

RIO FLAKE X1B

Single Broadcast

Overview

RIO FLAKE X1B is a single broadcast of decorative flake into a high solids epoxy, sealed with a UV resistant epoxy and top coated with a light-stable urethane which has a satin appearance for long-lasting durability. System can be applied at varying thicknesses by using different build coats to accommodate concrete conditions or durability requirements. Gloss options are available. The decorative flake is available in a virtual rainbow of colors.

RECOMMENDED SYSTEM			
APPLICATION STEPS	RIO PRODUCT	MIL THICKNESS (MM)	COVERAGE RATE
1ST Broadcast Coat	RIO-COAT EMP	10-12 mils (0.25-0.30 mm)	133-160 sqft/gal (12.4-14.9 sqm/3.78 L)*
Decorative Flake	Flake	0.2 lbs (0.09 kg)	1 sqft/gal (0.09 sqm/3.78 L)
Grout Coat	RIO-COAT-EUV	15 mils (0.38 mm)	107 sqft/gal (9.9 sqm/3.78 L)
Topcoat	RIO-COAT UHW	3 mils (0.08 mm)	535 sqft/gal (49.70 sqm/3.78 L)

*Other RIO products may be used for the application steps; contact your RIO Coatings Specialist. See appropriate product bulletin for application instructions. The alternate systems below use different products for broadcast coats, grout coats and top coats

ALTERNATE SYSTEM #1 – UV RESISTANT EPOXY FLAKE SYSTEM			
APPLICATION STEPS	RIO PRODUCT	MIL THICKNESS (MM)	COVERAGE RATE
1st Broadcast Coat	RIO-COAT EMP	10-12 mils (0.25-0.30 mm)	133-160 sqft/gal (12.4-14.9 sqm/3.78 L)
Grout Coat	RIO-COAT EUV	15 mils (0.38 mm)	107 sqft/gal (9.9 sqm/3.78 L)
Topcoat	RIO-COAT EUV	8 mils (0.20 mm)	200 sqft/gal (18.6 sqm/3.78 L)

ALTERNATE SYSTEM #2 – POLYASPARTIC EPOXY FLAKE SYSTEM			
APPLICATION STEPS	RIO PRODUCT	MIL THICKNESS (MM)	COVERAGE RATE
1st Broadcast Coat	RIO-COAT EFM	10-12 mils (0.25-0.30 mm)	133-160 sqft/gal (12.4-14.9 sqm/3.78 L)
Grout Coat	RIO-COAT UPA	15 mils (0.38 mm)	107 sqft/gal (9.9 sqm/3.78 L)
Topcoat	RIO-COAT UPA	15 mils (0.38 mm)	107 sqft/gal (9.9 sqm/3.78 L)

ALTERNATE SYSTEM #3 – EPOXY - POLYASPARTIC EPOXY FLAKE SYSTEM			
APPLICATION STEPS	RIO PRODUCT	MIL THICKNESS (MM)	COVERAGE RATE
1st Broadcast Coat	RIO-COAT EMP	10-12 mils (0.25-0.30 mm)	133-160 sqft/gal (12.4-14.9 sqm/3.78 L)
Grout Coat	RIO COAT UPA	15 mils (0.38 mm)	107 sqft/gal (9.9 sqm/3.78 L)
Topcoat	RIO-COAT UPA	8 mils (0.20 mm)	200 sqft/gal (18.6 sqm/3.78 L)

ALTERNATE SYSTEM #4 – POLYASPARTIC FLAKE SYSTEM			
APPLICATION STEPS	RIO PRODUCT	MIL THICKNESS (MM)	COVERAGE RATE
1st Broadcast Coat	RIO COAT UPA	10-12 mils (0.25-0.30 mm)	133-160 sqft/gal (12.4-14.9 sqm/3.78 L)
Topcoat	RIO COAT UPA	15 mils (0.38 mm)	107 sqft/gal (9.9 sqm/3.78 L)

Environmentally and User Friendly

- Reduced solvent means less evaporation and less waste.
- Complies with SCAQMD VOC regulations--<100 g/L
- Low Odor. Can be applied during normal business hours.

