NeoPoxY™
PureEpoxy Structural Rehabilitations

NeoPoxy International
23964 Clawiter Road
Hayward, CA 94545
Ph: 510.782.1290
Fax: 510.782.1292
www.NeoPoxy.us

50-Year Design Life

— Epoxy STRUCTURAL Liners —

For Waste Water Applications

Environmentally Safe PureEpoxy Resins

Pressure Pipelines, Sewer Pipes, Manholes
Sumps, Wetwells, Vaults, Water Tanks, Crack Injection

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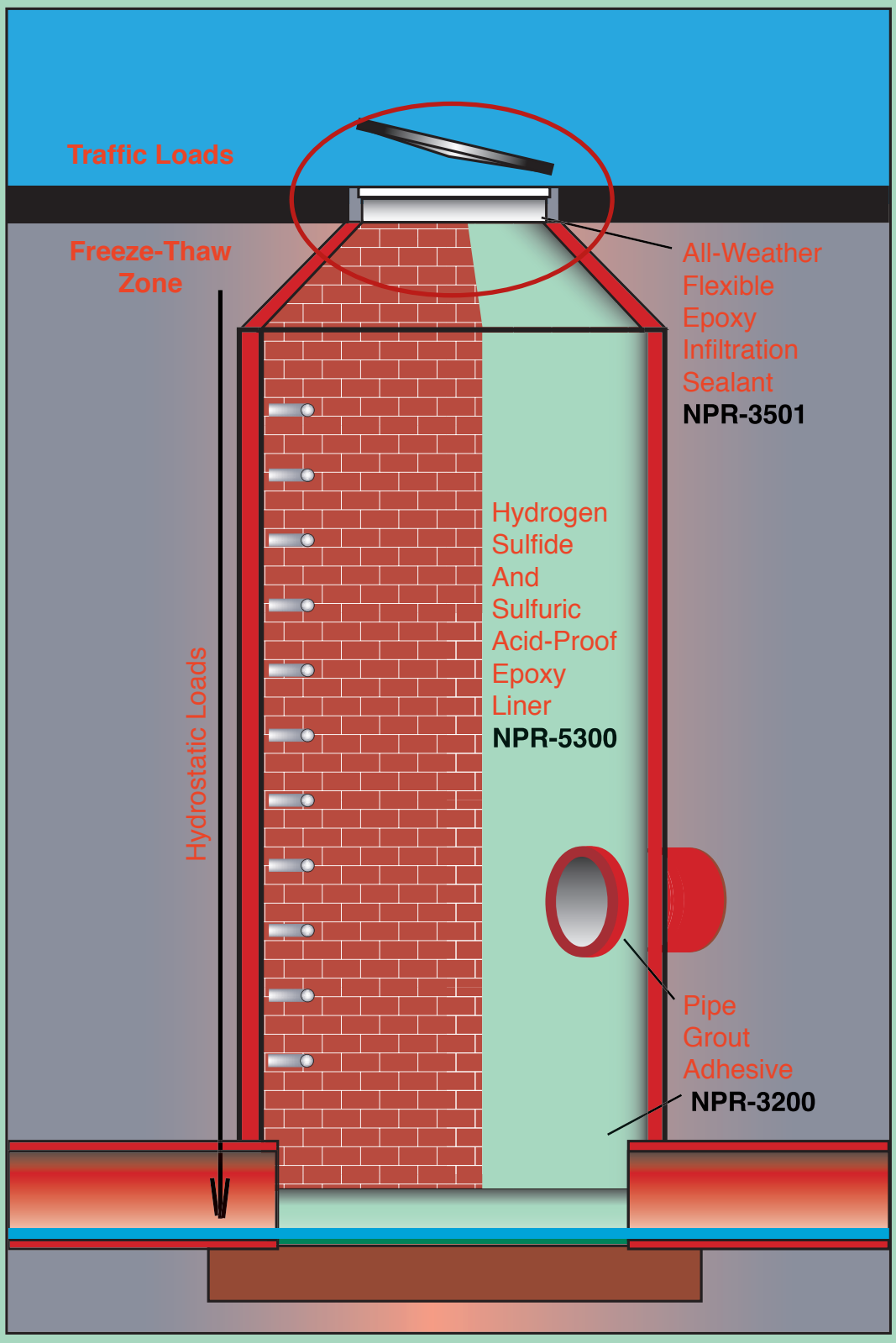
PureEpoxy Structural Rehabilitation

Manhole Rehabilitation Products Comparison

Liner Type / Criteria	NeoPoxy NPR-5300	FRP Bag Liner	PU Rigid-Liner	PU Flex Liner	PVC Epoxy Lock Liner	Felt Bag Liner	PVC Cement Lock Liner	Cement With Epoxy Topcoat	Ca-Al Cement
Liner Material	Epoxy	Fiber Glass	PU	PU	PVC	Felt	PVC	Cement	Cement
Adhesive Material	Epoxy	Epoxy	Epoxy	Epoxy	Epoxy	NA	NA	Cement	Cement
Barrier Material	Epoxy	Epoxy	PU	PU	PVC	PE	PVC	Epoxy	Cement
Protective Coating Utility	◆		◆	◆	◆		◆	◆	
Adehesive pH Range 0-14	◆								
Barrier pH Range 0-14	◆		◆	◆	◆		◆		
Monolithic Strucuture	◆								◆
Structural Design	◆		◆			◆		◆	◆
Non-bonded Design	◆	◆	◆			◆			
Liner System Third Party Physical Tested	◆		◆		◆	◆	◆		◆
Inexpensive Repairs	◆								◆
Moisture Tolerant System	◆	◆			◆	◆	◆		◆
Adhesive Third Party Corrosion Tested	◆								
Barrier Third Party Corrosion Tested	◆		◆	◆	◆	◆	◆		
Composite Third Party Corrosion Tested	◆		◆			◆			
Creep Modulus Testing	◆		◆			◆			
Bonds to Host Surface	◆		◆	◆	◆				◆
Conforms to Surface	◆		◆	◆	◆		◆		◆
ASTM F1216 Design	◆		◆			◆			
Ambient Cure	◆		◆	◆	◆		◆		◆
No Voids Behind Liner	◆		◆	◆	◆		◆		◆
Does Not Wrinkle	◆		◆	◆	◆		◆		◆
Does Not Shrink	◆		◆	◆	◆		◆		◆
No Breathing Air Required	◆	◆			◆				◆
Non-Toxic Ingredients	◆					◆	◆		◆
Easily Inspected	◆								◆
Structurally Independant	◆					◆			

