Raven 210

DESCRIPTION
Raven® 210 is a 100% solids epoxy filler compound used to repair minor surface irregularities in concrete or steel. It was designed to have a long pot life and to be applied by brush or trowel. With the addition of Raven® 200, it may be used to fill larger voids.

TYPICAL USES
Use on surfaces where cracks, voids, pockmarks of small holes need to be filled or patched. Surfaces repaired with 210 may be immediately topcoated, it is typically used on:

- Tunnels and pipelines
- Digesters
- Secondary containment
- Wastewater facilities
- Clarifiers
- Tanks
- Manholes
- Floors and walls

COLOR
The Part A Resin is white; the Part B Curing Agent is black. When mixed the product is gray.

SOLIDS BY VOLUME
100% solids by volume
Volatile Organic Compounds: 0.0 pounds per gallon

FILM THICKNESS
Raven 210 is a 100% solids epoxy with zero shrinkage. Wet film thickness and dry film thickness are the same (i.e. 5 mils WFT = 5 mils DFT). Depending on substrate type and profile, a maximum of 120 mils per coat is recommended to prevent sagging. Recommended thickness will vary from 40 - 120 mils based on surface roughness.

COVERAGE
Theoretical coverage is 40 square feet per gallon at 40 mils wet film thickness. Actual surface coverage will depend on substrate porosity and roughness. A wet film thickness gauge may be used to determine actual coating coverage.

APPLICATION
Apply with brush, roller, trowel, airless or air-assisted spray or other suitable method. Optimal proportioning and mixing is achieved with the use of an RLS approved plural component airless spray system. For best results, apply this product to concrete when its temperature is stable or falling.

THINNING
Do not thin with solvents. If lower viscosity is needed, heat unmixed material by placing the containers in hot tap water until the desired flow properties are obtained. To heat larger quantities, drum heaters or inline heaters on specialized spray equipment may be used. Unmixed material should not be heated above 150°F.

COMPONENTS AND MIX RATIO
Part A Resin:Part B Curing Agent mix ratio is 1:1 by volume.

HAND MIXING
Individually mix both Part A and Part B containers prior to measuring out 1 part of Part A to 1 part of Part B by volume into a clean disposable pail. Completely mix combined A & B for a minimum of one minute before transferring contents to a clean pail. Continue mixing at least another minute, scraping the sides and bottom, to obtain a thorough mix before application. Properly mixed material will be a uniform color without light or dark spots.

CLEAN UP
To clean tools, use acetone, MEK or xylene. To clean skin, wash immediately and thoroughly with soap and water. Refer to the Material Safety Data Sheet for additional information on health and safety.

POT LIFE
The pot life is 45 minutes for ½ gallon at 72°F. The working life varies depending on the amount and temperature of epoxy mixed and the ambient temperature.

CURE TIME
Thin film set time varies with substrate temperature and application thickness. Generally, the coating will be tack-free in 4 ½ hours at 72°F and dry-hard in about 8 hours.

RECOAT TIME
This product may be recoated as soon as it becomes tacky but does not transfer to the finger. When applying multiple coats, do not allow more than 18 hours at 72°F substrate temperature to pass between coats, higher temperatures will shorten this window. Before recoating; inspect, clean and dry surface thoroughly to remove all contamination, including amine blush or condensation. If the recoat time is missed, clean and abrade surfaces prior to recoating.

SUBSTRATE TEMPERATURE
Minimum recommended substrate temperature: 40°F
Maximum recommended substrate temperature: 120°F

TEMPERATURE RESISTANCE
Maximum recommended dry temperature: 160°F. Wet temperature resistance depends on chemical concentration and exposure time.

SURFACE PREPARATION

Prior to coating, the substrate must be prepared in a manner that provides a uniform, clean, sound, neutralized surface suitable for the specified coating. The substrate must be free of all contaminants, such as oil, grease, rust, scale or deposits. In general, coating performance is proportional to the degree of surface preparation.

STEEL surfaces may require "Solvent Cleaning" (SSPC-SP 1) to remove oil, grease and other soluble contaminants. Chemical contaminants may be removed according to SSPC-SP 12/NACE No. 5. Identification of the contaminants along with their concentrations may be obtained from laboratory and field tests as described in SSPC-TU 4 "Field Methods for Retrieval and Analysis of Soluble Salts on Substrates". Surfaces to be coated should then be prepared according to SSPC-SP 5/NACE No.1 "White Blast Cleaning" for immersion service or SSPC-SP 10/NACE No. 2 "Near White Blast Cleaning" for all other service. In certain situations, an alternate procedure may be to use high (>5,000 psi) or ultrahigh (>10,000 psi) pressure water cleaning or water cleaning with sand injection and an approved rust inhibitor. The resulting anchor profile shall be 2.5-5.0 mils and be relative to the coating thickness specified.

CONCRETE AND MASONRY surfaces must be sound and contaminant-free with a surface profile equivalent to a CSP2 to CSP5 in accordance with ICRI Technical Guideline No. 03732. This can generally be achieved by abrasive blasting, shot blasting, high pressure water cleaning, water jetting, or a combination of methods. Concrete exhibiting a moisture vapor emission rate greater than 3 lbs/1,000 ft^2/24 hours, when tested according to ASTM F 1869, shall be primed with Raven 155 as recommended by RLS Solutions.

AVAILABLE PACKAGES

Available in ½ gallon kits and 2 gallon kits. Kits are supplied in the correct proportions of A & B; these two components must be mixed together before use. Raven 210 is available through Raven Certified Applicators.

SHELF LIFE AND STORAGE

Product shelf life is 1 year from purchase date in sealed, unmixed containers, stored in a sheltered area between 60°F and 80°F (15°C and 27°C).

SAFETY

Consult the Material Safety Data Sheet for this product concerning health and safety information before using. Strictly follow all notices on the Material Safety Data Sheet and container label. If you do not fully understand the notices and procedures provided on the MSDS or if you cannot strictly comply with them, do not use this product. Actual safety measures are dependent on application methods and work environment. Contact RLS to obtain a copy of the Material Safety Data Sheet at 800-324-2810.

PERFORMANCE TESTING

DESCRIPTION	METHOD	RESULT
Tensile Strength	ASTM D 638	5,600 psi
Tensile Ultimate Elongation	ASTM D 638	4.4%
Compressive Strength	ASTM D 695	9,900 psi
Flexural Strength	ASTM D 790	8,300 psi
Hardness, Shore D	ASTM D 2240	86
Adhesion, Concrete	ASTM D 4541	Substrate Failure