

Part A – TuffGrip® 21-90 Iso – Part # 60016

Part B – TuffGrip® 21-90 Resin – Part # 60026

DESCRIPTION:

TuffGrip® system is a two-component, 100% solids (no VOCs, no solvents), exothermic, rapid curing, elastomeric polyurethane/polyurea hybrid lining. Lining thickness can vary from a minimum of 1/16" (62.5 mils; 1.5mm) for non-load bearing or abrasion-resistant linings up to unlimited thickness.

TYPICAL USES:

- Excellent protective lining for abrasion, impact and corrosion resistance
- Spray-on application creates a monolithic, seamless lining which conforms to any shape and size.
- Elastomeric properties allow for application to surfaces subject to vibration, expansion, contraction, movement, flexing, abrasion and impact.
- Stable from -40° F (-40° C) to 175° F (79.4° C)
- Withstands light vehicular and foot traffic
- Casting material for material handling equipment such as chutes, hoppers, rollers, etc.
- Aggressive non-slip performance can be achieved with aggregate integrated into lining.

FEATURES & BENEFITS:

- Excellent slip resistance
- Good impact resistance
- Excellent abrasion resistance
- Excellent corrosion resistance
- Good chemical resistance
- Reduces noise from vibration and impact
- Excellent casting material
- Excellent weather resistance

CHEMICAL PROPERTIES*:

Test	Isocyanate (A)	Resin (B)
Specific Gravity (grams/cc)	ASTM D-792	1.2
Viscosity, CPS	400 – 600	850 – 1100
Mix Ratio, Parts per Volume	1	2
Mix Ratio, Parts per Weight	60	100
Gel Time, Seconds	10 – 15	
Solids by Volume/Weight	100%	100%
Volatile Organic Compounds	0 lbs/gal	0 lbs/gal
Shelf Life - Unopened Containers	12 months	6 months
Base Color	yellow or light-straw color	opaque

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

TYPICAL PHYSICAL PROPERTIES:

Test	Result
Hardness (Shore A)	ASTM D-2240
Tensile Strength (psi)**	85±5
Elongation (%)**	ASTM D-412
Compressive Strength (psi)	1100 – 1300
Taber Abrasion Resistance (mg of loss/1000 cycles) CS17 Wheel; 1000 grams weight	ASTM D-412
Tear Resistance (pli)** Die C	250 – 300
Ross Flex (% crack growth per 50,000 cycles)	ASTM D-695-96
Coefficient of Friction on Steel	800
	ASTM D-4060
	10 – 15
	ASTM D-624
	200 – 250
	ASTM FIA-308
	0
	ASTM D-1894
	.85
	ASTM D-1894
	.78
	ASTM D-570
	≤1.6

TUFFGRIP® 21-90**TYPICAL PHYSICAL PROPERTIES** *(continued):*

	Test	Result
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

**Properties were checked of TuffGrip® 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	1700 – 1800 psi	Fusion - Air or Mechanical Purge	AR2932 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)

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: Good resistance to many routine chemicals such as: weak acids, weak alkalies, oils and cleaning agents. For specific applications and/or information, consult with a Rhino Linings® representative.

SUBSTRATES: Metals, wood, concrete, fiberglass and geotextiles.

DRY FILM THICKNESS RANGE: Varies based on application. Lining thickness can vary from a minimum of 1/16" (62.5 mils; 1.5mm) for non-load bearing or abrasion-resistant linings up to unlimited thickness.

COLOR OPTIONS: Full color range available. Pigments sold separately. Standard colors - black, indigo blue, graphite and flame red. Custom colors available by special order.

HOW SUPPLIED: Net weight per set is 1400 pounds (636.4 kg). A set of TuffGrip 21-90 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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**Rhino Linings Corporation**

9747 Businesspark Avenue, San Diego, CA 92131
 858-450-0441 • Fax 858-450-6881
 1-800-422-2603
 www.rhino linings.com