



# ADALLINE<sup>®</sup> 400 MULTI POLYUREA PROTECTIVE COATING



## Specification Sheet

Adalline 400 Multi is a fast-set, high performance, spray-applied, plural component, pure polyurea elastomer. This system is based on amine-terminated polyether resins, amine chain extenders, and prepolymers. It provides a cost effective, flexible, tough, resilient monolithic membrane with water and chemical resistance.

- Adalline 400 Multi is available with Adler & Allan's cutting-edge Ultra Bond™ technology. Adler & Allans advanced Ultra Bond™ chemistry is coined "the duct tape molecule". Ultra Bond™ has the unique advantage of adhering to most properly prepared organic and inorganic (new and aged) surfaces without requiring a primer. Like duct tape, Adalline 400 Multi with Ultra Bond™ gains adhesion over time
- As with most coatings, there is a re-coat window that presents a lack of inter-coat adhesion. The UB™ molecule mitigates this risk during installation
- Can be applied in a pre-sprayed geotextile format, in rolls. Contact Adler & Allan for more information.
- Fast setting to allow final coating thickness to be achieved in one application
- 100% solid, no solvents, and zero VOCs
- Fast-set; tack free in approximately 7 seconds.
- High dry temperature stability to 121 °C with intermittent temperatures to 148 °C
- High abrasion resistance
- High elongation for bridging cracks
- Excellent encapsulation characteristics
- Compliant with FDA/USDA for incidental food contact

**24/7 EMERGENCY RESPONSE**

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## Recommended Uses

- Coating for all types of steel infrastructures, including tanks, silos, pipes, and re-bar, to protect from corrosion.
- Liners for concrete tanks, floors, ponds, reservoirs, dikes, tunnels, bridges, and other concrete infrastructure.
- Apply as a topcoat to existing membranes, or use to repair inferior or degraded membranes.
- Encapsulate asbestos, lead paint, or other dry hazardous materials (consult Adler & Allan).
- Re-coat over other polymer based substrates and/or coatings.
- Concrete parking decks, garages, and other structures.
- Coating over geotextile for such applications as earthen containment, primary and secondary containment, etc. (Adler & Allan also offers pre-sprayed rolls of geotextile for multiple applications).
- Repair polyurea, polyurethane hybrid, and other lining types (consult Adler & Allan).
- Rock shield for pipelines.
- Wastewater infrastructure, such as protecting tanks from H<sub>2</sub>S gas.
- Onshore and offshore marine and high salt environment corrosion and current protection.

## Typical Physical Properties\*

Tensile Strength ASTM D638	± 4000 psi (28 mpa)
Elongation ASTM D412	± 350%
Hardness (Shore A) ASTM D2240	96 ± 5
Hardness (Shore D) ASTM D2240	50 ± 5
100% Modulus ASTM D412	1600 psi (11 mpa) ± 100
300% Modulus ASTM D412	3500 psi (24 mpa) ± 100
Tear Resistance ASTM D624	370 PLI (64 KN/m) ± 50
**Exposure Temperature	-45°- +121 °C (dry service)

\*All cured film properties are approximate since processing parameters, ad-mixture types, and quantities change physical properties of the cured elastomer. All samples for above tests were force cured 48 hours or aged for more than three weeks. It is recommended that the user perform their own independent testing.

\*\* Test performed in a dry, static environment.

## Curing Schedule

Gel	± 5 sec
Tack Free	± 7 sec
Post Cure**	24 hours
Recoat	0 - 12 hours

\*\*Complete polymerisation to achieve final strength can take up to several days or weeks, depending on a variety of conditions or product type. The samples for all tests on this technical data sheet were sprayed with Graco HXP3 at 2800 psi dynamic pressure (19 mpa). Primaries/Hose Heat 77 °C Graco MP Fusion Gun with 29/29 mixing chamber with 040 ceramtip.

## Industries

- Infrastructure - Water, Transportation, Commercial & Industrial, Rehab/Retrofitting Communications.
- Energy - Oil & Gas, The Electric Grid, Nuclear, Wind, Hydro-Electric (Turbine).
- Engineering - OEM, Custom Product Formulations, Toll Blending, Bedliners & Equipment Coatings, Defense.
- Environmental - Groundwater Protection, Waste Encapsulation, Soil Stabilisation, Pipe/Tank Decommissioning, Coal/Mining.