Points are available under the following credits:

- **Indoor Environmental Quality, Low Emitting Materials**

Meets requirements per CDPH-CA Section 01350 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2.

PRIMARY APPLICATIONS

- Locker Room / Restroom / Break Room
- Classroom / Patient Room
- Pool Decks
- Lobby / Waiting Room
- Clean Room / Lab
- Cafeteria / Atrium
- Showroom / Retail Floor / Hallways
- ER / OR
- Produce

SYSTEM PROPERTIES		
PROPERTY	TEST METHOD	RESULTS
Abrasion Resistance Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions.	ASTM D4060	18 mg/loss Result based on independent lab testing of RIO-COAT UHW.
Adhesion to Concrete	ASTM D4541	450 psi (3.10 MPa) (concrete failed)
Adhesion to Concrete	ASTM D7234	732 psi (4.48 MPa) (concrete failed)
Coefficient of Friction – COF, James Friction Tester	ASTM D2047	0.63
Coefficient of Friction - Wet Static, BOT 3000	ANSI/NFSI B101.1	0.94
Compressive Strength	ASTM D695	13,500 psi (93.079 MPa)
Flammability	ASTM D635	182 mm/min
König Hardness	ASTM D4366	171.3 (3 mil/0.08 mm film) (topcoat resin)
Shore D Hardness	ASTM D2240	80-85@ 0 sec 75-80 @ 15 sec
Sward Hardness (1 mil film)	ASTM D2240	35-40
Tensile Strength	ASTM D2370	8,000 psi (55.158 MPa)
Percent Elongation, (resin only)	ASTM D2370	6
Volatile Organic Compound (VOC)	ASTM D3960	RIO-COAT EMP: A+B = 0.41 lb/gal (49 g/L) RIO-COAT UHW: A+B+C = 0.05 lb/gal (6 g/L) RIO COAT EUV: A+B = 0.67 lb/gal (81 g/L)
Water Absorption (24 hours)	ASTM D570	0.2% weight increase

*Results are based on conditions at 77°F (25°C).

CHEMICAL RESISTANCE PROPERTIES (with RIO-COAT UHW Topcoat)		
Acids, Inorganic	1 Day	7 Days
10% Hydrochloric Acid	E	E
30% Hydrochloric Acid (Muriatic)	E	E
10% Nitric Acid	E	E
50% Phosphoric Acid	E	G
37% Sulfuric Acid (Battery Acid)	E	E
Acids, Organic	1 Day	7 Days
10% Acetic Acid	E	E
10% Citric Acid	E	E
Oleic Acid	E	E
Alkalis	1 Day	7 Days
10% Ammonium Hydroxide	E	E
50% Sodium Hydroxide	E	E

CHEMICAL RESISTANCE PROPERTIES (with RIO-COAT UHW Topcoat)		
Solvents (Alcohols)	1 Day	7 Days
Ethylene Glycol (Antifreeze)	E	E
Isopropyl Alcohol	E	E
Methanol	E	E
Solvents (Aliphatic)	1 Day	7 Days
d-Limonene	E	E
Jet Fuel – JP-4	E	E
Gasoline	E	E
Mineral Spirits	E	E
Solvents (Aromatic)	1 Day	7 Days
Xylene	E	E
Solvents (Chlorinated)	1 Day	7 Days
Methylene Chloride	P	P
Solvents (Ketones & Esters)	1 Day	7 Days
Methyl Ethyl Ketone (MEK)	E	E
Propylene Glycol Methyl Ether Acetate (PMA)	E	E
Miscellaneous Chemicals	1 Day	7 Days
20% Ammonium Nitrate	E	E
Brake Fluid	E	E
Bleach	E	E
Motor Oil (SAE 30)	E	E
Skydrol® 500B	E	E
Skydrol® LD4	E	E
20% Sodium Chloride	E	E
1% Tide® Laundry Soap	E	E
10% Trisodium Phosphate	E	E
Coffee	E	E
Coke	E	E
Ketchup	E	E
Mustard	G*	G*
Red Wine	E	G*
3M™ DuraPrep™	G*	F
Purdue Betadine Solution	G*	G*

Registered Trademarks: Registered trademarks: Tide® of Procter and Gamble, Skydrol® of Solutia, Inc., Coke of Coca-Cola Company and 3M™ DuraPrep™.

