

Flooring Solutions

Rhino™ Floor Coating Systems





Flooring Solutions



BEFORE



AFTER

"Rhino™ polyaspartic flooring solutions offer a quick return to service, while the epoxy products provide attractive economical savings."



BEFORE



AFTER

Monolithic Floor Coatings

Rhino Linings Corporation ("Rhino") offers a family of proven flooring, coating and lining solutions for your customer's home. These systems include polyaspartic, polyurea, polyurethane, epoxy and stain formulations that have been time-tested to withstand steady foot traffic and chemical resistance. From our polyaspartic flooring solution, which offers a quick return-to-service, to our epoxy flooring system for cost conscious customers, Rhino has a solution for everyone's flooring needs. Depending on the product, Rhino products can be applied by hand and/or high pressure spray, brush, roller, squeegee or trowel.

World-Class Floor Systems

Polyaspartic Products

- **FastFloor™ DF** - Decorative floor, rapid return-to-service applications.
- **FastFloor™ ClearCoat / Gloss** - Clear, aliphatic, chemical resistant top coat with a gloss finish
- **FastFloor™ ClearCoat / Matte** - Clear, aliphatic, chemical resistant top coat with a matte finish

Polyurethane Products

- **Rhino Extreme™** - 100% polyurea for extreme temperature applications
- **TuffGrip®** - Most versatile non-skid formulation of Rhino
- **Rhino Hybrid™** - Hybrid polyurea for fast setting, highly corrosive applications
- **Hi-Chem™ and Hi-Chem™ PW** - Superior rigid formulation with the highest amount of molecular cross-linking (NSF 61& NSF 50 certified)
- **HardLine®** - A tough as nails general purpose lining

Epoxy Products

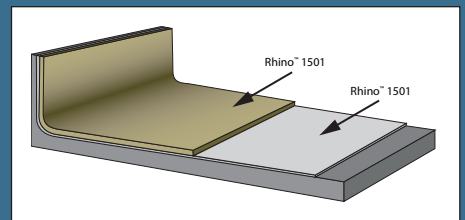
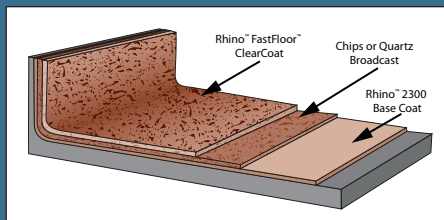
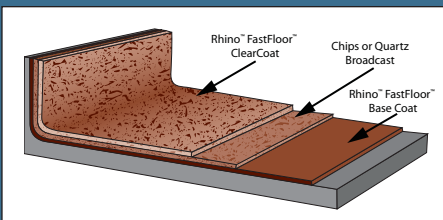
- **Rhino™ 405** - Structural epoxy gel
- **Rhino™ 1501** - Pigmented 2-part epoxy coating
- **Rhino™ 2300** - Clear or pigmented 100% solids epoxy coating

Stain Products

- **Rhino EcoStain™** - Soy-based decorative floor stain
- **Rhino EcoStain™ ClearCoat** - Clear, waterborne, chemical resistant top coat with a gloss or matte finish

Flooring Configurations

These Rhino™ flooring configurations are a compilation of polyaspartic and epoxy products.



Rhino™ FastFloor™ Polyaspartic Coatings

Rhino FastFloor coating is a two-component, rapid curing, polyaspartic flooring system that is durable yet decorative for commercial, industrial and residential applications. Formulated with aliphatic chemistry, FastFloor coating is color stable allowing it to take UV exposure without color shifts. FastFloor coating is a 1:1 mix ratio system with sufficient pot life to be rolled, brushed or sprayed with Rhino Linings® application equipment.

FastFloor coating's decorative broadcast and rapid return-to-service properties make it ideal for kitchens, bathrooms, garages, showrooms or other applications from foot to vehicle traffic. FastFloor ClearCoat is a durable top coat that is available in a gloss or matte finish.

