UL XP-461

September 2020

TECHNICAL DATA SHEET

PRODUCT MANUFACTURER
ULTIMATE LININGS
10301 Round Up Lane
Houston TX, 77064
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GENERAL PRODUCT DESCRIPTION

UL XP-461 is a two-component, high performance aromatic pure polyurea spray elastomer system, zero VOCs (Volatile Organic Compounds), 100% solids. UL XP-461 offers outstanding performance and superior elastomeric protective coatings for various substrates. UL XP-461 is designed as a user-friendly product for moisture insensitive applications because of its pure polyurea chemistry and offers exceptional adhesion properties for properly prepared substrates. The high-performance formulation of UL XP-461 produces an excellent skin formation for chemical resistance and moisture protection.

APPLICATION GUIDELINES

Both the Iso “A” Side and Resin “B” Side should be preconditioned between 70°F to 90°F (21°C to 32°C) before application. UL XP-461 must be applied using high-pressure, plural component, heated, 1:1 by volume, spray equipment with a minimum of 2,000 psi fluid pressure capability. UL XP-461 material (both Iso “A” Side and Resin “B” Side) should be heated between 140°F to 160°F (60°C to 71°C). Spray equipment must generate adequate fluid pressure for proper mixing and best polymerization results.

APPLICATION EQUIPMENT

UL XP-461 is designed to be sprayed through high-pressure impingement mixing equipment. Plural component spray equipment must have material heat-control capability, 1:1 by volume, and sprayable with round or flat tip. Refer to equipment manufacturer for equipment specifics and accessories.

EQUIPMENT SETTING PARAMETERS

Iso “A” and Polyol “B” components must be pumped by low-pressure transfer pumps to a suitable high-pressure proportional pumping system.

Temperature Settings

Iso “A” Block Heater:	140°F - 160°F
Resin “B” Block Heater:	140°F - 160°F
Hoses (Iso and Polyol):	140°F - 160°F

Hydraulic Pressure Setting

Equipment Hydraulic Pressure:	2,000 - 2,500 psi

EQUIPMENT CLEAN UP

Spray equipment should be cleaned immediately after use following equipment manufacturer’s recommended procedures. Please refer to spray equipment operating and maintenance procedures for further details. UL XP-461 should be cleaned with environmentally safe urethane-grade cleaners. Cleaning materials must be free of reactive contaminants such as water and alcohol. All gun cleaners and spray equipment cleaning materials must be used and disposed of as permitted under local rules and regulations.

MATERIAL STORAGE

UL XP-461 has a shelf life of twelve (12) months from manufacture date in factory sealed containers. UL XP-461 should be stored between 60°F to 100 °F (16°C to 38°C). Do not expose unused materials to high humidity conditions. Always provide airtight reseal conditions to unused materials. For materials that are currently connecting to the pumps, always provide as much airtight and moisture free conditions to unused materials as possible to ensure proper chemical performance. Drums should be stored on pallets to avoid direct contact with the warehouse floor/ground.

SAFETY AND HANDLING

Please refer to Safety Data Sheets (SDS) for safety and handling of this material. All personnel working with this material are expected to read and understand all safety recommendations per SDS. All Personal Protection Equipment must be properly worn to comply with worker health and safety requirements.

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CHEMICAL TECHNICAL DATA

Conditions: 77°F and 50% Rel. Humidity	
Mix Ratio by Volume	1A:1B
Gel Time	2 to 5 sec.
Tack Free Time	5 to 10 sec.
Density “A” Side (lbs/gal)	9.50
Density “B” Side (lbs/gal)	8.40
Viscosity “A” Side	1000 ± 200 cP
Viscosity “B” Side	450 ± 150 cP

BASIC PHYSICAL PROPERTIES

All tests are performed by independent third-party material test laboratories:

- OCM Test Laboratories
- ISO 17025 Certified
- American Association for Laboratory Accreditation (A2LA)
- Truesdail Laboratories, Inc.
- Pira International Material Test Lab
- Associated Polymer Labs, Inc.

LIMITATIONS

The chemical resistance chart should be consulted prior to application; this is an exhaustive chemical compatibility list quantifying pre- and post-physical properties for chemicals exposure per ASTM D543. Application specific processing parameters such as temperature and operating pressure of coated objects must be considered before installing UL XP-461 coatings system.

PRODUCT USER RESPONSIBILITIES

Users of UL XP-461 product are responsible for reading the general guidelines, product data sheets, specifications and Safety Data Sheets (SDS) before using this material. Printed technical data and instructions are subject to change without notice. Contact your local ULTIMATE LININGS representative or visit our website www.ultimatelinings .com for current technical data instructions.

