



## **HighDRO®-Liner Plus** Polyurethane Lining, NSF/ANSI 61 - Potable Water

### **Description**

HighDRO®-Liner Plus is a solvent-free, two component polyurethane lining (1:1 spray ratio by volume).

This product has been approved by Underwriter's Laboratories to comply with the NSF/ANSI 61 standard for potable water.

***This product has a very short reaction time and is therefore spray applied using plural component spray equipment.***

Application of this product is made directly to surface prepared steel or ductile iron. Primers are not necessary.

Unlimited film builds may be achieved in a single coat multi-pass application. This product cures to form a hard polymer film that demonstrates excellent adhesion. In addition, it is very resistant to abrasion, chemical attack, and cathodic disbondment. This product will chalk and discolor when exposed to ultra-violet light.

### **Typical Properties**

Solids, by volume	100%
VOC (supplied and sprayable)	Zero
Components	Two
Curing Mechanism	Chemical Reaction
Mix Ratio, by volume	1:1
Weight per mixed gallon	9.6 lbs/gallon (4.3 kg/gallon)
Color Availability	Unlimited
Theoretical Coverage	1604 sq. ft. per gallon per mil (149 sq. m/gal per mil)
Primer Requirement	None Required
Application Temperature Range	35°F - 120°F (2°C - 49°C)
Recommended Thickness	15 mils minimum
Adhesion to Steel (SP10;2.5 mil)	2000 +/- 200 psi
Hardness (ASTM D 2240)	77 Shore D
Tensile Strength (ASTM D 638)	5500 psi (38mpa)
Flexibility (ASTM D 522)	180 bend over 1" mandrel @ 15 mils
Impact Strength (ASTM G 14)	>30 in lbs
Abrasion Resistance (ASTM D 4060)	60 mg loss (C17, 1 kg, 1000 cycles)
Chemical Resistance (ASTM D 543)	See Chemical Resistance Chart
Cathodic Disbondment (ASTM G-8)	<8mm rad.

### **Cure Times**

Cure to the Touch	3-5 minutes @ 77°F (25°C)
Cure to Handle	15-20 minutes @ 77°F (25°C)
Time to Recoat	10-20 minutes @ 75°F (24°C)

### **Certifications and Quality Standards**

- UL Certification – "Flammable and Combustible Liquid Tank Accessories - Components": UL Subject 2215 "Outline of Investigation for Oil Water Separators" for interior corrosion protection coatings for oil water separators.
- UL Certification – "Drinking Water System Components" – ANSI/NSF Standard 61
- AWWA Standard "C222-99: Polyurethane Coatings for the Interior and Exterior of Steel Water Pipe and Fittings"
- Meets Green Seal standard GS-11 for VOC and Chemical Content
- Meets ANSI/AWWA D102-03 "Coating Steel Water Storage Tanks"–Inside Coating System No. 4

### **Packaging, Storage & Shelf Life**

- HighDRO®-Liner Plus is supplied in two 55-gallon tight-top drums. Keep drums tightly sealed until ready for use to prevent atmospheric moisture from contaminating material.
- Store material at temperatures between 50 - 80° F (10 - 27° C) in a dry well ventilated area.
- Ensure that material does not freeze. Material has a minimum shelf life of 12-months after the date of manufacture if properly stored.

# HighDRO® - Liner Plus

## Technical Data Sheet

### Safety Precautions

#### HighDRO®-Liner Plus IS FOR INDUSTRIAL USE ONLY.

Avoid contact with eyes, and skin; do not inhale or ingest. When working with this material wear goggles, rubber gloves and a respirator.

When spraying in a confined area, also wear a fresh air hood and make provision for forced ventilation. Refer to MSDS regarding individual components.

### Application Guidelines

Consult a Highland Tank Representative for complete and detailed application instructions. For best results, The substrate must be dry and free from dust, oil and grease. The substrate surface temperature should be a minimum of 5° F (-15° C) above the dew point of ambient air.

