



UL AL 2161 H Polyurea Polyurethane Copolymer Protective Coating Technical Data Sheet

DESCRIPTION

Ultimate Linings Product **UL AL 2161 H** has NSF-61 approval for direct contact with potable water, and is recommended for use as a coating or lining on suitably primed carbon steel, non-ferrous metal and concrete. Ultimate Linings Product 2161H offers a tack free time of less than five minutes and exhibits 20-30% elongation upon curing with 65 Shore D hardness.

FEATURES

- ANSI/NSF 61 Approved for Potable Water
- *High Build, Quick Dry □ Chemical Resistant
- *Low Temperature Flexibility □ 100% Solids

- *Abrasion and Impact Resistant
- *Horizontal Surface Application
- *Plural Component Spray Application

TYPICAL SYSTEMS

- Carbon Steel
- Primer: UL 3042
- Finish: Ultimate Linings Product 2161 H
- Concrete
- Primer: UL 3042
- Refer to Specification Guide for details

COLOR

Off-white with a medium sheen gloss.

PACKAGING

160 Gallon Kit: Side-A (Isocyanate side): One 55 Gallon Drum, containing 53.4 gallons. Side-B (Resin side): Two 55 Gallon Drums, each containing 53.4 gallons. The volume mixing ratio is 1A : 2B. Contact Ultimate Linings for product availability.

MIXING

UL AL 2161 H may not be diluted under any circumstances. Use appropriate cleaner for purge line and flushing of equipment and if spraying stops for periods exceeding the pot life of the material. Thoroughly mix **UL AL 2161 H** Side- B material with air driven power equipment until a homogeneous mixture and color is obtained. Opened material must be used within 1-2 days due to moisture sensitivity.

Side-B must be thoroughly agitated for at least thirty (30) minutes prior to application. Total suspension must be achieved. Side-A requires no mixing.

SURFACE PREPARATION

In general, coating performance and adhesion are directly proportional to surface preparation. Most failures in the performance of surface coatings can be attributed to poor surface preparation. Polyurea coatings rely on the structural strength of the substrate to which they are applied. All surfaces must be free of dust, dirt, oil, grease, rust, corrosion and other contaminants. When coating substrates previously used, it is important to consider the possibility of substrate absorption, which may affect the adhesion of the coating system, regardless of the surface preparation. UL recognizes the potential for unique substrates from one project to another. The following information is for general reference, and for project-specific questions, contact UL .

New and Old Concrete:

Refer to SSPC-SP13/NACE 6, or ICRI 03732: CSP 3-5. New concrete must be cured for 28 days prior to product application. Surface must be clean, dry, sound and offer sufficient profile for product adhesion. Remove all dust, dirt, oil, form release agents, curing compounds, salts, efflorescence, laitance and other foreign matter by shot blasting and/or suitable chemical means, in accordance with local chemical regulations. Rinse thoroughly, to achieve a pH between 8.0 and 11.0. Allow to dry completely. If old concrete has a surface that has deteriorated to an unacceptably rough surface, **UL BC-371** or a mixture of UL PM 32 and sand should be used as a repair agent for cracks, bug holes and voids. Upon full cure of the repair agent, prime the entire surface intended for coating.

Concrete Surface Preparation Reference:

ASTM D4258 - Standard practice for cleaning concrete

ASTM D4259 - Standard practice for abrading concrete

ASTM D4260 - Standard practice for etching concrete

ASTM F1869 - Standard test method for measuring moisture vapor emission rate of concrete

ICRI 03732 - Concrete surface preparation

Wood:

All wood should be clean, dry and free of any knots, splinters, oil, grease or other contaminants. Splintered or rough areas should be sanded. Knots should be repaired using **UL BC-371** with sand. Upon full cure of the repair agent, prime the entire surface intended for coating.

Steel (Atmospheric and Immersion Exposure):

Remove all oil, grease, weld spatters and round off any sharp edges from surface. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Optimum surface profile is 2-3 mils. Prime and shoot Ultimate Linings Products on to any bare metal the same day as it is cleaned to minimize any potential flash rusting.

Aluminum:

Aluminum should be blasted with aluminum oxide or sand, and not with steel or metal grit. Excessive blasting may result in a warped or deformed surface. After blasting, wash aluminum with a commercially available aluminum cleaner. Allow to dry, then prime.

Brass and Copper:

Brass and copper should be blasted with sand, and not with steel or metal grit. Remove all dust and grease prior to applying primer.

Galvanized Surfaces:

Clean and degrease any contaminated surfaces before priming. Do not blast galvanized surfaces with an abrasive grit. An adhesion test is recommended prior to starting the project.

Fiberglass Reinforced Plastic:

The gel coat should be lightly blasted or sanded with 80 grit sandpaper and cleaned.

Plastic Foams:

Enhanced adhesion is obtained when the foam is mechanically abraded. When coating polystyrene, do not use a solvent-based primer.

Textiles, Canvas, Fabrics:

Adhesion to most fabrics, geothermal membranes and textiles does not require a primer.

Stainless Steel:

Stainless steel may be grit blasted and degreased before priming. Some stainless steel alloys are so inert that it is not possible to achieve a satisfactory bond. An adhesion test is recommended prior to starting the project.

New and Old Cast Iron:

Blast with a steel grit and degrease before priming. Old cast iron is difficult to prepare for a satisfactory bond. It can absorb oil and water soluble contaminants that will keep returning to the surface after the coating system has been applied and affect the coating system adhesion. An adhesion test is recommended prior to starting the project.

All Other Surfaces:

An adhesion test is recommended prior to starting the project.