*Results are based on 1-day and 7-day spot testing. Coating cured 2 weeks prior to testing.

LEGEND:

E – Excellent (No Adverse Effect) – Recommended.

G – Good (Limited Adverse Effect) – Use for short-term exposure only

*Only adverse effect was staining

F – Fair (Moderate Adverse Effect) – Not recommended.

P – Poor (Unsatisfactory) – Little or no resistance to chemical.

NOTE: Reduced chemical resistance and staining is possible in pigmented versions of the system.

STORAGE

Materials should be stored indoors between 65°F (18°C) and 90°F (32°C).

SHELF LIFE

One year from date of manufacture.

PACKAGING

RIO-COAT EMP

- 3.0 gallons
- 15.0 gallons

RIO-COAT EUV

- 3 gallons
- 15 gallons

RIO-COAT UHW

- 1.5 gallons
- 6 gallons

Standard Quartz Blends / Solids (50 lb bag)

For part numbers, refer to Coatings Price List or contact RIO Customer Service for assistance. Custom blends are also available.

OPTIONS

- **Colors in RIO-COAT EMP:** Use colorants at a rate of one unit per 3-gallon (11.34 liters) mix.
- **Standard Colorants:** White, Yellow, Light Gray and Rotunda Red will not impart total hide. Use these colorants at a rate of two units per 3-gallon (11.34 liters) mix. Similar colorants also may not hide as well. Refer to Color Selection Guide.
- **Cove:** A seamless, smooth transition can be created between the flooring and wall. Call Technical Support for assistance or see bulletin on Cove Installation.

LIMITATIONS

- **Contamination (Fisheyes):** Product may fisheye if oil, silicones, mold release agents or other contaminants are present.

IMPORTANT:

READ AND FOLLOW ALL PRECAUTIONS AND INSTRUCTIONS BEFORE PROCEEDING.

**PLEASE SEE SAFETY DATA SHEET (SDS) FOR HANDLING PROCEDURES.
USE PRODUCT AS DIRECTED.
KEEP OUT OF THE REACH OF CHILDREN.**

PRELIMINARY FLOOR INSPECTIONS

Check the Temperature & Humidity

Floor temperature and materials should be between 65°F (18°C) and 90° F (32°C). Humidity must be less than 80%. DO NOT coat unless floor temperature is more than five degrees over the current, local dew point.

Check the Concrete

Concrete must be structurally sound and free of curing membrane, paint or other sealer. If you suspect that the concrete has been previously sealed, call RIO FLOORING SYSTEMS, technical support for further instructions.

Check For Moisture

Concrete must be dry before application of this floor coating material. Concrete moisture testing must occur. In-situ relative humidity testing is recommended. Readings must be below 75% relative internal concrete humidity. Test methods can be purchased at www.astm.org, see F2170, or follow manufacturer's instructions. If moisture issues are present, the use of a moisture mitigation system may be a consideration. Please call RIO FLOORING SYSTEMS Technical Support for further information / instructions.

NOTE: Although testing is critical, it is not a guarantee against future problems. This is especially true if there is no vapor barrier or the vapor barrier is not functioning properly and/or you suspect you may have concrete contamination from oils, chemical spills or excessive salts.