FastFloor™ Advantages

- Fast cure allowing one day rapid return-to-service*
- Robust application window
- Excellent abrasion, impact & chemical resistance
- Excellent UV resistance and high gloss characteristics
- Bonds to virtually all substrates, including metals, concrete and fiberglass.
- Low odor, high solids
- Can be applied as low as 32°F
- Excellent color stability
- Available in gloss or matte finish
- Ability to achieve high film build reducing the number of coats required for proper thickness
- Zero VOCs; environmentally friendly
- Easy to apply using roller, squeegee or spray equipment



Industrial Flooring Applications

- Automotive
 - Showroom floors
 - Service Bays
- Architect / Engineering Firms
- Aviation Hangers
- Hospitals
 - Cooling Towers
 - Mechanical Rooms
- Manufacturing Plants
 - Chemical
 - Food Processing
 - Pharmaceutical
- Mining & Mineral Processing
- Plating/Metal Treatment Facilities
- Power Plants
- Railcar Facilities
- Refineries
- Retail Stores
- Schools
 - Cafeterias
 - Kitchens
 - Showers
 - Ramps
- Water/Waste Water Treatment Plants
- Zoo & Veterinary Facilities

Chemical Resistance

Clear Chemical Resistance	1 hr	24 hr
Break Fluid	No Effect	No Effect
Gasoline	No Effect	No Effect
Skydrol	No Effect	No Effect
Sulfuric Acid (50%)	Slight Soften	Soften
Ammonium Hydroxide (50%)	No Effect	No Effect
Anti-freeze	No Effect	No Effect
IPA	No Effect	Slight Soften
Motor Oil	No Effect	No Effect
Transmission Fluid	No Effect	No Effect
Dissolved Rock Salt	No Effect	No Effect

Results based on dry film thickness of 6 mils.

Property	Result	Test
• Hardness (Shore)	- Pencil - Pendulum	2H 160
• Tensile Strength (psi)**	6500	ASTM D-412
• Elongation (%)**	6 – 8	ASTM D-412
• Impact Resistance (lbs)	100	
• Taber Abrasion Resistance	50 – 60	ASTM D-4060
• Specific Gravity (grams/cc)	1.0	ASTM D-792
• Water Absorption (%)	0.3	ASTM D-570
• QUV Weatherometer, 4000 hours	No effect	
- Oxidation, loss of gloss, blistering, yellowing		
• Chemical Resistance	No effect	
- Ammonium hydroxide, brake fluid, coolant/anti-freeze, gasoline, skydrol		

**Properties checked on dry films at 5 – 10 mils thick, air dried for 7 days.



Rhino™ Polyurethane Linings

Rhino polyurethanes are tough, elastomer polyurethane, polyurea and hybrid coatings that provide superior corrosion resistance, impact protection and abrasion resistance. All coatings are 100% solids and VOC free (no solvents) that can be sprayed or cast onto virtually any substrate to create the perfect monolithic barrier. All formulations are tack free in seconds and fully cured in 24 hours. Many of the polyurethanes have both 2:1 and 1:1 volumetric ratio formulations. Formulation variations for pigmented, flame retardant or slow curing may be available upon request.

Rhino™ Polyurethane Advantages

Polyurethane, polyurea and hybrid products provide a monolithic bond that adhere to virtually any surface and are tack free in seconds. All Rhino polyurethane products are 100% solids and zero VOCs (no solvents), water-tight and provide excellent chemical resistance.

- Fast-set formulation, increased cure speed
- Superior coating for slip resistance and abrasion
- Great lining for noise reduction
- Excellent for tough, hard surface protection and an ideal coating for impact resistance
- Superior water/chemical resistance and corrosion protection (NSF 61 and NSF 50)
- Superior property formulation for – hardness, elongation, high tensile strength and tear abrasion resistance
- Excellent for cold substrate application
- Excellent for high humidity and extreme temperatures

“Excellent abrasion, chemical and impact resistance”

Properties***	Rhino™ Extreme	TuffGrip®	Rhino™ Hybrid	Hi-Chem™	HardLine®
Elongation (%) - ASTM D-412	300 – 350	250 – 300	90 – 100	25 – 30	50 – 80
Hardness (Shore) - ASTM D-2240	55D +/- 5	85A +/- 5	55D +/- 5	70D +/- 5	55D +/- 5
Tensile Strength (psi) - ASTM D-412	2200 – 2500	1100 – 1300	2200 – 2400	3500 – 3700	2100 – 2200
Tear Resistance - ASTM D-624	330 – 400	200 – 250	300 – 330	180 – 190	200 – 250
Corrosion Resistance	Excellent	Excellent	Excellent	Excellent	Excellent
Slip Resistance	Excellent	Excellent	Good	Excellent	Excellent
Abrasion Protection	Excellent	Excellent	Good	Excellent	Excellent
Extreme Condition Applications	Excellent	Good	Good	Good	Good
UV / Color Stability Applications	Good	Good	Good	Good	Good

Certifications: ANSI/NSF, SSPC-TU2, CAFO, CFR, FDA, FAC, NACE, ACI ***Tested using 2:1 ratio formulations.

