



## ResoSeal 800 Concrete Sealer Technical Bulletin (Revision C)

### PHYSICAL PROPERTIES

Approximate time between ResoSeal 800 coat and recoat at 73°F and 50% Relative Humidity	3 hours
Approximate time between ResoSeal 800 recoat and ResoBond 805 tie layer at 73°F and 50% Relative Humidity	3 - 4 hours
Bond strength of ResoSeal 800 Sealer on concrete (ASTM D-4541)	Concrete failure
Components	Single component, no thinning
Coatings VOC (g/L)	37g/L
Percent solids (weight %)	39%
Thickness (2 coats) DFT	4-6 mils

Physical properties were determined on specimens prepared under laboratory conditions using applicable ASTM procedures. Actual field conditions may vary and yield different results; therefore, data are subject to reasonable deviation.

ResoSeal 800 Concrete Sealer is an ultra low VOC, water-based acrylic polymer sealer that provides an impermeable barrier against moisture and outgassing of porous surfaces. This product has been shown in laboratory testing to create and maintain a 100% gas and water impermeable seal at elevated Thermal Spray application temperatures up to 150°C (302°F). This complete seal allows for the application of top coat materials in direct sunlight, in rising temperatures, with exothermic materials (epoxies), and Thermal Spray processes with no formation of pinholes due to outgassing.

ResoSeal 800 is applied by airless spray equipment to a Wet Film Thickness (WFT) of 5-6 mils which will dry to 2-3 mils Dry Film Thickness (DFT) for each layer. Two layers of 4-6 mils (DFT) total combined thickness are required to achieve a completely sealed surface. To facilitate a user-friendly application of the two sealer layers on the concrete and/or plaster structures, ResoSeal 800 is provided in the form of a red component (1st layer) and a black component (2nd layer). Both layers dry to a partially transparent finish.

### CHARACTERISTICS

- Creates an impermeable barrier to outgassing
- Easy to apply – Airless Spray

- Ultra low VOC
- Excellent Adhesion to concrete, aluminum and steel

### Temperature of Working Area

ResoSeal 800 is a water-based sealer that cures by evaporation. The ambient temperature and Relative Humidity (RH) at the time of application will affect the rate of cure. ResoSeal 800 should not be applied in temperatures below 50°F. High humidity will extend the time required before recoat and/or full cure. Do not apply to exterior surfaces if rain is expected within 12 hours of application.

High ambient temperatures combined with low RH will drastically shorten the drying time, and can cause internal cracking (craze cracks) within the sealer layer. When applying in hot and dry climates, the concrete should be misted with water prior to the first application of sealer. Sufficiently moist concrete will be slightly darker in color. Do not soak the concrete surface and remove any standing water. Apply sealer as soon as the concrete has dried to within the specified moisture range. The moistened concrete should slow the rate that sealer moisture is drawn into the concrete. If possible, apply the sealer coating layers during

the coolest part of the day to assist with a slower cure rate.

### Surface Preparation

All substrate structures must have the necessary strength to withstand imposed loads during normal use and operation. If a smooth finish is desired, the surface should be floated free of ridges or depressions and all voids and surface imperfections can be filled with appropriate fast-curing materials recommended by Resodyn Corporation, such as FlexKrete 102, Bondo etc, and machined to create a completely smooth surface. Cure new concrete for 28 days prior to application.

Prior to the application of any coating or over-coating, surfaces must be free of dirt, dust, oil, grease, water, and other contaminants that may inhibit bonding. New concrete must be dry, firm and have achieved full 28 day cure prior to coating. When preparing old concrete, mechanical methods should be utilized to remove laitance, old paints, protective coatings, and attacked or deteriorated concrete. All structural cracks, bug holes, and major imperfections should be repaired prior to application of sealer products.

### Cleaning

The substrate surface must be clean and free of all contaminants prior to the

application of ResoSeal 800 Sealer. Pressure water washing of the surface with a small amount of mild detergent will remove most contaminants. Remove all standing water and allow the surface to dry to within the allowable moisture content range prior to beginning sealer application.

## APPLICATION

### Mixing

Using a slow speed drill motor with a "Jiffy" type blade mix thoroughly until blended for 3 minutes. Do not mix the sealer at high speeds as this will foam the sealer which will introduce bubbles and voids in the sprayed coating. Sealer is ready for use immediately after mixing.

**SEALER MUST BE THOROUGHLY MIXED BEFORE AND DURING EACH USE TO ENSURE AN IMPERMIABLE COATING IS ACHIEVED.** If using a small volume sprayer, mix sealer material each time the sprayer is refilled. If using a large volume sprayer, or sprayer pulls material directly from ResoSeal container, the container must be fitted with a continuous mixing device or be manually mixed prior to and at regular 15 minute intervals during spray application.