Test Name	Test Method	Value
Coefficient of Friction Static Kinetic	ASTM D1894	0.567 0.452
Dielectric Const.	ASTM D150	4.15
Dissipation Factor	ASTM D150	0.043
Volume Resistance	ASTM D257	5.87E+14 ohm cm
DMA Test (Loss Modulus, E” Tg)	ASTM D4065	-34°C
Elongation	ASTM D412	148%
Flexural Strength	ASTM D790	2,680 psi
Flexural Modulus	ASTM D790	0.055 msi
Hardness Shore D	ASTM D2240	63 ± 1
Pull-off Test–Adhesion To CRS-Bondrite1455 To CRS-Media blast and XPM Prime	ASTM D4541	 1965 psi 3000 psi - no failure
Taber Abrasion (mg Loss/1000 cycles)	ASTM D4060	19.6 mg
Tear Strength	ASTM D624	708 pli
Tensile Strength	ASTM D412	3,250 psi
Thermal Conductivity	ASTM E1952-1	0.153 W/Km
Flammability of Interior Materials	FMVSS 302	Pass
Safe Walking Surfaces	ASTM F1637.95	Dry:0.785 Wet: 0.66
Poisson’s Ratio & Precision Modulus	ASTM E132	Poisson - 0.45 Modulus – 47.36
Water Vapor Transmission	ASTM E96 method B	0.0306 (grain/hr-ft2)
Cathodic Disbondment	ASTM G95-(27 days exposure)	No additional intentional holiday or delimitation
Impact	ASTM D2794	320 in. lbs. no failure
Chip Resistance	ASTM D3170	Chip Rating 10
Salt Spray	ASTM B117	Rating 9

ADDITIONAL PRODUCT CERTIFICATIONS

- Complies with USFDA Coating Regulations for Incidental-Food-Contact Applications (Keller and Heckman LLP Letter of Opinion)

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CHEMICAL RESISTANCES PER ASTM D543 FOR IMMERSION IN FLUIDS METHODS

UL XP-461 materials are immersed in the chemicals below for a period of 7 days; physical properties of pre- and post-immersion were measured to quantify the changes in product physical properties.

Chemicals Name	Tensile Strength ASTM D412 Change (%)	Elongation ASTM D412 Change (%)	Hardness Change (%)	Mass Change (%)	Density Change (%)	Rating
Acetic Acid 10%	-32.62	21.62	-12.70	4.42	0.33	4
Ammonium Chloride 30%	-12.31	21.62	-3.17	1.13	0.19	2
Ammonium Hydroxide	-10.77	28.38	-1.59	2.33	0.59	2
Automotive Oil	-34.46	6.08	-7.94	0.61	0.26	3
Baking Soda 25%	-14.77	15.54	-9.52	1.51	0.25	2
Bleach (Chloride)	-20.31	19.59	-9.52	2.41	-0.12	2
Boric Acid 3%	-25.23	7.43	-4.76	1.78	-2.81	2
Calcium Chloride 50%	-8.62	12.84	-4.76	1.15	0.15	1
Calcium Hypochloride 5%	-16.92	10.14	-3.17	1.60	0.03	1
Citric Acid 10%	-15.08	18.92	-7.94	1.74	0.22	1
Club Soda	-17.85	18.24	-7.94	1.80	0.23	2
Cream Soda (POP)	-24.31	21.62	-6.35	1.82	0.19	2
Crude Oil (Heating)	2.46	5.41	-3.17	0.46	0.11	1
Diesel Fuel	-3.38	4.73	-12.70	1.58	-0.38	3
Ethylene Glycol	-2.77	18.24	-4.76	0.76	-0.45	1
Hydrochloric acid 5%	-27.69	-9.46	-6.35	0.35	0.17	2
Kerosene	-11.38	4.05	1.59	3.32	-10.28	2
Lactic Acid 20%	-12.31	24.32	0.00	2.65	0.37	2
Mineral Spirits	-39.69	-10.14	-6.35	0.57	0.05	4
Nitric Acid 10%	-42.46	25.68	-7.94	3.44	0.75	4
Phosphoric Acid 50%	-24.31	-5.41	-3.17	6.83	1.89	2
Potassium Hydroxide 50%	-14.15	-4.73	0.00	0.57	-0.23	1
Saline Solution 30%	-13.85	-0.68	-6.35	1.00	0.02	1
Sea Water	-25.85	-1.35	-1.59	1.72	-0.09	2
Sodium Carbonate 10%	-19.38	18.24	3.17	1.70	-0.01	2
Sodium Chloride 30%	-32.62	-8.78	-6.35	1.79	-1.54	3
Sodium Hydroxide 50%	-4.62	-8.78	3.17	-0.32	-0.12	1
Sodium Hydroxide 10%	-16.00	-2.03	-4.76	0.50	0.23	1
Sodium Sulfate 30%	-26.77	-0.68	-7.94	1.67	10.40	2
Sodium Sulfate 20%	-29.54	-1.35	-6.35	1.73	0.38	3
Sugar Solution 30%	-36.00	-14.19	-6.35	1.82	0.17	3
Sulfuric Acid 25%	-23.08	11.49	-3.17	1.38	0.26	2
Sulfuric Acid 10%	-18.15	18.92	-9.52	1.70	0.05	2
Tannic Acid 40%	-23.69	24.32	-9.52	2.91	0.24	2
Water (DI)	-20.71	-3.92	-1.79	1.78	1.03	1

1 – Excellent 2 –Good 3 – Fair 4 – Moderate 5 – Not Recommended

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PRODUCT 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 own information and test, to determine suitability of the product for his own intended use, application and job situation and 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 that 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 the purpose of establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and ULTIMATE LININGS makes no claim that these tests or any other tests accurately represent all environments.