

Part A – HardLine® HP 11-60 Iso, Part # 60211-1  
 Part B – HardLine® HP 11-60 Resin, Part # 60212-1  
 Part B – HardLine® HP 11-60 Resin Black, Part # 60213-1

**DESCRIPTION:** HardLine HP 11-60 is a 1:1 volume ratio, two-component, 100% solids (no VOCs, no solvents), exothermic, rapid curing, elastomeric lining system. Lining thickness varies based on application, typically from a minimum of 1/16" (62.5 mils; 1.6 mm) up to unlimited thickness.

**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
- Spray-on application creates a monolithic, seamless lining that conforms to any shape and size
- Elastomeric properties allow for application to surfaces subject to: vibration, expansion, contraction, movement, flexing, abrasion and impact
- Bonds to virtually all substrates of any dimension, including metals, woods, concrete and fiberglass
- Can withstand vehicle forklift traffic and heavy loads with proper thickness build
- Reduces noise from vibration and impact
- Stable from -40° F to 175° F (-40° to 79.4° C)

**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

<b>CHEMICAL PROPERTIES:</b>	<b>Standard Test</b>	<b>Isocyanate (A)</b>	<b>Resin (B)</b>
Specific Gravity (grams/cc)	ASTM D-792	1.12 ± .02	1.03 ± .02
Viscosity, CPS at 77°F (25°C)		200 ± 50	800 ± 100
Solids by Volume/Weight		100%	100%
Volatile Organic Compounds		0 lbs/gal	0 lbs/gal
Mix Ratio, Parts per Volume		1	1
Gel Time, Seconds at 77°F (25°C)		7 ± 3	
Tack-free, Seconds		20 ± 3	
Theoretical Coverage (dft)		1600 sqft/gal at 1 mil thick	
Shelf Life - Unopened Containers		12 months	12 months
Base Color		light amber	opaque

<b>TYPICAL PHYSICAL PROPERTIES:</b>	<b>Test</b>	<b>Result</b>
Hardness (Shore D)	ASTM D-2240	60±5
Tensile Strength (psi)*	ASTM D-412	1700 – 2200
Elongation (%)*	ASTM D-412	100
Compressive Strength (psi)	ASTM D-695	>800
Taber Abrasion Resistance (mg of loss/1000 cycles) CS17 Wheel; 1000 grams weight	ASTM D-4060	45
Tear Resistance (pli) Die C*	ASTM D-624	350 ± 50
Water Absorption (%) - 24 hours	ASTM D-570	≤1.5
Dielectric Strength (volts/mil)	ASTM D-149	300
Volume Resistancy (ohm/inches)	ASTM D-257	6 X 10 (12)

**HARDLINE® HP 11-60 (continued)****TYPICAL PHYSICAL PROPERTIES:**

	Test	Result
Dielectric Constant (MHz)	ASTM D-150	5.4
Dissipation Factor (MHz)	ASTM D-150	0.058
Cathodic Disbonding	ASTM G-8	Pass

\*Properties were checked of polyurethane lining, 1/8" (125 mils), (3.18 mm) thick stock.

**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	Process Pressure	Spray Gun	Mix Module
Graco EXP-1; EXP-2	2000 – 2500 psi	Fusion - Air Purge	AR 2929

  

Isocyanate Temperature	Resin Temperature	Hoses - High Pressure	Substrate Surface
130° – 150°F (54° – 66°C)	130° – 150°F (54° – 66°C)	130° – 150°F (54° – 66°C)	60° – 110°F (15°–43°C)

**DRY FILM THICKNESS:** Varies based on application, typically a minimum of 1/16" (62.5 mil; 1.6 mm) up to unlimited thickness

**NOT RECOMMENDED FOR:**

- Sustained temperatures below -40° F (-40° C) or above 175° F (79.4° C)
- Application to high density polyethylene or thermo plastics

**CHEMICAL RESISTANCE:** Duraspray 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 and geotextile

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

**HOW SUPPLIED:** 910 lb (412.8 kg) drum set. Also available in pony drums and hedpaks.

**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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