**DO NOT THIN/DILUTE RESOSEAL 800 SEALER. DILUTION OF SEALER WILL DEGRADE THE PROPERTIES OF THE FINAL COATING.**

### Installation

Apply using a high pressure airless sprayer equipped with a medium (~0.015") orifice nozzle tip. Adjust spray gun to lowest setting to begin application and determine required flow setting by observing spray deposition rate. When applying each layer of material, observe the transparency of the film as it is applied. A slight opaque or solid color will be observed when the wet film thickness is appropriate. Excessively heavy layers will be much darker in color and will begin to run and sag from the excess material. Excessively thin layers will have a dry,

non-flowed appearance and will feel rough and gritty when dry.

Small area applications and touch-up may be applied using a foam or bristle brush. Use care not to induce bubbles into the coating during brushing.

Application technique by the operator should be the same as required to spray apply a high-quality paint surface. The operator should stand in one position and apply the sprayed sealer to an easily reached area beginning at the top and working downward with subsequent passes using a smooth, side-to-side traversing motion. **THE OPERATOR SHOULD NEVER WALK WHILE SPRAYING TO COVER LARGE AREAS.** This will result in uneven coating thickness, and when sprayed onto hot surfaces may cause poor flow between passes due to rapid drying of the previous pass. Release the feed trigger at the end of each pass, and restart the feed at the beginning of each new path to avoid excessive material deposition at the edges of the spray area which will result in runs and sags. Overlap each subsequent pass just enough to observe the wet edge of the new pass smoothly flowing into the previously applied coating material. When the area has been completely coated, move to the adjacent area and repeat the coating process while overlapping the previously coated area. Care must be taken to ensure adequate material deposition with the previously coated area to form the proper wet film thickness, but not to apply excess material which will cause runs and sags at the overlap. Continue this application method until all surfaces have been coated.

**Apply red tinted material for first coating layer, and black tinted material for second layer to aid with visual confirmation of adequate and complete coverage.** Apply the material to a uniform wet film thickness (WFT) of 5-6 mils over the entire surface. Ensure

complete coverage and overlap of spray passes. Excessive application rate will cause material to run on vertical surfaces. Brush out any pooled excess material at the base of vertical surfaces adjacent to floors that are also sprayed with sealer.

## COVERAGE

1 gallon ≈ 300 square feet per layer

\*Coverage will vary depending upon surface conditions, porosity, application techniques, and project specifics.

## DRYING/CURING

At the ideal conditions of 73°F air temperature and 50%RH, ResoSeal 800 sealer may require about three hours prior to recoat, and about 3-4 hours before over coating of second layer with any top coat. However, these time-frames are just estimates; ultimately, the operator must perform moisture-level measurements before coating, recoating and overcoating, as described below in the section "Allowable application moisture limits". Adjustments must be made to cure time estimates based on higher or lower temperature and relative humidity levels. Always use the Resodyn digital moisture meter to determine when it is appropriate to begin application of a ResoSeal 800 Sealer layer.

Each layer of ResoSeal 800 Sealer must be allowed to lose moisture content through evaporation to achieve a fully cured state. In high humidity climates, or low temperatures, this process may require extended drying times. During the drying process the coating surface must be exposed to open air. Restricting the movement of air with tightly sealed covers or tarps will elevate the moisture content of the trapped air and prevent the coating from drying. Enclosed spaces should be ventilated to provide a free exchange of air.

During the cure/dry cycle, a blower or fan should be utilized to create gentle air movement through the coated area to

ensure the moist evaporated air is exchanged with dryer air. This air movement will also prevent fog or moist/humid ambient air from settling onto the drying surface while curing overnight. Avoid excessive blasted air movement from fans or blowers that impact directly onto an area of the coating surface as this will artificially accelerate the drying cycle and may lead to interlayer craze-crack formation.

### THE USE OF AN ELECTRONIC MOISTURE METER IS REQUIRED TO ACCURATELY DETERMINE THE DRYNESS OF THE SUBSTRATE AND RESOSEAL 800 COATING LAYERS.

The Resodyn digital moisture meter has been shown in laboratory testing to accurately detect the moisture content of concrete surfaces and ResoSeal 800 Sealer layers. Use of this meter will allow the applicator to routinely check the dryness of each layer, and know with certainty when it is allowable to proceed with further processing.

