RHINO HIDE®

ELASTOMERIC URETHANE ARMOR 2800™

RHINO HIDE Elastomeric Urethane Armor 2800 is a two-component, high performance urethane elastomeric coating, specifically designed for high build applications. When fully cured, 2800 forms an extremely tough, abrasive resistant rubber coating, especially suited for applications requiring protection from impact, abrasion or corrosion on metal, wood or concrete surfaces. The system has added UV stabilizers and provides corrosion, weather, and abrasion resistance to various surfaces.

Rhino Hide is - "The All Weather Armor"®

RECOMMENDED USES

Typical applications include protective layers for pipes, tanks, wood, flexible foams, concrete and other industrial surfaces. 2800 provides excellent corrosion protection for concrete or steel in potable water service. Tested in accordance with Standard ANSI 61. Protects against microbiologically induced corrosion, hydrogen sulfide and sulfuric acid making it ideal for wastewater applications. ANSI 61 approved for secondary containment coating including potable water - check with Rhino Hide for current approved chemical containment list. Available in standard color **Blue,** custom colors **Gray** and **Black**.

PERFORMANCE / TESTING

SECONDARY CONTAINMENT SURFACING SYSTEM

Property	ASTM Test Method	Unit	Value
Specific Gravity	D792		1.083
Density	D792	lb/ftɜ	67
Hardness	D2240	Shore A	85
Taber Abrasion	D4060		
H-18 Wheel, 1000-g Load,1,000 Cycles		mg/loss	190
Tensile Strength	D412	lb/in2	1,330
Ultimate Elongation	D412	%	580
Tear Strength	D 975	pli	150
Water Absorption: 30 Days	RHINO HIDE	%	1.0
Crack Bridging 1000 Cycles	C 957	-	passes
Elongation Recovery	C 957	%	96

PHYSICAL PROPERTIES

Property	B Component	A Component
Appearance at 25°C	Pigmented	Amber Liquid
Specific Gravity at 25°C	1.09	1.04
Viscosity at 25°C, mPas	2,500	1,500
Flash Point, PMCC, °C	216	179
VOC %	0	0

PROCESSING PARAMETERS

Processing Temperature	32°F - 120°F
Mix Ratio, by volume	1/1
Air Pressure	40 - 60 psi at Gun - 15-25 psi at tip
Reactivity:	
Gel Time	15 sec
Tack-Free	2 min
Handling	25 - 60 min

2800 components are shipped in sealed containers that are purged with dry nitrogen. The containers should be kept tightly sealed and stored in a cool dry area. Storage temperatures should not exceed 90°F. Shelf life stored under these conditions is one year. Containers that have been opened should be resealed immediately after material has been removed in order to prevent moisture contamination.

PRODUCT ADVANTAGES

- Excellent adhesion to many different substrates, including steel, aluminum, concrete, and various polymeric surfaces. Consult your technical service representative for specific primer recommendations
- Retains its elasticity at temperatures ranging from -40°C to +110°C, enabling it to withstand various climactic conditions
- Surfaces coated with 2800 are exceptionally resistant to abrasion and wear
- Highly resistant to de-icing salt solutions, dilute, non-oxidizing acids, caustic solutions, aliphatic hydrocarbons, and mineral oils
- Good resistance to all types of weathering, ozone, UV radiation, and high-energy radiation.
- Seals cracks and at the same time prevents moisture penetration and attack by aggressive substances
- Waterproof, it has a high level of impermeability to water vapor, which helps prevent moisture build-up in the substrate
- Effectively helps to protect surfaces against hydrolysis penetration and offers excellent resistance to microorganisms
- Forms a homogeneous, seamless, and watertight seal with no weak points
- Surfaces coated with 2800 have excellent resistance to tear propagation and mechanical stress.

