

Part A – Rhino Extreme™ FR 21-50 Iso – Part # 60007
 Part B – Rhino Extreme™ FR 21-50 Resin – Part # 60047

DESCRIPTION: Rhino Extreme FR 21-50 is a two component, flame retardant, elastomeric 100% polyurea system. Its flame retardance makes it an ideal coating for numerous applications that require a flammability rating. Because of the large number of flammability ratings and the large array of surfaces that can be coated, it is highly recommended that testing, certification and approval be considered prior to any application of this coating. Note: Ultimate flame retardance is dependent upon coated substrate, thickness and density.

TYPICAL USES:

- Excellent fire retardant protective lining for abrasion, impact and corrosion resistance
- Spray-on application creates a monolithic, seamless lining which conforms to any shape and size.
- Tough, durable lining for military applications such as:
 - Tactical vehicles and equipment requiring abrasion, corrosion and impact protection
 - Foot traffic areas requiring non-slip surfaces
- Excellent blast mitigation properties for military barracks, vehicles, temporary structures and buildings.
 - High tensile and elongation properties contain and reduce shrapnel in vehicles and buildings
- Can withstand tracked vehicle traffic and heavy loads with proper thickness build
- Reduces noise from vibration and impact
- Spray-on application creates a monolithic, seamless lining which conforms to any shape and size
- Can withstand vehicle forklift traffic and heavy loads with proper thickness build

FEATURES & BENEFITS:

- Can be applied in humid conditions and in cold temperatures as low as -32°F
- Maximum thickness – unlimited
- Excellent abrasion resistance
- Excellent impact resistance
- Good chemical resistance
- Excellent fire resistance
- Excellent weather resistance
- Excellent corrosion resistance
- High tensile strength, elongation and tear strength
- Provides vibration and acoustic dampening

CHEMICAL PROPERTIES:

	Isocyanate	Resin	Test
Specific Gravity (grams/cc)	1.2	1.03	ASTM D-792
Viscosity, CPS at 77°F (25°C)	800 – 1100	450 – 600	
Weight per Gallon	9.8	8.6	
Mix Ratio, Parts per Volume	1	2	
Mix Ratio, Parts per Weight	105	1	
Gel Time, Seconds at 77°F (25°C)	7 – 10		
Solids by Volume/Weight	100%	100%	
Volatile Organic Compounds	0 lbs/gal	0 lbs/gal	
Theoretical Coverage (dft)	1600 sqft/gal at 1 mil thick		
Shelf Life - Unopened Containers	6 months	12 months	
Base Color	amber	straw opaque	

TYPICAL PHYSICAL PROPERTIES:

	Result	Test
Hardness (Shore D)	45±5	ASTM D-2240
Specific Gravity (grams/cc)	1.10 – 1.12	ASTM D-792
Tensile Strength (psi)*	1400 – 1600	ASTM D-412
Elongation (%)*	250 – 300	ASTM D-412
Water Absorption (%) - 24 hours	1.0%	ASTM D-570
Flammability	Pass (Uncertified)	FMV-302
	Pass (Uncertified)	Cal 117
	V-O	UL-94

RHINO EXTREME™ FR 21-50**TYPICAL PHYSICAL PROPERTIES (continued):**

	Test	Result
Dielectric Strength (volts/mil)	300	ASTM D-149
Volume Resistancy (ohm/inches)	6 X 10 (12)	ASTM D-257
Dielectric Constant (MHz)	5.4	ASTM D-150
Dissipation Factor (MHz)	0.058	ASTM D-150
Cathodic Disbonding	Pass	ASTM G-8
Elcometer Adhesion Pull Test	Pass	ASTM D-4541

*Properties were checked of Rhino Extreme™ FR polyurea lining, 1/8" (125 mils), (3.18 mm) thick stock.

PROCESSING CHARACTERISTICS: The system settings required to achieve quality spray sealant application will vary depending on environmental and substrate conditions. The following recommended parameters will help ensure optimum lining quality.

Equipment Used	Spray Pressure	Process Pressure	Spray Gun	Mix Module
RhinoPro HP-21 Classic	2000 psi	2300 – 3500 psi	Fusion - Air or Mechanical Purge	AR2929 or greater

Process Temperatures

Component Temperature (A&B)	Hoses - High Pressure	Substrate Surface
150°F (66°C)	150°F (66°C)	60° – 110°F (15° – 43°C)

CHEMICAL RESISTANCE:

(Guidelines only: Fume, splash, spillage as noted. Individual testing required for immersion).

Acetic Acid to 10%	Excellent	Ammonia to 5%	Excellent
Formic Acid to 5%	Excellent	Caustic Soda Lye to 50%	Excellent
Sulfuric Acid to 10%	Excellent	Potash Lye to 20%	Excellent
Tannic Acid to 20%	Excellent	Oils	Excellent
Solvents	Moderate		

Properties were check from polyurea lining, 1/8" (125 mills), (3.18mm) thick stock.

SUBSTRATES: Metals, wood, concrete, fiberglass, geotextiles and most plastics

DRY FILM THICKNESS RANGE: Varies based on application, typically used at a minimum of 1/16" (62.5 mils; 1.5 mm) up to unlimited thickness)

COLOR OPTIONS: Standard colors - black. Custom colors are available by special order.

SAFETY PRECAUTIONS: Health Considerations: Consult the Rhino Linings® Safety Data Sheets (SDS)

This chemical system requires the use of proper safety equipment and procedures. Please follow the Rhino Linings® product SDS and Safety Manual for detailed information and handling guidelines.

For Your Protection: The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning the products and their uses, applications, storage and handling are only the opinion of Rhino Linings Corporation. Users should conduct their own tests to determine the suitability of these products for their own particular purposes and of the storage and handling methods herein suggested. The toxicity and risk characteristics of products made by Rhino Linings Corporation will necessarily differ from the toxicity and risk characteristics developed when such products are used with other materials during a manufacturing process. The resulting risk characteristics should be determined and made known to ultimate end-users and processors. Because of numerous factors affecting results, **Rhino Linings Corporation makes no warranty of any kind, express or implied**, other than that the material conforms to its applicable current Standard Specifications. Rhino Linings Corporation hereby disclaims any and all other warranties, including but not limited to those of merchantability or fitness for a particular purpose. No statements made herein may be construed as a representation or warranty. The liability of Rhino Linings Corporation for any claims arising from or sounding in breach of warranty, negligence, strict liability, or otherwise shall be limited to the purchase price of the material.

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