2870 CRESTWOOD BLVD. STE B
IRONDALE, AL 35210
205-957-0020

DEFENDER

DEFENDER AR45

TECHNICAL DATA SHEET

PRODUCT DESCRIPTION

Defender AR45 is a 100% solid, two-component, high performance aromatic pure polyurea spray elastomer system. Defender AR45 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. Defender AR45 produces 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. Defender AR45 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. Defender AR45 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

Defender AR45 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 highpressure 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 the equipment manufacturer's recommended procedures. Please refer to spray equipment operating and maintenance procedures for further details. Defender AR45 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

Defender AR45 has a shelf life of twelve (12) months from manufacture date in factory sealed containers. Defender AR45 should be stored between 60°F to 100 °F (16°C to 38°C) in temperature controlled environment . 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 & HANDLING

Please refer to Safety Data Sheets (SDS) for the 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.

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
Full Cure	7 days
Density “A” Side (lbs/gal)	9.50
Density “B” Side (lbs/gal)	8.40
Viscosity “A” Side	950 ± 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.

TEST NAME	TEST METHOD	VALUE
Coefficient of Friction Static Kinetic	ASTM D1894	 0.530 0.434
DMA Test (Loss Modulus, E" Tg)	ASTM D4065	-34°C
Elongation	ASTM D412	161%
Hardness Shore D	ASTM D2240	60 ± 1
Taber Abrasion (mg Loss/1000 cycles)	ASTM D4060	24.9 mg
Tear Strength	ASTM D624	658 pli
Tensile Strength	ASTM D412	2,958 psi
Flammability of Interior Materials	FMVSS 302	Pass
Impact	ASTM D2794	320 in. lbs. no failure

ADDITIONAL PRODUCT CERTIFICATIONS

- Complies with USFDA Coatings Regulations for Incidental-Food-Contact Applications (Keller and Heckman LLP Letter of Opinion)
- Meets the requirements of NSF/ANSI/CAN 61 (Natural Resin
  - Applied to 250 mils.

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 of coated objects must be considered before installing Defender AR45 coatings system.

PRODUCT USER RESPONSIBILITES

Users of Defender AR45 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 UMI Coatings representative for current technical data instructions.

CHEMICAL RESISTANCES PER ASTM D543 FOR IMMERSION IN FLUIDS METHODS

Defender AR45 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.

CONDITIONS: 77°F AND 50% REL. HUMIDITY						
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
DEF	1.54	26.81	0.77	1.25	2.18	2
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
Hydrochloric acid 5%	-27.69	-9.46	-6.35	0.35	0.17	2

CONDITIONS: 77°F AND 50% REL. HUMIDITY						
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**

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 UMI Coatings makes no claim that these tests or any other tests accurately represent all environments.