Rhino Extreme™ lining - is a two-component, rapid curing, elastomeric pure polyurea lining system. Rhino Extreme lining is designed to be sprayed with high pressure plural component spray equipment. Thickness of the lining will vary depending on the application, typically from a minimum of 30 mils up to unlimited thickness. Rhino Extreme lining is 100% polyurea chemistry and specifically formulated for extreme, outdoor conditions and colder substrate applications.

Applications

- Extreme outdoor marine environments
- Fast setting/curing conditions

TuffGrip® lining - is a two-component, 100% solids, zero VOCs (no solvents), exothermic, rapid curing, elastomeric polyurethane lining system (variations: pigmented, flame retardant, slow). Lining thickness varies based on application, typically minimum of 1/8" (125 mils; 3mm) up to unlimited thickness. A versatile lining with excellent non-skid properties that offers excellent toughness and abrasion resistance.

Applications

- Floors, decks, walkways and ladders
- Lift gates, cargo trailers and vehicles

Rhino Hybrid™ lining - is a two-component, rapid curing, elastomeric hybrid polyurea lining system. Rhino Hybrid™ lining is designed to be sprayed with high pressure plural component spray equipment such as the RhinoPro™ HP-21 Max spray equipment. Thickness of the lining will vary depending on the application, typically from a minimum of 30 mils up to unlimited thickness. Rhino Hybrid™ lining is a cost-effective solution for high humidity, impact, corrosion and abrasion protection.

Applications

- Fast setting environments
- Floors, tanks and corrosive areas



Hi-Chem™ lining - is a two-component, 100% solids, zero VOCs (not solvents), exothermic, rapid curing, elastomeric polyurethane lining system specifically designed for excellent chemical resistance. It has superior rigid formulation with highest amount of molecular cross-linking for chemical resistance.

Applications

- NSF 50 & 61 certified
- Applications requiring protection from diesel, oil, gas, chemicals, salts or lye

HardLine® lining - is a two-component, 100% solids, zero VOCs (no solvents), exothermic, rapid curing, elastomeric polyurethane lining system. Lining thickness varies based on application, typically minimum of 1/16" (62.5 mils; 1.6 mm) up to unlimited thickness. Hardline® lining delivers maximum protection and toughness against impact, abrasion and corrosion.

Applications

- Any surface requiring tough protection
- Floors with heavy loads

U.S.A. Certifications

- ACI 350.2R-04 (containment of hazardous materials)
- CAFO 40 – 412 (secondary containment)
- FAC 62-762.501 (Florida storage of hazardous waste)
- FDA 21 CFR 175.300 and 177.1680 (incidental food contact)
- NSF 50 (hot water – pools & spas)
- NSF 61 (potable water)
- SSPC 40 – CFR 112 & 264 (oil pollution)
- SSPC-TU2 / NACE 6G197 (Florida – environmental containment)

European Certifications

- BS EN ISO 9001:1994
- UL – FDNP Protective Barrier (drinking water system components)
- General Construction Inspection Test Certificate (for use in collecting trays)
- DIN EN 10 204 – 3.2 Certificate for Material Testing
- DIN EN 1672 (food industry)
- DIN 10503 (food hygiene)
- MPA NRW – DIN 4102-1 (restricted flammability for class B1 construction materials)
- TUV – XRP 8249/8200 (food and consumer goods)



Rhino™ Epoxy Coatings

All Rhino™ epoxy floor coating products are designed to resist a range of chemicals from concentrated to diluted acids such as sulfuric acid in splash/spill conditions. They are seamless and durable with a robust application window. Each offers economical savings and quick return-to-service time.

Rhino™ 2300 Epoxy - A 100% Self Leveling Solids Epoxy Coating

Rhino 2300 is a very versatile, general purpose, multi-use epoxy with good chemical resistance that is a 2:1 volumetric ratio product. It is applied easily over concrete substrate by brush, roller, trowel or squeegee. Rhino 2300 dries to a high gloss with greater color stability than conventional epoxies.

