

Aluthane™ TECHNICAL DATA

Aluminum Filled Urethane Metallic Coating

Primer | **Excellent Corrosion Resistance**
Top Coat | **Easy One Component Formulation**
Floor Coating | **Forms a Hard Surface**
Protective Coating | **VOC Class: Metallic coating VOC - 356 g/l**
California VOC Compliant

STANDARD PRODUCT DESCRIPTION	<p>A one component, moisture cured polyurethane aluminum metallic coating. Has excellent adhesion to sound, tightly adherent rusty steel, wood, concrete and other marginal or poorly prepared surfaces. This low viscosity, high 'wetting' coating undergoes a rapid molecular weight change as it polymerizes into a high molecular weight finish which provides excellent corrosion resistance and abrasion resistance. Its resistance to creeping, undercutting, and blistering is superior to epoxy primers. Aluthane™ is also a barrier primer or tie coat to prevent lifting of strong solvent top coats over conventional coatings, and most chemical coatings. Aluthane produces a shiny silver finish on rough surfaces and a flat galvanized look on smooth surfaces.</p>
USES	<ul style="list-style-type: none"> ● Excellent as a universal primer for metal, steel, concrete, wood, fiberglass, plastic, clean or weathered galvanized metal. ● For use over sound, tightly adherent rust where only wire brush or hand tool cleaning is feasible. For remedial painting of fences, metal buildings, hand and guard rails, pumps, pipelines, grating, and other hard to clean surfaces. ● Ideal as a barrier coat over lead based coatings and conventional coatings. The low solvency power of Aluthane enables it to be applied over most type coatings without causing lifting. A test sample should be made to confirm adhesion. Most generic types of chemical or conventional coatings may be applied over Aluthane with excellent adhesion. ● Has excellent chemical resistance as a Finish Coat to protect metal, concrete and wood surfaces in chemical plants, refineries, pulp and paper mills, waste and water treatment plants, electric generating stations, fertilizer plants, food processing, pharmaceutical, ore processing operations, marine installations, etc. ● Thin, 1 part, 1 coat floor coating with better abrasion resistance than epoxy.
FEATURES	<p>Excellent 'wetting out' properties over sound, rusty steel. Fast recoating, 1-2 hours. Forms a hard abrasive resistant surface. Can be applied at temperatures down to 40°F. Excellent corrosion resistance, passed 1,200 hours in salt cabinet. Very good weather resistance. High heat, up to 400°F dry. May be topcoated with most generic type coatings. Can be top coated with latex, enamel, polyurethane or epoxy.</p>
PHYSICAL PROPERTIES	<p>COLOR Aluminum FINISH Low sheen VOLUME SOLIDS 54% ± 2% COVERAGE 350-400 sq. ft. per gallon MIXING RATIO One component, stir well APPLICATION TEMPERATURE 18°F to 140°F dry @ 50% relative humidity APPLICATION METHOD Roller, brush or spray CURE TIME @ 75°F, 50% R.H. 1-2 hours, tack free; recoat 2-24 hours DRY SERVICE TEMP Up to 400°F V.O.C. 2.98 lbs/gal (356 gms/liter) SHELF LIFE Min. of 6 months in unopened containers stored at below 90°F POT LIFE 1-2 hours @ 75°F with 50% R.H. Will vary due to humidity</p>

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SURFACE PREPARATION	<ol style="list-style-type: none"> 1 Steel: For best results, sand blast to a SSPC-SP6 ‘commercial’ blast finish. Where blasting is not appropriate, remove all loose rust and mill scale by power wire brushing or hand tool cleaning. A tightly adherent rusty surface is acceptable. 2 Galvanized Steel: <u>New</u> - Brush blast per SSPC-SP7 or prime with Vinyl Wash Primer. <u>Old, Weathered, or Rusty</u> - Remove all oil, grease, dirt, and other foreign matter. Surface should be reasonably clean, dry, and free of contaminants. Remove all loose rust, etc., as outlined above under steel. 3 Previously Painted Surfaces: Remove all loose, peeling, or blistered paint, and any other surface contaminants. Make sure surface is sound and dry.
MIXING INSTRUCTIONS	<p>Aluthane is made ready for use by stirring so that the aluminum pigment is thoroughly dispersed in the resin and a uniform ‘silver’ color is achieved. When used over a period of time, stir occasionally to maintain uniform mix. Thinning is not usually necessary. If needed, use up to 10% Urethane Reducer which is a water free grade.</p> <p>NOTE: Always wear protective gloves and clothing while mixing and applying Aluthane. Do not get on skin. Aluthane is difficult to remove.</p>
APPLICATION	<p>Aluthane may be applied by brush, roller, or spray. Roller cover should have a phenolic core and brushes should be natural bristles. For spray it is important that a moisture/oil trap be used on incoming air, and that fluid lines be flushed first with an anhydrous solvent (water free). Also, flush every 1-2 hours during use to keep lines clean from material build up. Required equipment is as follows:</p> <ol style="list-style-type: none"> 1. Airless Spray - Use a minimum 20:1 ratio pump with 80-100 psi inbound air. Recommend a .013” - .017” tip. Adjust pressure for proper atomization based on selected tip. 2. Convention spray - Use a dual regulated pot with 15 - 25 psi fluid pressure and 40-50 psi atomization pressure. A Binks #18 with a 704E tip/air cap is recommended. <p>When spraying, use a 50% overlapping crosshatch pattern to minimize the occurrence of pinholes. Do not apply to surfaces below 18°F or above 140°F. Do not apply over dew or frost. The surface should be dry and at least 5°F above the dew point.</p>
LIMITATIONS	<ol style="list-style-type: none"> 1. Do not apply over frost, wet, or damp surfaces or extremely high humidity conditions. 2. If not topcoated/recoated within 24 hours the aluthane surface be sanded before topcoating. 3. Partially used containers must be reclosed tightly to slow moisture in air from reacting with material and forming a tough skin. Skin can be removed and remaining material used. Be sure to stir. A gas ‘blanket’ injected into the can before resealing will slow/prevent air from reacting with the aluthane. 4. Aluthane left on the lip of the can when resealing will make removal of the lid extremely difficult. It is best to use the entire contents of the aluthane container within a few days to avoid these problems. <p>Based on temperature of 75°F and 50% R.H. (relative humidity), Aluthane is tack free in 1-2 hours and may be overcoated in 2-4 hours. Always check for finger nail hardness. For maximum adhesion, recoat the same day, but no longer than 16-24 hours at 75°F and 50% R.H. High temperatures and humidity will shorten recoat time. When applying conventional paints (eg Alkyds, Silicone, Enamels, and Acrylics) Aluthane must be top coated in the same day.</p>
TRANSPORT	Regulated by USDOT, IATA & IMO. Flammable Liquid, UN 1493, Packing Group III, Class 8

