

Part A – Rhino Extreme™ 11-50 FR Iso – Part # 60088-1

Part B – Rhino Extreme™ 11-50 FR Resin – Part # 60084-1

**DESCRIPTION:**

Rhino Extreme 11-50 FR is a two component, flame retardant, elastomeric, 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:**

- Class I fire rated, flame spread ≤ 25 and smoke density ≤ 450
- Can be applied in 80% humidity or lower and temperatures as low as 0° F
- Maximum thickness – unlimited
- Provides vibration and acoustic dampening
- High tensile strength, elongation and tear strength
- Excellent fire resistance
- Excellent weather resistance
- Excellent corrosion resistance
- Excellent impact resistance
- Excellent abrasion resistance
- Good chemical resistance

**CHEMICAL PROPERTIES:**

	<b>Test</b>	<b>Isocyanate</b>	<b>Resin</b>
Specific Gravity (grams/cc)	ASTM D-792	1.18 – 1.2	0.9 – 1.02
Viscosity, CPS at 77°F (25°C)		400	650
Solids by Volume/Weight		100%	100%
Volatile Organic Compounds, calculated		0 lbs/gal	0 lbs/gal
Mix Ratio, Parts per volume		1	1
Mix Ratio, parts per weight		109	100
Gel Time, seconds at 77°F (25°C)		7 – 10	
Tack-free, seconds		10 – 12	
Theoretical Coverage (dft)		1600 sqft/gal at 1 mil thick	
Freezing Point		40°F (4.4°C)	n/a
Base Color		amber	straw opaque
Shelf Life - Unopened Containers		12 months	12 months

**TYPICAL PHYSICAL PROPERTIES:**

	<b>Test</b>	<b>Result</b>
Hardness (Shore D)	ASTM D-2240	50±5
Tensile Strength (psi)*	ASTM D-412	2200 (15.1 MPa)
Tear Resistance (pli)** Die C	ASTM D-624	600 (105.1 KN/m)
Elongation (%)*	ASTM D-412	200
Density (lb/ft3)	ASTM D-1622	69 – 70 (1104 – 1120 Kg/m3)
Taber Abrasion Resistance (mg of loss/1000 cycles) CS-17 wheel; 1000 grams weight	ASTM D-4060	27

**RHINO EXTREME™ 11-50 FR**  
**TYPICAL PHYSICAL PROPERTIES** (continued):

		<b>Test</b>	<b>Result</b>
Coefficient of Friction on Steel:	-Static	ASTM D-1894	.4
	-Kinetic	ASTM D-1894	.25
Flammability	FS <sub>≤</sub> 25, Smoke <sub>≤</sub> 450	ASTM E-84	Class I
		FMV-302	Pass (Uncertified)
		Cal 117	Pass (Uncertified)
		UL-94	V-O
Dielectric Strength (volts/mil)		ASTM D-149	300
Volume Resistancy (ohm/inches)		ASTM D-257	6 X 10 (12)
Dielectric Constant (MHz)		ASTM D-150	5.4
Dissipation Factor (MHz)		ASTM D-150	0.058
Cathodic Disbonding		ASTM G-8	Pass
Elcometer Adhesion Pull Test		ASTM D-4541	Pass

\*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 depend- ing 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
Graco EXP-2	2000 psi	2300 – 3500 psi	Fusion - Air Purge 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)

**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)

**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

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

**HOW SUPPLIED:** Net weight per set is 910 pounds (412.7 kg). A set of Rhino Extreme 11-50 FR consists of one (1) 55 gallon (208 L) drum of 'A' component and one (1) 55 gallon (208 L) drum of 'B' component.

**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.

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