Use steel grit or sand to blast the substrate surface. Steel surfaces should be cleaned to a minimum of a near white metal finish with a minimum angular profile of 2.5 mils (Ref. SSPC-SP10; Nace 2).

HighDRO®-Liner Plus is applied using a plural component, high-pressure, airless spray unit with in-line heaters. Material supply should be agitated and heated prior to application. Vent material supply containers with nitrogen or desiccant.

Unlimited film builds may be achieved in a single-coat multipass application. Do not apply coating after the re-coat window has been exceeded. If re-coat window has been exceeded, brush blast the original coat and create a 2.5 mil profile in the original coating; then topcoat.

### Warranty

Highland Tank warrants this product to be free of defects in material and workmanship. Highland Tank's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at Highland Tank's option, to either replace the products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products.

Any claim under this Warranty must be made by the Buyer to Highland Tank in writing within (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify Highland Tank of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

Highland Tank makes no other warranties whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall Highland Tank be liable for consequential or incidental damages.

Any recommendations or suggestion relating to the use of the products made by Highland Tank, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by buyers having requisites skill and know-how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

### Limitation of Liability

Highland Tank's liability on any claim of any kind, including claims based upon Highland Tank's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use

of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. In no event shall Highland Tank be liable for consequential or incidental damages.

# HighDRO® - Liner Plus *Technical Data Sheet*

## Chemical Resistance Chart

Solution	Imersion	Splash	Solution	Imersion	Splash
<b>Fresh Water</b>			Potassium Hydroxide <10%	1	1
Distilled Water	1	1	Potassium Hydroxide >10%	1	1
De-ionized Water	1	1	Sodium Hydroxide <10%	1	1
<b>Sewage (Waste Water)</b>			Sodium Hydroxide >10%	2	1
Raw Sewage	1	1	Soaps	1	1
Treated Effluent	1	1	Detergents	1	1
Hydrogen Sulfide Gas	1	1	Calcium Chloride	1	1
<b>Salt Water</b>			<b>Aliphatic Hydrocarbons</b>		
Sea Water	1	1	Crude Oil	1	1
Brine	1	1	Diesel	1	1
<b>Acids</b>			Kerosene	1	1
Sulfuric <20%	1	1	Gasoline	2	1
Sulfuric >20%	3	2	Jet Fuel	1	1
Hydrochloric <15%	1	1	Fuel Oil 2,4 & 6	1	1
Hydrochloric >15%	3	2	Hexane	2	1
Nitric <30%	3	2	Hydraulic Oils	1	1
Nitric >30%	3	3	Motor Oil	1	1
Phosphoric <50%	2	1	Mineral Spiritis	2	1
Phosphoric >50%	3	1	<b>Solvents</b>		
Acetic <10%	2	1	Toluene	3	2
Acetic >10%	3	2	Benzene	3	2
<b>Alkalies</b>			Xylene	3	2
Ammonium Hydroxide <20%	1	1	Acetone	3	3
Ammonium Hydroxide >20%	2	1	MEK	3	3
			MAK	3	3
			Methylene Chloride	3	3
			Trichloroethylene	3	3

### Maximum Wet Service Temperature (Water) 140° F (60° C)

**KEY:** 1 = Excellent: No significant weight gain or swelling. No loss of tensile and/or impact strength  
 2 = Good: Less than 5% weight gain or swelling. Slight loss in tensile and/or impact strength.  
 3 = Not Recommended: Not suitable for service.

Immersion, spill and splash @ 77°F/25°C.  
 Contact Highland Tank for specific circumstances.

All the data, statements and recommendations contained in this document are based on tests Highland Tank believes to be reliable. These statements are made without any expressed guarantee or warranty as to their accuracy. Highland Tank products are sold assuming that the user will evaluate the product's performance independent of any recommendations by Highland Tank to determine compatibility with a particular application or intended use. All risks and liability of their use is assumed by the user. Highland Tank assumes no liability for damage incidental to the use of the product. Liability and obligation of the seller and manufacturer shall be limited to the replacement of material only. [www.highlandtank.com](http://www.highlandtank.com)



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