Adjust the Resodyn digital moisture meter to the reference scale setting (Meter shows 0 of 0 to 4 setting) and take five readings inside a 24" diameter area of the substrate or coating surface. Repeat testing should be performed in these same areas to accurately read the changes in coating moisture content.

Slowly push the meter pins into the coating surface with enough force to penetrate through the coating material and about 1/16" into the concrete to activate the meter. For large surface areas with varying exposures to sun and air movement, it is recommended that several 24" diameter areas be tested in the different exposure areas around the coated surface.

Prior to the first sealer application, substrate moisture testing must be performed after removal of any previously contained water (tanks, low-lying areas, etc), after water wash cleaning of the substrate, and/or water misting to pre-moisten the surface when applying coating in hot/dry climates. **The area with the highest tested moisture content must be used to determine the overall dryness.** As the

substrate surface or coating dries, the reference number reported by the Resodyn meter will become lower. When the highest value of all test readings is below the prescribed reference value the substrate surface or coating layer has dried sufficiently for initial coating, recoating, or overcoating.

### Allowable application moisture limits (Numbers are in reference values only)

Initial substrate range: (<25)

ResoSeal 800 recoat range: (<40)

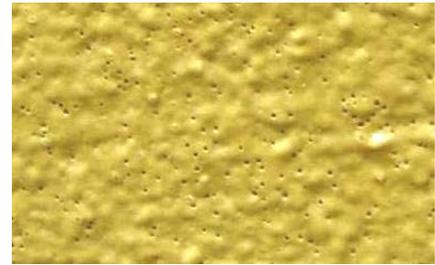
Overcoating range: (<25)

**WARNING: Failure to allow each layer of ResoSeal 800 to fully dry (cure) before recoating or applying an overcoat material may result in severely degraded performance or complete failure of the sealer resulting in permeability, poor adhesion to the substrate or over coat, and pin hole formation in top coating layers. These degraded conditions are NOT REPAIRABLE, and the coatings and sealer layers must be mechanically removed to bare substrate.**

A Polymer Thermal Spray (PTS) top coat material applied over fully cured ResoSeal 800 is pictured below. The coating is pinhole free, well adhered, and has a flowed-out smooth finish.



The PTS top coating shown below is an example of pinhole formation as a result of application over an improperly applied and cured sealer coating. The coating also exhibited very weak adhesion to the sealer layer.



### Weather Effects to ResoSeal 800

High humidity wet air, dew and fog should not be allowed to settle and stagnate onto ResoCoat 800 coated surfaces during the dry/cure cycle. **ALWAYS PROVIDE FOR CONTINUOUS, GENTLE AIR MOVEMENT DOWN AND THROUGH THE COATED AREA WITH THE USE OF BLOWERS AND/OR FANS ANYTIME THERE IS MOIST AIR PRESENT. ALWAYS OPERATE BLOWERS OVERNIGHT DURING DRY/CURE CYCLES.**

If it rains shortly after the application of ResoSeal 800, the moisture or water may become involved in the curing process of the ResoSeal 800 coating layers. Several possible job-site situations are described below, with the appropriate action for each.

#### Rain following application of first ResoSeal 800 layer

Laboratory testing conducted at 77° F (25° C) indicated that **rain starting 5 to 15 minutes after the application of first ResoSeal 800 coat** has the ability to completely wash off the sealer from the wall. In this situation the following actions are recommended:

1. All accumulated excess ResoSeal 800 should be wiped off from the lower surfaces where it may have collected (e.g. with a sponge roller mop). **IMPORTANT:** the excess ResoSeal 800 must be removed while wet. Failure to do so may result in a thick, uneven and possibly cracked layer of sealer.
2. If a thick, craze-cracked layer of sealer has formed on the lower surfaces as a result of the first ResoSeal 800 layer being washed off and collected on the lower surfaces, the layer should be mechanically removed from the concrete (e.g. with a scraper) because it will interfere with the sealing process. If the layer is not cracked, removal is not necessary.

3. Allow the surface to dry until the moisture level of the surface drops below Reference Number 40 as indicated by the Resodyn Moisture Meter.
4. Reapply the first coat of ResoSeal 800, without any other prior treatment of the concrete.

Experimental testing conducted at 77° F (25° C) indicated that **rain starting 60 minutes or more after the application of first ResoSeal 800 coat** does not affect the integrity of the sealer layer. However, rain may extend the drying time of the first ResoSeal 800 layer. Make sure that the moisture level of the coated concrete drops below Reference Number 40, as indicated by the Resodyn moisture meter, before applying the second layer of ResoSeal 800.