APPLICATION

Apply over prepared or suitably primed carbon steel or concrete. Application temperature for **UL AL 2161 H** should be between 40- 120°F with relative humidity of <85%. Do not apply product unless temperature is at least 5° above the dew point. Recoat schedule is 1-3 hours dependent upon environment. See Specification Guide for re-coating guidelines and additional information.

APPLICATION METHODS

Check area of application to ensure that it conforms to the substrate requirements. Recommended surface temperature must be at least 5°F above the dew point. Use Graco "Hydra-Cat" 45:1 Airless equipment or equal designed for heated, plural-component, high pressure spray application. High pressure equipment should have the capacity to apply product to a maximum 2500 psi from the proportion to meet job site conditions. Heat and maintain material temperature in a range of 95-110°F and utilize insulated material hoses and application equipment to ensure spray consistency, metering and degree of cure of properly mixed product. Band heaters should not be used to heat or maintain temperature. The conditioned materials shall be supplied to the proportioning equipment at a flowable, pumpable viscosity, and in such volume delivery to assure full supply for each pump stroke. Recirculation system and solvent purge equipment is necessary to keep material maintained and spray equipment clean during application stoppage and/or for periods when exceeding the product potlife.

EQUIPMENT CLEANUP

Equipment should be cleaned with an environmentally safe, urethane-grade solvent (alcohol free) as permitted under local regulations immediately after use.

STORAGE

Ultimate Linings Product® 2161H has a shelf life of one (1) year from date of manufacture in original, factory-sealed containers at 75°F. If stored for a long period of time, rotate Side-A drums regularly.

Part-A and Part-B drums are recommended to be stored above 60°F. Avoid freezing temperatures.

Store drums on wooden pallets to avoid direct contact with the ground.

LIMITATIONS

UL AL 2161 H is not recommended for prolonged exposure to concentrated acids.
Do not open until ready to use. No liability is assumed by UL Products for substrate defects and/or improper substrate preparation and application.

WARNING

This product contains Isocyanates and Curative Material.

TECHNICAL DATA (Based on Compressed Film)	
Mix Ratio by Volume	1A : 2 B
Solids Content	100%
Gel Time, 100 +/- 10°F	40-80 Secs
Tack Free Time @ 70°F	max 5 minutes
Service Time @ 70°F	24-48 hours
Viscosity @ 100 +/- 5°F, ASTM D445-79:	
Part-A	125 +/- 50 cps
Part-B	500 +/- 50 cps
Specific Gravity, ASTM D-4659:	
Part-A	1.2 max
Part-B	1.05 max
Flash Point	>200°F
Hardness, ASTM D-2240	65 +/- 5 D
Dry Film Thickness per Coat	20-100 mils
VOC Content, ASTM D-2369-81	0 gm/l
Tensile, ASTM D-412	2800 +/- 200 psi
Humidity Tolerance on Application	<85%
Material Temp requirement for Application	
Activator	95 to 105°F
Base	95 to 120°F
Sag Resistance	Excellent
Tensile, ASTM D-412	2800+-200 psi
Elongation, ASTM D-412	20-30%
Tear, Die "C" ASTM D-624	400+- 50 pli
Coverage Rate	1604 ft ² /mil/gal
Shelf Life @75°F sealed/unopened	1 year
Dry time @ 70°F to touch	20 minutes
Dry Time @ 70°F: for light foot traffic	1 hour
Cured to Service	24 hours
Maximum Recoat Period	24 hours
<i>After 24 hours, surface must be abraded before recoating</i>	
Full Cure	120 hours
Minimum Substrate Temperature	
Above Dew Point on Application	5°F
Service Temp Resistance	
Immersion	120°F
Dry	180°F
Allowable Ambient Air Temp for Application	
Maximum	120°F
Minimum	25°F

Please read all information in the general guidelines, product data sheets, guide specifications and material safety data sheets (MSDS) before applying material. Published technical data and instructions are subject to change without notice. Contact your local Ultimate Linings Products representative or visit our website for recently updated instructions and data.

Limited Warranty

Ultimate Linings Products warrants its products to be free from manufacturing defects and that they will meet Ultimate Linings Products current published physical properties. Ultimate Linings Products warrants that its products, when properly installed by a state licensed waterproofing contractor according to Ultimate Linings Products guide specifications and product data sheets over a sound, properly prepared substrate, will not allow water migration for a period of one (1) year. Sellers and manufacturers sole responsibility shall be to replace that portion of the product of this manufacturer which proves to be defective. There are no other warranties by Ultimate Linings Products of any nature whatsoever expressed or implied, including any warranty of merchantability of fitness for particular purpose in connection with this product. Ultimate Linings Products shall not be liable for damages of any sort, including remote or consequential damages resulting from any claimed breach of any warranty whether expressed or implied. Ultimate Linings Products shall not be responsible for use of this product in a manner of infringe on any patent held by others. In addition, no warranty or guarantee is being issued with respect to appearance, color, fading, chalking, staining, shrinkage, peeling, normal wear and tear or improper application by the applicator. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. Ultimate Linings Products reserves the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator.

DISCLAIMER

All guidelines, recommendations, statements, and technical data contained herein are based on information and tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. It is the user's responsibility to satisfy himself, by his product for his own intended use, application and job situation on the user assumes all risk and liability resulting from his use of the product. We do not suggest or guarantee that any hazards listed herein are the only ones, which may exist. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss or damage directly or indirectly resulting from use of, or inability to use the product. Recommendations or statements, whether in writing or oral, other than those contained herein shall not be binding upon the manufacturer, unless in writing and signed by a corporate officer of the manufacturer. Technical and application information is provided for establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and Ultimate Linings Products makes no claim that these tests or any other tests accurately represent all environments.