# 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. 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
- Secondary containment
- Troughs
- Sumps and wet wells
- Pipelines
- Equipment
- Floors and walls
- General maintenance

## COLOR
Off-white is the standard product color. Limited special colors are available. Contact RLS for information.

## SOLIDS BY VOLUME
100% solids by volume.
Volatile Organic Compounds: 0.0 lbs/gallon

## FILM THICKNESS
Raven 400 is a 100% solids epoxy with zero shrinkage. Therefore, actual wet film thickness and final dry film thickness are the same (i.e. 10 mils WFT = 10 mils DFT). A maximum of 125 mils per coat is recommended to prevent sagging on vertical or overhead surfaces. Generally, two application coats are recommended for quality assurance in coverage. A wet film thickness gauge can be used to determine coating coverage.

## THEORETICAL COVERAGE
40 sq. ft. per gallon at 40 mils thickness. Actual surface coverage will depend on surface irregularities. Trials are recommended to determine the actual coverage required to yield a desired film thickness for each individual type of installation. Recommended thickness will vary from 40-125+ mils depending on the installation. Additional information is available by contacting RLS.

## APPLICATION METHOD
Brush, roller, heated plural component airless or air-assisted spray. For specific information on application, spray system design, approved systems and Certified Applicators contact RLS.

## THINNING
**Do not thin with solvents;** pinholing and loss of adhesion can result. If lower viscosity is desired, drum heaters and inline heaters can be used for larger quantities and on specialized spray equipment. Material components should not be heated beyond manufacturer's suggested limits. Contact RLS for detailed information.

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

## POT LIFE
15 minutes for 1 gallon at 75°F.
5 minutes for 2 gallons at 75°F.

The amount of pot life and working life will vary depending on the quantity and temperature of epoxy mixed, ambient temperature and the container in which the mixed material is held. Contact RLS for additional information.

## CURE AND RECOAT TIME
Initial set generally occurs within 6 hours at 70°F. Curing continues for several days, even underwater. When applying multiple coats, no more than 24 hours at 70°F should be permitted to pass between coats. Environmental conditions may shorten this window. Protect surfaces from contamination of any type between coats. Before recoating, inspect, dry and clean surface thoroughly to remove all contaminants, including amine blush and condensation. If the recoat window is missed, clean and abrade surfaces prior to topcoating. For additional information contact RLS.

## SURFACE TEMPERATURE
Minimum recommended: 40°F.
Maximum recommended: 120°F.

## SURFACE PREPARATION

Surfaces to receive coating must be cleaned of all oil, grease, rust, scale, deposits and other contaminants. Contact RLS for additional recommendations.

**STEEL** surfaces may require "Solvent Cleaning" (SSPC-SP1) to remove oil, grease and other soluble contaminants. Surfaces to be coated should then be prepared according to SSPC-SP10 or NACE No. 2: "Near White Blast Cleaning". In certain situations, an alternate procedure may be to use high (>5,000psi) or ultra-high (>10,000psi) pressure water cleaning or water with sand injection and an approved rust inhibitor. The anchor profile for surface preparation must be a minimum of 2 mils.

**CONCRETE AND MASONRY** surfaces can generally be prepared by high pressure water cleaning, abrasive blasting, shotblasting or a combination of methods. A penetrating primer such as low viscosity Raven 110 or 120 may be recommended as a primer.

**FIBERGLASS** surfaces should be rinsed and neutralized, scarified and cleaned with water or an emulsion of solvent and water to remove remaining dust and loose particles. Allow the surface to dry thoroughly.

## AVAILABLE PACKAGES

5 gallon pails (20 gallon kit), 30 gallon drums (120 gallon kit), 55 gallon drums (220 gallon kit). Raven 400 is available through Certified Applicators.

## COMPONENTS AND MIX RATIO

Part A, Resin. Part B, Hardener. 3:1 by volume.

## VISCOSITY

Part A, 19,500 cps, Brookfield RVF.
Part B, 25,000 cps, Brookfield RVF.

## SHELF LIFE AND STORAGE

Shelf Life: 1 year in sealed, unmixed containers at room temperature. Store 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 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 | RESULTS |
|---|---|---|
| Flexural Strength | ASTM D790 | 6,400 psi |
| Compressive Strength | ASTM D695 | 8,900 psi |
| Tensile Strength | ASTM D638 | 3,600 psi |
| Hardness, Shore D | ASTM D2240 | 85 |
| Impact, IZOD | ASTM D256 | 0.166 ft. lb/in of Notch |
| Adhesion | ASTM D4541, 40 mils DFT | |
| | Steel (SSPC-10) | > 2,000 psi |
| | Concrete | Substrate Failure |
| Temperature Resistance | | Dependent on Chemical Exposure, Maximum 350°F Dry Heat |



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