EQUIPMENT SELECTION GUIDE

The recommendation is to use a low-pressure cartridge system equipped with a small or static mixer and an air-assisted spray tip, if spraying small, intricately shaped parts, or applying a thin layer of elastomer (30 Mils), (dispensing/spraying via a pneumatic gun, air pressure set between 40-60 psi recommended.). If spraying large surfaces of thick layers (up to one inch) of elastomer, select a high-pressure metering machine and spray gun, or a high-output, low pressure metering machine that can spray at a rate of 7-10 lbs. per minute, and spray gun equipped with either a dynamic or static tip. When applying with high-pressure airless equipment (2500-3000 psi), components must be heated to (160°F-170°) to assure good mixing. A number of types and styles of spray gun/mixers can be successfully used with the 2800 elastomer system, including high pressure impingement guns such as the Gusmer GX-8. The selection of a spray tip is dependent on the nature and size of the object to be sprayed. The tips will have an effective fan width of 25 or 30 degrees, and an equivalent orifice size of between .026 inch to .053 inch. A general rule would be the smaller the surface to be sprayed the smaller the orifice. The use of the small tip size reduces the total throughput of elastomer. For example, the use of a .026 inch orifice would result in an output of about 3 pounds per minute. The output when using the .053 inch orifice would be closer to 10 pounds per minute.

2800 Elastomeric Urethane Armor is available in 10 gallon units for brush or roller application. Refer to data sheets titled 2900 " DC" (Delayed Cure) Urethane Armor. Pot life for brush or roller application has been extended to 30 minutes @ 25°C allowing small batches to be mixed and applied. No more than quart batches are recommended due to short usable pot life. Larger batches may result in material losses. Mix only enough material that can be mixed and applied within the limit of pot life.

Immediately after dispensing and measuring the components tightly reseal the containers. Shelf life for 2800 is six (6) months in unopened containers. Material opened and resealed is considerably less.

APPLICATION

Applying 2800 Elastomeric Urethane Armor is very much like spraying paint. You must keep the spray pattern perpendicular to the surface being sprayed. Maintain a nice straight smooth motion. To achieve the best coverage, each pass of the spray pattern should overlap the preceding pass by approximately 1/3. 2800 Elastomeric Urethane can be applied in thicknesses from about 30 mils to 1/2 inch or more. On horizontal surfaces, thicknesses of about 1/8 inch can be achieved in a single pass. On vertical surfaces 30-150 mils can be realistically applied in a single coat.

SURFACE PREPARATION

General:
Surfaces to be coated must be clean and dry. Adhesion promoters and/or recommended primers as specified.

Concrete:
Concrete must be cured a minimum of 28 days and be free of release agents, curing compounds, oils and free from loose dust or debris.

Oils and Grease: Chemical cleaning with detergents, caustic soda solutions or trisodium phosphate is necessary to remove oil and grease. A vigorous scrubbing action should be carried out during the washing procedure. It is important to thoroughly flush the surface of the concrete with water to remove all traces of the loosened substances as well as the cleaning solution itself. If either residue remains it will interfere with the bond of the barrier material. Sandblasting is the most effective method of cleaning concrete surfaces. Sometimes environmental restrictions preclude the use of dry sandblasting. Water blasting with low pressure (3,200 psi) is effective to remove laitance and provide a profile of sufficient depth for RHINO HIDE Prime-A-Seal III 4300 (two-component epoxy primer) applied as a primer to water blasted concrete provides an excellent bonding primer for 2800.

Steel:
Immersion Service - SSPC-SP10 Near White Blast.
Non-Immersion service - SSPC-SP6 Commercial Blast.
Use Adhesion Promoter TUFF GRIP II 4500 for greater adhesion to Steel.
Other Metals: SSPC-SP1 solvent clean and wire brush.

Wood
Surface must be dry. Prime-A-Seal III 4300 is recommended to minimize outgassing.

Previous Coating: Remove all loose or poorly adhered coatings. Solvent clean before application of 2800.