Features & Benefits

- Highly resistant to cratering or blush
- Recommended for chip or quartz broadcast, clear coats, aggregate filled or slurry binder applications

Rhino™ 1501 Epoxy - A Pigmented Water Based Epoxy Coating

Rhino 1501 is a two part water based epoxy coating using 1:1 (equal) volumetric mixing of resin and hardener. Rhino 1501 epoxy is applied over concrete and other substrates by brush, roller or spray equipment. The unique lacquer dry cure allows Rhino 1501 epoxy to be recoated quickly. The material has a long work time which allows larger batches to be mixed together.

Features & Benefits

- Extended recoat window (>48 hours)
- Very fast dry (lacquer dry – dust free, tack free) in 60 – 90 minutes
- Great “hide” covers in one coat at >150 sq ft/gallon

Rhino™ 405 Epoxy - A Structural Epoxy Gel

Rhino™ 405 is a highly versatile, 100% solids and provides a high build system. Its wide variety of uses on concrete substrate include structural restoration, patching, and adhesive repairs. The long working life of Rhino 405 is ideal for repairing large concrete floors and restoration of deteriorated concrete structures.

Features & Benefits

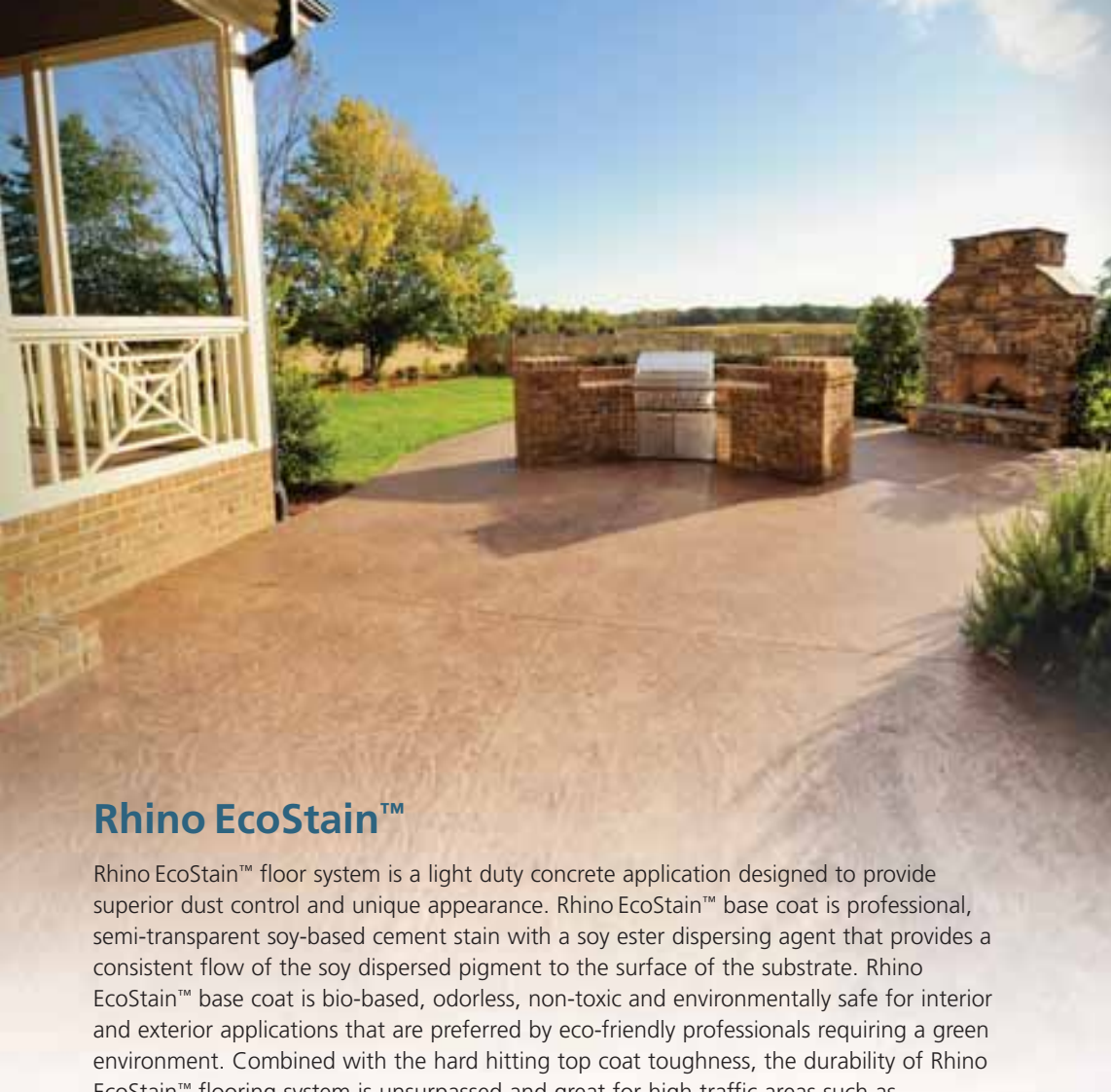
- High build (up to 1" on vertical surfaces)
- Adhesive “tack coat” for saturated carbon or e-glass laminates
- Long working time (>60 minutes)
- Moisture tolerant
- Excellent chemical resistance