APPLICATION EQUIPMENT			
Equipment	Check	Equipment	Check
Protective Clothing		Roller Assembly	

Jiffy® Mixer Blade		Medium 3/8" Nap Roller	
Slow Speed Drill (500 rpm or less)		Spiked Shoes	
18" - 24" Flat Squeegee		Push broom and/or vacuum	
18-24" 1/16" Notched Squeegee			

Assemble Equipment

Due to the limited pot life of the material, all application equipment, etc. should be ready for immediate use. Clean roller with tape to remove any residual lint.

PREPARATION

Detergent scrub and rinse with clean water to remove surface dirt, grease, oil and contaminants. Patch all depressions, divots and stress cracks in concrete with thickened epoxy to reduce the ability to see the defect through the decorative system.

Shot Blast

Use magnetic broom to remove excess shot, sweep to remove large debris and vacuum to remove fine dust.

Diamond Grind

Sweep to remove large debris and vacuum to remove fine dust.

Joints

For a seamless appearance, joints need to be filled. Contraction or control joints can be filled with a semi-rigid joint filler. Ensure the joints are clean by running a saw equipped with a diamond blade and vacuum to remove any debris. Construction joints less than one inch wide may also be filled with joint filler. Cracking of the resurfacer will occur over joints that are overlayed and later move. Because resurfacers are not flexible, joints that might move should be honored (cut) after the installation and filled with joint filler. Isolation joints must be honored and filled with a flexible material designed for this purpose.

POROUS CONCRETE

If concrete is porous and outgassing is of concern, a thin primer coat applied prior to the seed coat is recommended. A thin coat of primer will wet out concrete, help seal off concrete pores and minimize outgassing bubbles. Apply a tight coat of primer with a clean, flexible squeegee. Backrolling is recommended. There should be no mil build over the high spots of the concrete.

To reduce outgassing bubbles, it is best to wait until the primer has set up enough to walk on before applying the seed coat of RIO-COAT EMP. The primer must be coated within 24 hours at floor temperatures 65°F-90°F (18°C-32°C).

APPLICATION – 1ST BROADCAST COAT - RIO-COAT EMP

Coverage Rate

One gallon (3.78 liters) of RIO-COAT EMP will cover:
 160 sq/ft (14.9 sq/m) at 10 mils (0.25 mm) wet/dry film
 145 sq/ft (13.5 sq/m) at 11 mils (0.28 mm) wet/dry film
 133 sq/ft (12.4 sq/m) at 12 mils (0.30 mm) wet/dry film

Application

1. Premix Part A using a Jiffy® mixer blade and slow speed drill. (This is required for both 3-gallon (11.34 liters) and full-filled 5-gallon (18.9 liters) units.) For full-filled 5 gallon pails (18.9 liters), pour out 2 gallons (7.56 liters) into a measuring container. Then, pour the measured Part A into a mixing pail.
2. Pigment the first seed coat of RIO-COAT EMP to help with hide.
3. Colors: Premix Rio Colorants to ensure uniform color. Colorant is added to the Part A and mixed using a Jiffy® mixer blade and slow speed drill. NOTE: When using colorant in the bulk units, add the colorant to the Part A that has been measured into the "mixing pail".
4. Add RIO-COAT EMP Part B to Part A (3 Gallon / 11.34 Liters total mix). For full-filled 5-gallon pails (18.9 liters), pour out 1 gallon (3.78 liters) Part B into a measuring container that is separate from the one used with the Part A. Then, add the measured Part B to the Part A already in the mixing pail. POTLIFE: Mix only enough material which can be applied within the work time (time between the addition of Part B to Part A and the completion of all

application actions). Check the following chart for work times at various temperatures. For smaller quantities, use 2 parts Part A to 1 part Part B by volume.

