 –inch nap depending on surface texture</p> <p>Airless 7/8 hp min. (Graco Ultra 395) - 0.017 to 0.021 tip</p>	<p>Cup Gun or Pressure Pot Must have air dryer</p> <p>Process Temperature Ambient</p> <p>Pot Life—1 hour</p> <p>Working Time - 20 minutes</p> <p>Tack Free Time - 1—2 hours</p>
Packaging, Handling, & Storage	
<p>Packaging</p> <p><u>Clear :</u></p> <p>Three Gallon Kit: 1 gallon of ‘A’ side and 2 gallons of ‘B’ side (unpigmented)</p> <p>.75 Gallon Kit: 1 quart of ‘A’ side and 2 quarts of ‘B’ side (unpigmented)</p> <p><u>Pigmented :</u></p> <p>Four Gallon Kit: 1 gallon of ‘A’ side and 3 gallons of ‘B’ side (pigmented)</p> <p>One Gallon Kit: 1 quart of ‘A’ side and 3 quarts of ‘B’ side (pigmented)</p>	<p>Shelf Life One year from shipment date, in original, unopened factory containers.</p> <p>Storage Temperature & Humidity Under normal storage conditions of 60°F to 95°F (18° - 35°C).</p> <p>Warning: Do not allow product to freeze. This material is temperature and cold sensitive. Material shall be maintained between 45° – 95°F (7° – 35°C) during transport for material preservation.</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>	