## Test Information

Surface Resistance ASTM D257	5.469E8 - 9.434E9	
Moisture Vapour Transmission BS EN 1062-1	Class 1 10.51 V in g/m <sup>2</sup> / day	
Liquid Water Transmission BS EN 1062-3	0.04 kg/m <sup>2</sup> x hrs	
Crack Bridging Property BS EN 1062-7 Method B31	Passed	
Abrasion Resistance ASTM D4060 1000g - 1000 cycles	H-18	147mg loss
	CS-17	6mg loss

## Wet Properties

Solids by Volume	100%
Solids by Weight	100%
Volatile Organic Compounds	0 litres
Theoretical Coverage DFT	9.29 sq metres at 104 ml/litre
Weight per gallon (approx)	4.0 kg
Number of coats	1 - 2
Mix Ratio (by volume)	1 "A" : 1 "B"
Viscosity	A: 550 ± 50 cps B: 425 ± 50 cps
Shelf Life Unopened Containers 15 - 32 °C	12 Months

Minimum material/container temperature for application is 21 °C

## Colours

Adalline 400 Multi is available in Adler & Allan standard colours (Sand, Medium Grey and Black). Custom colours available upon request. Note: Adalline 400 Multi is an aromatic polyurea. Therefore, with all aromatics, colour change and superficial oxidation will occur. Aliphatic urethane, polyaspartic, and other suitable topcoats can be used where long-term colour stability and increased longevity in full sun exposure are of critical importance.

## Packaging

This product is stored in standard 416 litre drums and 2082 litre tote sets.

## General Application Method

We apply Adalline 400 Multi only to clean, dry, sound surfaces free of loose particles or other foreign matter. Adalline 400 Multi can be sprayed over a broad range of ambient and substrate temperatures. It is recommended that Adalline 400 Multi be sprayed in multi-directional (north/south-east-west) passes to ensure uniform thickness. Contact Adler & Allan technical service personnel for specific recommendations and pricing.

Common Substrates:

Steel: 50 - 125 microns anchor profile is best for maximum adhesion and varies per application and conditions; adhere to proper SSPC standards.

Non-Ferrous Metals: Prepare surfaces (minimum recommended surface preparation) in accordance to SSPC-SP16 (Brush-off Blast of Non-Ferrous Metals)

Wood: Clean, dry and sanded for a smooth (to remove burs, splinters, loose debris) surface in which to apply polyurea onto. It is recommended to prime wood and other porous surfaces before application of heated, fast-set polyureas to reduce pin holing.

Concrete: Prepare concrete (minimum recommended surface preparation) in accordance with SSPC/NACE Standards.

Previously Applied Coatings: Adler & Allan recommends UB™ (Ultra Bond™) products over existing coatings that are past the recoat window and/or application over other coatings. Contact Adler & Allan for additional information.

Note: It is recommended that oxidised surfaces be power washed with 2500-3500 psi water pressure to achieve maximum adhesion of Adalline 400 Multi. If there is a possibility of surface contamination, scrub with a solutions of 1/4 tsp Dawn detergent plus 1tbsp of vinegar per 4.55 litres of warm water, followed by a thorough rinse.

On all above listed substrates and others, please contact Adler & Allan Sales or Technical Support for more information specific to your application, including industry standards such as SSPC and NACE. Adhesion tests are always recommended prior to application.

## Mixing & Thinning

Thoroughly agitate the "B" components of this product prior to application. Use an Adler & Allan folding blade mixer, or equivalent equipment approved by Adler & Allan. Install mixer through the extra 2" bung hole provided on all "B" drums. Care must be taken not to cross contaminate the individual components with the mixing equipment. Thinning is not required. Using any thinner may adversely affect product performance.

## Processing Equipment & Settings

Machines:		
Graco (Gusmer, Glass-craft)	<ul style="list-style-type: none"> <li>Reactor HXP3</li> <li>Reactor HXP2</li> <li>Reactor EXP2</li> <li>H25</li> </ul>	<ul style="list-style-type: none"> <li>20/35</li> <li>20/35 Pro</li> <li>H3500</li> <li>HV-20/35</li> </ul>
PMC	<ul style="list-style-type: none"> <li>*PH-25</li> <li>*PH-40</li> <li>*GH-25</li> <li>*GH-40</li> </ul>	<ul style="list-style-type: none"> <li>PHX-2</li> <li>PHX-25</li> <li>PHX-40</li> </ul>
Spay Foam Equipment & MFG	<ul style="list-style-type: none"> <li>*5/12K</li> <li>*6/6K</li> </ul>	<ul style="list-style-type: none"> <li>6/12K</li> </ul>

\*2000 psi machines

Guns:		
Graco (Gusmer, Glass-craft)	<ul style="list-style-type: none"> <li>Fusion MP</li> <li>GAP Pro</li> <li>GX7-DI</li> <li>GX-8 Pro</li> </ul>	<ul style="list-style-type: none"> <li>P2</li> <li>P2 Elite</li> <li>P2 Elite "C"</li> </ul>
Spray Foam Equipment & MFG	<ul style="list-style-type: none"> <li>Boss</li> </ul>	

- Standard 1:1 ratio, heated, plural component equipment developing a minimum of 1500 psi (10 mpa) dynamic pressure with heating capabilities to 79 °C will adequately spray Adalline 400 Multi
- Primary heater heater temperature should be at 71-76 °C
- Hose temperature should be at 71-76 °C. A hose thermometer inserted under the insulation near the gun should read a minimum of 63-68 °C
- Physical properties will be enhanced when sprayed at higher pressure (3000 psi or more), utilising an impingement mix gun such as MP Fusion or GX7-DI gun.