APPROXIMATE WORK TIME (min): $\frac{65^{\circ}\text{F (18.3}^{\circ}\text{C)}}{40 \text{ min}}$ $\frac{70^{\circ}\text{F (21.1}^{\circ}\text{C)}}{30 \text{ min}}$ $\frac{75^{\circ}\text{F (23.9}^{\circ}\text{C)}}{25 \text{ min}}$ $\frac{80^{\circ}\text{F (26.7}^{\circ}\text{C)}}{20 \text{ min}}$ $\frac{90^{\circ}\text{F (32.2}^{\circ}\text{C)}}{15 \text{ min}}$

5. Mix for 2 minutes using a Jiffy® mixer blade and slow speed drill. (Failure to do so could result in lower/diminished coating properties.)
6. Immediately pour all the mixed material onto the floor in a single bead.
7. Push the squeegee at an even speed and down pressure to apply the desired thickness. A notched squeegee can be used to increase the thickness applied.* CAUTION: The surface will be slippery.
8. Start the second and remaining passes by pushing material parallel to the first stroke. Hold the bead of material near the center of the bar and push at an even speed with slight down pressure.
9. Backroll the material with a 3/8" (10 mm) nap roller for a smooth uniformed appearance. Backrolling is required to remove the puddles and squeegee lap marks in order to obtain uniform texture and a consistent mil thickness.

***NOTE:** The use of spiked shoes will allow freedom of movement on the wet floor.

APPLICATION – DECORATIVE FLAKE

Coverage Rate

A coverage rate of 0.2 lbs (0.09 kg) per sq/ft (0.9 sq/m) of flake is recommended.

Application

1. Immediately broadcast to excess with decorative Flake into the uncured RIO-COAT EMP resin on the floor.
2. Do not dump or pile the material.
3. Gently scatter it onto the floor by hand tossing so as to cover the wet resin completely.*
4. Allow system to cure 8-10 hours at 75°F (24°C).
5. Thoroughly sweep and vacuum to remove loose colored flake from surface.**

***NOTE:** It is important that epoxy is not visible (no wet or shiny areas) after flake settles, because any visible epoxy will yellow.

****NOTE:** DO NOT save and reuse swept and vacuumed colored flake unless you have taken extra precautions.

APPLICATION – GROUT COAT - RIO-COAT EUV

Coverage Rate

A gallon (3.78 liters) of RIO-COAT EUV will cover:

107 sq/ft (9.9 sq/m) at 15 mils (0.38 mm) wet/dry film

100 sq/ft (9.3 sq/m) at 16 mils (0.41 mm) wet/dry film

Application

1. Premix Part A using a Jiffy mixer blade and slow speed drill. For full-filled 5-gallon (18.9 liters) units, pour out 2 gallons (7.56 liters) into a measuring container. Then, pour the measured Part A into a mixing pail.
2. Add RIO-COAT EUV Part B to Part A (3 Gallons / 11.34 Liters total mix). For full-fill 5-gallon (18.9 liters) units, pour out 1 gallon (3.78 liters) Part B into a measuring container that is separate from the one used with the Part A. Then, add the measured Part B to the Part A already in the mixing pail.
3. Potlife: Mix only enough material which can be applied within the work time (time between the addition of Part B to Part A and the completion of all application actions). Check the following chart for work times at various temperatures. For smaller quantities, use 2 parts PART A to 1 part Part B by volume.

APPROXIMATE WORK TIME (min): $\frac{65^{\circ}\text{F (18.3}^{\circ}\text{C)}}{\text{min}}$ $\frac{70^{\circ}\text{F (21.1}^{\circ}\text{C)}}{\text{min}}$ $\frac{75^{\circ}\text{F (23.9}^{\circ}\text{C)}}{\text{min}}$ $\frac{80^{\circ}\text{F (26.7}^{\circ}\text{C)}}{\text{min}}$ $\frac{90^{\circ}\text{F (32.2}^{\circ}\text{C)}}{\text{min}}$

4. Mix for 2 minutes using a Jiffy® mixer blade and slow speed drill. (Failure to do so could result in lower/diminished coating properties.)
5. Immediately pour all of the mixed material onto the floor in a single bead.
6. Push the flat squeegee at an even speed with sufficient down pressure to apply the thinnest coat.*
7. Start the second and remaining passes by pushing material parallel to the first stroke. Hold the bead of material near the center of the bar.
8. Backroll the material with a 3/8" (10 mm) nap roller for a smooth uniformed appearance. Backrolling is required to remove the puddles and squeegee lap marks in order to obtain uniform texture and a consistent mil thickness.**