SAFETY: This is a hazardous material if misused. Read and understand the Material Safety Data Sheet (MSDS) before use.

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PHYSICAL PROPERTIES CHART

Abrasion Resistance

Method: ASTM D4060, CS 17 wheel, 1000 cycles, 1 KG Load

Result: 18 mg Loss

Adhesion: Cross Cut

Method: ASTM 3359

Result: Passes 5

Adhesion: Elcometer 106

Method: D4541

Result: Exceeds 500 PSI

Dry Heat Resistance

Method: ASTM D2485

Result: 400°F

Flexibility: Conical Bend Mandrel, 180° Bend

Method: ASTM D522

Result: Passes 1/4"

Impact Resistance:

Method: ASTM D2794

Result: Direct - 160 in. lb.

Pencil Hardness:

Method: ASTM D3363

Result: 4H

Salt Fog Resistance:

Method: ASTM B117

Result: Passes 1200 hrs

Accelerated Weathering:

Method: ASTM D-4587, QUY

Result: Passed: 1500 hours

BACKGROUND

Aluthane is a single package High Performance Coating designed to give you unsurpassed performance over hand tool cleaned, marginally prepared surfaces

Moisture cured urethanes were designed to protect steel from corrosion. Aluthane originated in Germany and was brought to this country in the 1970s.

These coating systems were known for their adhesion to steel and good abrasion resistance. This coating material consists of a single resin component that forms cross-linking polymers through a reaction with moisture from the air.

It penetrates into pores and tight crevices, where moisture is usually present, to form strong chemical bonds. Since the moisture is consumed in the process, the risk of blisters caused by water trapped under the coating film is greatly reduced. Aluthane has a longer shelf life and pot life than most other coatings. These fast top coaters have low-temperature and high-humidity application properties.

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PRIMER PERFORMER

As a primer, Aluthane is pigmented with aluminum. Aluminum pigments provide high resistance to water vapor transmission and gas and ion penetration. During application, the pigments in moisture-cured urethanes align themselves more or less parallel to the substrate in closely packed layers. After the coating has cured, the overlapping pigment particles form a dense barrier against moisture and other corrosion promoters.

The pigment layers also reinforce the coating, relieve stresses within the paint film and improve intercoat adhesion. Alignment of the pigments, combined with the reaction of the isocyanate group with crystalline bonded water in rust, allow moisture-cured polyurethanes to offer enhanced corrosion resistance and strong adhesion, even to less than ideally prepared substrates.

MINIMAL SURFACE PREPARATION

One of the major advantages of moisture-cured polyurethanes is that they can be applied to steel substrates with less surface preparation.

Abrasive blasting to white metal is without question the best method of surface preparation, but is also the most expensive. Most often, power-tool cleaning is all that is required for these types of urethanes.

In comparison to abrasive blasting, the amount of waste generated by power-tool cleaning is dramatically reduced, as is the expense of shrouding the structure and cost of waste disposal.

CHEMICAL RESISTANCE

In addition to impressive physical characteristics, moisture-cured polyurethanes offer excellent chemical resistance.

Contact with liquid hydrocarbons such as xylene, gasoline and mineral spirits have little effect on properly formulated moisture-cured coatings.

Oxygenated solvents such as ketones, esters and alcohols can soften the coatings in immersion, but the films can quickly recover once the solvent is removed. Many of the systems on the market today are suitable for long-term exposure to splash and spillage of these solvents.

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