

# Raven 400



## DESCRIPTION

Raven® 400 ultra high build epoxy coating is a 100% solids, solvent-free formulation that provides excellent protection against concentrated acids such as 98% sulfuric acid in immersion service. Raven 400 has superior adhesion strength to concrete, steel, masonry and other surfaces.

## TYPICAL USES

Surfaces where protection from highly concentrated acids and severe caustics is desired, including:

- Tanks and troughs
- Pipelines
- Secondary containment
- Equipment
- Sumps and wet wells
- Industrial Manholes
- General maintenance
- Floors and walls

## COLOR

The Part A Resin is white; the Part B Curing Agent is green. When mixed the product is light green. Limited special colors are available on request.

## SOLIDS BY VOLUME

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

## FILM THICKNESS

Raven 400 is a 100% solids epoxy with zero shrinkage. Wet film thickness and dry film thickness are the same (i.e. 80 mils WFT = 80 mils DFT). Depending on substrate type and profile, a maximum of 125 mils per coat is recommended to prevent sagging. Recommended thickness will vary from 40 - 250 mils+ based on service conditions.

## 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. Good painting practices suggest application of two coats for quality assurance. A wet film thickness gauge may be used to determine actual coating coverage.

## APPLICATION

Apply with brush, roller, 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 3:1 by volume.

## HAND MIXING

Individually mix both Part A and Part B containers prior to measuring out 3 parts 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 15 minutes for one 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 6 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 12 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: 150°F. May be post-cured for service up to 350°F. Wet temperature

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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.

### **AVAILABLE PACKAGES**

Available in 5 gallon pails (20 gallon kit), 30 gallon drums (120 gallon kit) and 55 gallon drums (220 gallon kit). Kits are supplied in the correct proportions of A & B; these two components must be mixed together before use. Raven 400 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 Raven Lining Systems to obtain a copy of the Material Safety Data Sheet at 800-324-2810.

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## **TYPICAL PROPERTIES<sup>(1)</sup>**

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<b>DESCRIPTION</b>	<b>METHOD</b>	<b>RESULT</b>
Tensile Strength	ASTM D 638	3,600 psi
Compressive Strength	ASTM D 695	8,900 psi
Flexural Strength	ASTM D 790	6,400 psi
Hardness, Shore D	ASTM D 2240	85
Adhesion, Concrete	ASTM D 4541	Substrate Failure

(1) Typical properties are to be considered as representative of current production and should not be construed as specifications.

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