SAMPLE APPLICATION SPECIFICATION

SURFACE PREPARATION Remove all laitance, grease, curing compounds, surface treatments, coatings and oils. Follow surface preparation requirements noted in 2800 data sheets.
PRIME-A-SEAL III 4300 Primer Application* Non-metal surfaces:
Coat the exposed cleaned surfaces with Prime-A-seal III 4300 Primer. Area to be coated with 4300 Primer must be free of ponding water. Apply 4300 Primer at a rate of 300 sq/ft/gal. via spray, brush or roller. Allow 4300 Primer to cure a minimum of four (4) hours before application of Rhino Hide 2800 Elastomeric Urethane Armor. Primer must be fully cured and tack free prior to overcoating.

TUFF GRIP II 4500 Primer – For metal surfaces:
Coat the exposed cleaned surfaces with Tuff Grip II 4500 Metal Primer. Area to be coated with 4500 Primer must be free of rust and other contaminants (see metal surface preparation requirements. Apply 4500 Primer at a rate of 250-300 sq/ft/gal. via spray, brush or roller. Allow 4500 Primer to cure a minimum of four (4) hours before application of Rhino Hide 2800 Elastomeric Urethane Armor.

2800 Elastomeric Urethane Armor:* (Cartridge System)
2800 Urethane Armor is supplied in pre-proportioned cartridges. Spray application is accomplished via pneumatic dispensing gun. Recommended psi is 40-60 dispensing/spray supply pressure. (5-7 CFM) at gun, and regulated spray tip pressure of 15-25 psi.

1. Load cartridge into pneumatic gun.

2. Attach static tip with supplied diffuser attached to end of static mixing nozzle.

3. Attach supplied air delivery tubing from diffuser to supply line supplied fitting.

4. Regulate input air pressure between 40-60 psi.

5. Adjust regulated tip pressure to 20+/- psi.

6. Activate trigger to begin spraying - Dispose of approximately one ounce; the first bit of material out of the spray nozzle is generally off ratio. (An empty cardboard box makes a fine receptacle) adjust tip pressure up or down as necessary.

7. Hold trigger of pneumatic gun in the on position until cartridge has been completely dispensed. **Do not stop and start**. Due to the very short cure time of 2800 the static mixer will quickly become clogged with cured material. If this should happen, replace with a new static mixer and proceed. Follow recommended spraying techniques detailed in Application section - 45 mils can be achieved in a single application.

PACKAGING OPTIONS

2800 Elastomeric Urethane… MINIMUM Recommended film thickness (over 4300 or 4500 primers) 20 mills.

Part Number	Cartridge size	Est. Coverage	Equipment Required	Part Number
2800-600	600ml / 20 ounces	16 Sq. Ft.	Pneumatic 600 ml application gun*	9920-600
2800-1500	1500ml / 50ounces	40 Sq. Ft.	Pneumatic 1,500 ml application gun*	9920-1500
2800-Pails	10 Gallons (2 X 5 Gal pails)	1,000 Sq. Ft.	=/+ than Graco® Unheated Reactor E-10 with the	
2800-Drums**	110 Gallons (2 X 50 Gal drums)	10,000 Sq. Ft.	K-2 Ultra Lite Dispensing gun. Contact Graco for details.	

* Requires Regulator/Spray Attachment PN# 9920-A
** Drums require additional pumping / mixing equipment.
*** Available in Blue (BL), Custom colors available Gray (GR) and Black (BK).
Part Numbers with color notation example 2800-600-BL (Blue) MINIMUMS APPLY FOR CUSTOM COLORS

SAFETY AND ADDITIONAL WARNINGS

Safety:
Consult Material Safety Data sheets for complete information on handling and personal protection prior to use. **Professional use only.**

WARNING: Due to method of application, there may be a significant risk of personal injury while preparing cartridges (product), for application, and the actual spraying of contents. The wearing of personal protective equipment to prevent EYE, SKIN and RESPIRATORY contact cannot be stressed enough. Care should be given and all information read and understood prior to use. If you have read the complete information package (Tech sheets & MSDS) for this product and do not understand or do not agree to abide by the information provided DO NOT USE THIS PRODUCT! Unused product will be accepted for full refund within 30 days of purchase.

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