Rain following application of second ResoSeal 800 layer

Similar to the first coat situation, laboratory testing conducted at 77° F (25° C) indicated that **rain starting 5 to 15 minutes after the application of second ResoSeal 800 coat** has the ability to completely wash off the second coat of sealer. In this situation the following steps must be followed:

1. Allow accumulated excess ResoSeal 800 should be wiped off from the lower surfaces where it may have collected (e.g. with a sponge roller mop). **IMPORTANT:** the excess ResoSeal 800 must be removed while wet. Failure to do so may result in a thick, uneven and possibly cracked layer of sealer.
2. If a thick, uneven, and possibly cracked layer of sealer has formed on the lower surfaces as a result of the second ResoSeal 800 layer being washed off, mechanical intervention of any type is not recommended, as it may damage the integrity of the cured first ResoSeal 800 layer.
3. All the surface to dry until the moisture level of the surface drops below Reference Number 40 as indicated by the Resodyn moisture meter.
4. Reapply the second coat of ResoSeal 800, without any other treatment of the surface.

Experimental testing conducted at 77° F (25° C) indicated that **rain starting 60 minutes or more after the application of second ResoSeal 800 coat** does not affect its integrity. However, rain may extend the drying time of the second ResoSeal 800 layer. Make sure that the moisture level of the ResoSeal 800 coated surface drops below Reference Number 25, as indicated by the Resodyn moisture meter, before applying any other coatings.

**PACKAGING**

5 gallon poly-pail

**CLEAN-UP**

All equipment should be thoroughly cleaned with water immediately after each use. Do not allow material to stand in spray gun between recoats. Follow all regulations for proper disposal of cleaning water.

**SHELF LIFE**

ResoSeal 800 Sealer has a shelf life of one (1) year when stored in unopened, tightly sealed containers in a dry location at 70°F. Do not allow liquid sealer to freeze.

**CAUTION and SAFETY**

Consult Material Safety Data Sheets and container label Caution Statements for detailed explanations of the hazards and personal protection required in handling these materials.

INHALATION: Inhalation of vapors or mists may cause respiratory irritation.

INGESTION: May cause irritation to the mouth, throat, and abdomen. May also cause nausea or vomiting.

SKIN CONTACT: Prolonged contact may cause irritation

EYE CONTACT: Contact with eyes may cause irritation.

CHRONIC EXPOSURE: No known chronic health effects.

AGGRAVATION OF PRE-EXISTING

CONDITIONS: None known.

**PERSONAL PROTECTION**

VENTILATION SYSTEM: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

PERSONAL RESPIRATORS (NIOSH APPROVED): Not expected to require personal respirator. If the exposure limit is exceeded a respirator may be required. Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.

An example of an OSHA approved air purifying cartridge respirator is pictured for reference below.



SKIN PROTECTION: Wear protective clothing as appropriate to limit prolonged exposure to skin.

An example of appropriate long-sleeved full-body protection and gloves is shown below.



**EYE PROTECTION:** Use full coverage safety glasses and/or goggles (see example below), when working with or around this product where splashing or contact is possible.



**GOOD HYGIENE CONDITIONS:** Wash with soap and water before eating any food.

## FIRST AID MEASURES

**INHALATION FIRST AID:** if individual develops breathing difficulties, remove to fresh air and seek medical attention if breathing difficulties continue.

**SKIN CONTACT FIRST AID:** Use good hygiene practices and wash skin with soap and water after handling.

**EYE CONTACT FIRST AID:** Remove contact lens if present. Hold eyelids apart, initiate and maintain gentle and continuous irrigation for 15 minutes lifting upper and lower eyelids occasionally. Get medical attention immediately.

**INGESTION FIRST AID:** Induce vomiting ONLY as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice immediately.

**NOTE TO PHYSICIANS:** Treat symptoms.

## WARRANTY

We warrant that our goods will conform to the description contained in the order, and that we have good title to all goods sold. WE GIVE NO WARRANTY, WHETHER

OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHERWISE, EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSLY SET FORTH HEREIN. We are glad to offer suggestions or to refer you to customers using Resodyn materials for a similar application. Users shall determine the suitability of the product for intended application before using, and users assume all risk and liability whatsoever in connection therewith regardless of any suggestions as to application or construction. In no event shall we be liable hereunder or otherwise for incidental or consequential damages. Our liability and your exclusive remedy hereunder or otherwise, in law or in equity, shall be expressly limited to our replacement of nonconforming goods at our factory or, at our sole option, to repayment of the purchase price of nonconforming goods.

**Information concerning government safety regulations available upon request. Visit our Website at [www.resodyn.com](http://www.resodyn.com) for downloadable versions of MSDS and Technical Data Sheet.**