9. RIO-COAT EUV must be top coated with RIO-COAT UHW at floor temperatures of 65-90°F (18-32°C) within 24 hours.

***NOTE:** The use of spiked shoes will allow freedom of movement on the wet floor.

****NOTE:** Get off the RIO-COAT EUV as soon as possible.

APPLICATION – TOPCOAT – RIO-COAT UHW

NOTE: The topcoat of RIO-COAT UHW must be applied after the RIO-COAT EUV has set up enough to walk on and within 24 hours.

1. Premix Part A for 2-3 Minutes using a Jiffy® Mixer blade with slow speed drill. Potlife: Mix only enough material which can be used in a two-hour period.*
2. Pour Part C into Part A while mixing.
3. Continue to mix and add Part B.
4. Mix for 2-3 Minutes using a Jiffy® mixer blade and slow speed drill. Pour into application tray.
5. Apply RIO-COAT UHW at the rate of 500 ft²/gallon (46.45 m²/L) with a 3/8" (10 mm) nap roller. For proper appearance and development of physical properties, it is crucial that material is not applied above or below this rate. Dip the roller in the coating and lightly roll out excess in the application tray. Apply two 8-10 foot (2.4-3.0 meters) long paths on the concrete, making one stroke left to right and one right to left. Re-wet the roller and apply two more paths adjacent to the first pair. Rewet roller and apply a third pair adjacent to the second.
6. Spread the material evenly with V-shaped cross passes.
7. Make sure the floor has just enough coating to cover evenly. Excess material could cause the floor to blister, especially in high humidity. Insufficient material will cause the floor to look non-uniform.
8. Level the area with straight passes that cross the initial material paths. These final strokes will reduce roller marks. If the appearance is not satisfactory, re-roll the area.
9. Remix the material in the tray occasionally (with the roller) to prevent settling of the Part C (filler).**
10. Allow coating to dry 24 Hours at 75°F (24°C), 50% relative humidity before opening to light traffic. Allow more time at low temperatures, low humidity or for heavier traffic.

***NOTE:** Once opened, this material cannot be resealed for later use.

****NOTE:** When multiple applicators are used to apply material, inconsistencies between areas may result. To ensure a more uniform finish, an individual outfitted with spike shoes may finish by pushing or pulling a roller across all applicator areas.

DISPOSAL

Dispose of all excess material, packaging and other waste in accordance with federal, state and local regulations.

MAINTENANCE GUIDELINES

Proper maintenance will increase the life and help maintain the appearance of your new RIO floor coating.

Standard Care

- Sweep and scrub your new coating regularly, as dirt and dust are abrasive and can quickly dull the finish, decreasing the life of your coating.
- Remove spills quickly as certain chemicals may stain and could possibly permanently damage the finish.

Caution

- Avoid scratching or gouging the surface. All floor coatings will scratch if heavy objects are dragged across the surface.
- Do not drop heavy or pointed items on the floor as this may cause chipping or concrete popouts in the case of a weak cap.
- Rubber tires can permanently stain the floor coating from plasticizer migration. Rubber burns from quick stops and starts can heat the coating to its softening temperature, causing permanent marking (Plexiglass® between the tire and the floor coating can prevent discoloration).
- Rubber burns from quick stops and starts can heat the coating to its softening temperature, causing permanent marking.

Repair

- Repair gouges or scratches or chip outs as soon as possible to prevent moisture or chemical contamination.

CONDITIONS OF SALE & LIMITATION OF WARRANTY / LIABILITY

RIO FLOORING SYSTEMS offers a limited warranty on all products.

Please visit our website or scan the following code to view the official
RIO FLOORING SYSTEMS Limited Product Warranty Statement.