Rhino™ Epoxy Comparison Chart

Epoxy Coatings Properties	Rhino™ 1501	Rhino™ 2300	Rhino™ 405
Coverage Rate (sq. ft./gal)	150 – 200 @ 4 – 5 mils dft	80 – 120 @ 14 – 20 mils dft	Varies by mils dft
% Solids by Weight	65%	100%	100%
Mixed Viscosity, cps	400 – 600	300 – 600	Thixotropic paste
VOC (grams/liter)	75	0	0
Working Time	2 – 3 hrs	25 – 35 min	60 – 90 min
Walk-on Time	4 – 6 hrs	8 – 10 hrs	16 – 24 hrs
Cure Time (return to service)	Overnight	24 – 36 hrs	24 – 36 hrs





Rhino EcoStain™

Rhino EcoStain™ floor system is a light duty concrete application designed to provide superior dust control and unique appearance. Rhino EcoStain™ base coat is professional, semi-transparent soy-based cement stain with a soy ester dispersing agent that provides a consistent flow of the soy dispersed pigment to the surface of the substrate. Rhino EcoStain™ base coat is bio-based, odorless, non-toxic and environmentally safe for interior and exterior applications that are preferred by eco-friendly professionals requiring a green environment. Combined with the hard hitting top coat toughness, the durability of Rhino EcoStain™ flooring system is unsurpassed and great for high traffic areas such as entrances, patios and driveways. Rhino EcoStain™ flooring system is an excellent decorative concrete solution that will provide surface protection and enhance the look and feel of ordinary floors.

Rhino EcoStain™ Advantages

- Excellent chemical resistance
- Excellent abrasion and impact resistance
- Can be applied to new and existing concrete
- Perfect for interior and exterior applications
- Versatile color palette
- Environmentally friendly



Typical Applications:

- Basements & Garages
- Concrete
- Decks & Patios
- Driveways & Walkways
- Entry Ways
- Kitchen Floors
- Landscape Borders
- Masonry
- Natural Stone Exteriors
- Show Rooms
- Stucco

Chemical Resistance Spot Test - ASTM D-1308†

4 hr and 24 hr spot test, covered

Sulfuric Acid (10%)	No Effect
Muriatic Acid (10%)	No Effect
Ammonium Hydroxide (14%)	No Effect
Sodium Hydroxide (50%)	No Effect
Bleach (10%)	No Effect
Gasoline	No Effect

Chemical Immersion Test - ASTM D-1308†

Tested for 1 and 7 days

Skydrol	No Effect
Brake Fluid at 122°F (50°C)	No Effect

† Films were allowed to cure for 14 days at 70°F / 50% RH before testing

Property	Result	Test
• Hardness (Shore)	- Pencil - Pendulum	2H 37.3 (1 Day) 183.9 (7 Days)
• Tensile Strength (psi)††	1000	ASTM D-412
• Elongation (%)*	32	ASTM D-412
• Impact Resistance (lbs)	100	
• 60° Gloss	90	
• Tg, °C	70	
• Chemical Resistance	No effect	
- Ammonium hydroxide, brake fluid, coolant/anti-freeze, gasoline, skydrol		

† Properties checked on dry films at 2 – 4 mils thick, air dried for 14 days.



USA, Canada

Rhino Linings Corporation

Rhino Linings Canada, Inc.

9151 Rehco Road

San Diego, CA 92121

Tel: 1-800-422-2603

www.RhinoLinings.com

Mexico, Caribbean, Central and South America

Rhino Linings Latin America

Tel: +55 55 5632 0195

www.RhinoLatino.com

Europe, Africa, Middle East

Rhino Linings Europe

Tel: + 49 6103 936474

www.RhinoLiningsEurope.com

Australia, Asia

Rhino Linings Australasia Pty Ltd.

Tel: + 61 7 5585 7000

www.RhinoLinings.com.au