## Parameters & Limitations

- Adalline 400 Multi is for professional use only
- Adalline 400 Multi must be stored at temperatures between 15-30 °C
- Liquid temperature in drums during application 21-38 °C
- Apply Adalline 400 Multi when surface and air temperatures are above 5 °C and the surface temperature is at least 3 °C above dew point and rising
- Minimum material/container temperature for spray application is 21 °C
- Avoid moisture contamination in containers. Containers should not be released if contamination is suspected. CO<sup>2</sup> created pressure can develop. Do not attempt to use contaminated material
- Undried air exposed to liquid components will reduce physical properties of the cured coating

Note: The material supplied is a two component system (component "A"/component "B"), which is used to formulate this product. The quality and characteristics of the finished polymer is determined by the mixture and application of the two components.

## General Safety, Toxicity & Health

Safety Data Sheets are available for this coating material. Any individual who may come in contact with these products should read and understand the S.D.S Chemtrec Data Sheet.

**WARNING:** Contact with skin or inhalation of vapours may cause an allergic reaction. Avoid eye contact with the liquid or spray mist. Hypersensitive persons should wear protective clothes, gloves and use protective cream on face, hands and exposed areas.

**CONTAMINATION:** Avoid moisture contamination in containers. Containers should not be resealed if contamination is suspected, carbon dioxide created pressure can develop. Do not attempt to use contaminated material.

**EYE PROTECTION:** Safety eye wear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield.

**SKIN PROTECTION:** Personal protective equipment for the body should be selected based on the task being performed; the risks involved, and should be approved by an industrial hygiene specialist before handling this product. Chemical resistant gloves are recommended. Cover as much of the exposed skin area as possible with appropriate clothing.

**RESPIRATORY PROTECTION:** Harmful if inhaled and may cause allergy or asthma symptoms. Use a respirator approved for isocyanates and organic vapours. If you are not sure, or not able to monitor levels, or if you are spraying in an enclosed/indoor area, use MSHA/NIOSH approved supplied air respirator. Consider the application and environmental concentrations when deciding if additional protective measures are necessary.

**INGESTION:** Do not take internally. It is believed that ingestion of polymeric isocyanates would not be fatal to humans, but may cause inflammation of mouth and stomach tissue.

### TERMS & CONDITIONS

Adler & Allan has no role in the manufacture of the finished polymer other than to supply and apply its two components. It is vital that the person applying this product understands the product, and is fully trained and certified in the use of plural-component equipment. Adler & Allan warrants only that the two components of this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product are dependent upon the proper mixture and application of the components by the applicator. There are no warranties that extend beyond the description on the face of this instrument. Failure to apply the product within the parameters stated on this document shall void the warranty. ADLER & ALLAN MAKES NO WARRANTY OF MERCHANT ABILITY OF THE PRODUCT OR OF FITNESS OF THE PRODUCT FOR ANY PARTICULAR PURPOSE. Adler & Allan makes no warranty as to the quality of any product modified, supplemented, tinted, or altered in any way after it leaves the manufacturing plant. Adler & Allan does not warrant that this product is suitable for use as a liner for potable water containers. Use of this product in a potable water container could be hazardous to health if it is improperly processed or applied. The liability of Adler & Allan for any nonconformity of the product to its technical specifications shall be limited to replacement of the product. The sole exclusive remedy of buyer, which is to have Adler & Allan replace any nonconforming product at no cost to buyer, is under the condition that the buyer notifies Adler & Allan or its distributor in writing of such defect within thirty days of the discovery of such defect. Adler & Allan shall not be liable for any direct, incidental, or consequential damages resulting from any breach of warranty. The data presented herein is intended for professional applicators or those persons who purchase or utilize this product in the normal course of their business. The potential user must perform any pertinent tests in order to determine the product's performance and suitability in the intended application, since final determination of fitness of the product for any particular use is the responsibility of the buyer. The aforementioned data on this product is to be used as a guide and is subject to change without notice. The information herein is believed to be reliable, but unknown risks may be present. Adler & Allan makes no warranties, expressed or implied, including patent warranties or warranties of merchantability or fitness of use, with respect to products or information set forth herein. Nothing contained herein shall constitute permission or recommendation to practice any invention covered by a patent without a license from the owner of the patent. Accordingly, the buyer assumes all risks whatsoever as to the use of these materials and buyer's exclusive remedy as to any breach of warranty, negligence, or other claim shall be limited to the purchase price of the materials. Failure to adhere to any recommended procedures shall relieve Adler & Allan of all liability with respect to the materials and the use thereof.