

Part A – Rhino Hybrid™ HP 11-50 ISO – Part # 60295

Part B – Rhino Hybrid™ HP 11-50 Resin Black – Part # 60296

Part B – Rhino Hybrid™ HP 11-50 Resin – Part # 60250

#### DESCRIPTION:

Rhino Hybrid™ HP 11-50 is a one to one volume ratio, two-component, 100% solids (no VOCs, no solvents), exothermic, rapid curing, elastomeric hybrid polyurea lining system. The lining thickness varies based on application, typically minimum of 1/16" (62.5 mils; 1.6mm) up to unlimited thickness. It can be sprayed up to 98% humidity and a dew point temperature difference of 15° or more with no blistering. Rhino Hybrid HP is easy on spray equipment with no fast gelling at the spray gun tip.

#### TYPICAL USES:

- Excellent general purpose industrial lining for applications such as:
  - Material delivery systems where a seamless flexible system is essential
  - Floor and wall protection in industries such as food processing, food storage, veterinary, production area and laboratories
  - Secondary containment as a monolithic, impermeable lining for industrial plant, agriculture, and petrochemical applications
- Reduces noise from vibration and impact
- Spray-on application creates a monolithic, seamless lining that conforms to any shape and size
- Bonds to virtually all substrates of any dimension, including metals, wood, concrete and fiberglass
- Can withstand vehicle forklift traffic and heavy loads with proper thickness build
- Stable from -40°F (-40°C) to 175°F (79.4°C)
- Elastomeric properties allow for application to surfaces subject to: vibration, expansion, contraction, movement, flexing, abrasion and impact.

#### FEATURES & BENEFITS:

- Robust application window with ability to spray at low temperatures and high humidity
- High tensile strength and tear strength properties
- Very good abrasion and impact resistance
- Good chemical resistance
- Excellent corrosion resistance
- Good noise reduction
- Easy to texture

CHEMICAL PROPERTIES*:	Standard Test	Isocyanate (A)	Resin (B)
Specific Gravity (grams/cc)	ASTM D-792	1.08 – 1.18	1.06 – 1.16
Viscosity, cps		700 ± 100	900 ± 100
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		---	3 - 5
Tack Free, seconds		---	4 - 7
Recoat, max		4 hrs	---
95 – 99% Cure Time		24 hrs	---
Theoretical Coverage		1600 sqft/gal @ 1 mil	---
Odor		mild	amine
Freezing Point		40°F	n/a
Base Color		amber/brown	amber/brown
Shelf Life - Unopened Containers		12 months	12 months

\*Properties were tested at 77°F (25°C).

#### TYPICAL PHYSICAL PROPERTIES:

	Test	Result
Hardness (Shore D)	ASTM D-2240	50 ± 5
Tensile Strength (psi)**	ASTM D-412	2000 ± 250
Secant Modulus @ 100% elongation	ASTM D-412	1850
Tear Resistance (pli)** Die C	ASTM D-624	450 ± 75
Elongation (%)	ASTM D-412	120 ± 50†
Impact Resistance, lbs	ASTM D-256	160
Density (lb/ft <sup>3</sup> )	ASTM D-1622	69 – 70
Compressive Strength (psi)	ASTM D-695	800

(continued)

**RHINO HYBRID™ HP 11-50** *(continued)***TYPICAL PHYSICAL PROPERTIES:**

	<b>Test</b>	<b>Result</b>
Taber Abrasion Resistance (mg of loss/1000 cycles) H18 Wheel; 1000 grams weight	ASTM D-4060	90
Mandrel Bend, 180°, 1 inch mandrel	ASTM D-522	Pass
Coefficient of Friction on Steel:	-Static	ASTM D-1894
	-Kinetic	ASTM D-1894
Water Absorption (%)	ASTM D-570	≤1.6
Cathodic Disbonding	ASTM G-8	Pass
Weathering	ASTM D523	
	Results	60 ° Gloss
	Initial	91
	3600 Hrs. 4	10
		Colorfastness
		0
		8

\*\*Properties were checked of Rhino Hybrid™ lining, 1/16" (62 mils), (1.6 mm) thick stock.

†Properties were tested at 77°F (25°C).

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

Equipment	Spray Gun	Process Pressure, psi (static)
Graco Reactor E-XP1; E-XP2	Fusion - Air Purge or Mechanical Purge	2000 – 2500

**Process Temperatures**

Iso Component	Resin Component	Hoses
150° – 160°F	140° – 150°F	140° – 160°F

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

**NOT RECOMMENDED FOR:**

- Sustained temperatures below -40°F (-40°C) or above 250°F (121°C)
- Application to high-density polyethylene or thermo plastics

**CHEMICAL RESISTANCE:** Rhino Hybrid HP 11-50 provides good resistance to many commercial and industrial chemicals such as acids, alkalis, oils and cleaning chemicals. For specific applications and information, please consult a Rhino® representative.

**SUBSTRATES:** Metals, wood, concrete, fiberglass, most epoxy or polyurethane painted substrates and geotextiles

**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 Hybrid HP 11-50 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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