

Part

#60296 Rhino Hybrid HP 11-50 Black Resin
#60297 Rhino Hybrid HP 11-50 Clear Isocyanate
#60250 Rhino Hybrid HP 11-50 Clear Resin

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; 1.6 mm) up to unlimited thickness. It can be sprayed up to 98% humidity and a dew point temperature difference of 15° F (-9.4° C) 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 AND 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:	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

CHEMICAL PROPERTIES (CONT):

	Isocyanate (A)	Resin (B)
Tack Free, seconds	—	4-7
Recoat, max	4 hrs	—
95 - 99% Cure Time	24 hrs	—
Theoretical Coverage	1600 sqft/gal at 1 mil	—
Odor	Mild	Amine
Freezing Point	40° F	N/A
Base Color	Amber/Brown	
Shelf Life - Unopened Containers	12 Months	12 Months

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

TYPICAL PHYSICAL PROPERTIES:

TYPICAL PHYSICAL PROPERTIES:		Test	Result
Slip-Resistance		NFPA 1901 15.7.4	Pass
Hardness (Shore D)		ASTM D-2240	50 ± 5
Tensile Strength (psi)**		ASTM D-412	2000 ± 250
Secant Modulus at 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/ft3)		ASTM D-1622	69 - 70
Compressive Strength (psi)		ASTM D-695	800
Taber Abrasion Resistance (mg of loss/1000 cycles)		ASTM D-4060	90
H18 Wheel; 1000 grams weight			
Mandrel Bend, 180°, 1" Mandrel		ASTM D-552	Pass
Coefficient of Friction on Steel:	-Static	ASTM D-1894	.6
	-Kinetic	ASTM D-1894	.55
Water Absorption (%)		ASTM D-570	≤1.6
Cathodic Disponding		ASTM G-8	Pass
Weathering		ASTM D523	
	Results	60° Gloss	Colorfastness
	Initial	91	0
	3600 Hours	10	8
Flammability		FMVSS 302	Pass

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

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

MIXING INSTRUCTIONS:

New Resin product drum with removable ring top. The top should be removed and using a jiffy mixer and a corded ½" electric drill motor or air driven drill motor mix drum thoroughly until the solids on the bottom of the drum are mixed. Could take several minutes. Replace lid and using the air agitator mix drum for one hour.

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 lining quality.

Equipment Used	Spray Gun	Process Pressure, psi (static)
Graco Reactor E-XP1	E-XP2 AR2929 or AR3737 Mix Chamber	200 - 2500

PROCESS TEMPERATURES:

Iso Component	Resin Component	Hoses
150° - 160° F	150° - 160° F	150° - 160° F

DRY FILM THICKNESS RANGE:

Varies based on application, typically a minimum of 1/16" (62.5 mil; 1.5 mm) 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 Linings 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 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 end users and processors.

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Contact Rhino Linings Technical Support at 858-450-0411 ext. 2 for additional questions.

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