Manhole Sealing Elements



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NPR-5300 Series 100% Solids, Zero-VOC Epoxy
112 Day "Greenbook" Corrosion Resistance Test Results

After 112 days exposure to a variety of chemicals which may be present in municpal sewage NPR-5300 series demonstrates outstanding chemical resistance. Independent third party testing performed to the standards of The City of Los Angeles Standard Specifications For Public Works Construction "Greenbook" by Ramtec Laboratories, Inc., Paramount, California. Standard weight change allowance is ±1.5%. NPR-5300 series surpassed the requirements in all chemical solutions..

Allowable Range +/-1.5%

Chemical Solution	Percent Wt. Change
Sulfuric Acid, 31%	0.303
Sodium Hydroxide, 5%	0.201
Ammonium Hydroxide, 5%	0.263
Nitric Acid, 1%	0.375
Ferric Chloride, 1%	0.261
Sodium Hypochlorite, 1%	-0.456
Soap, 0.1%	0.251
Detergent, 0.1%	0.242
Bacteriological, BOD 700 ppm	0.252

Sulfuric acid resistance is of primary importance to owners of municipal and industrial sewage systems as this is the primary cause of corrosion failure. The chosen concentration of 30% sulfuric acid, by weight, is a very demanding test level. These test results demonstrate that that NPR-5300 series has exceptional resistance to high concentrations of sulfuric acid.

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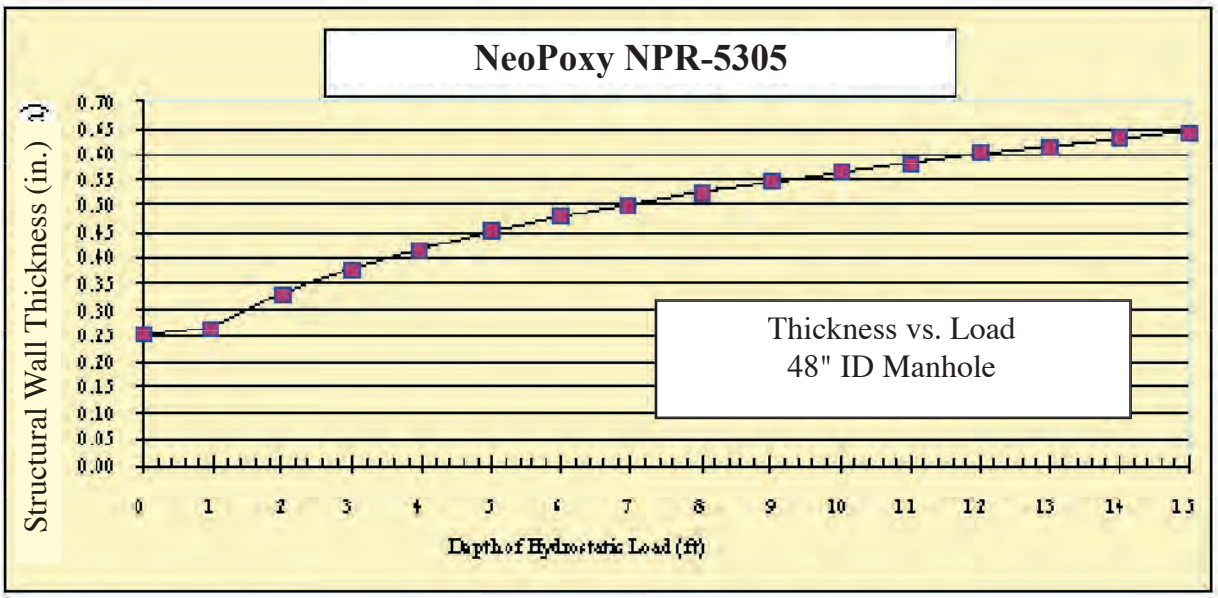
NPR-5300 Series Structural Design

NPR-5300 series epoxy is designed for efficient spray-on structural build properties. Applications at 40-700 mils (1/16 - 3/4") in a single application are possible on vertical surfaces. Due to the fineness of the product, application thicknesses may be as low as 10 mils. For structural applications one or more successive high-build layers may be combined for any design thickness. Capable of producing a **50 year design life** product by using a familiar modified buckling model, such as **ASTM F1216 equation X1.1**. For vertical barrels, the design thickness is determined on a per vertical foot basis. See graph and explanation below.

A typical wall thickness calculation is plotted below. Minimum wall thickness is 250 mils. If the hydrostatic load originates at less than top of barrel or conduit, the minimum wall thickness extended with the higher build starting lower in the barrel or conduit wall.



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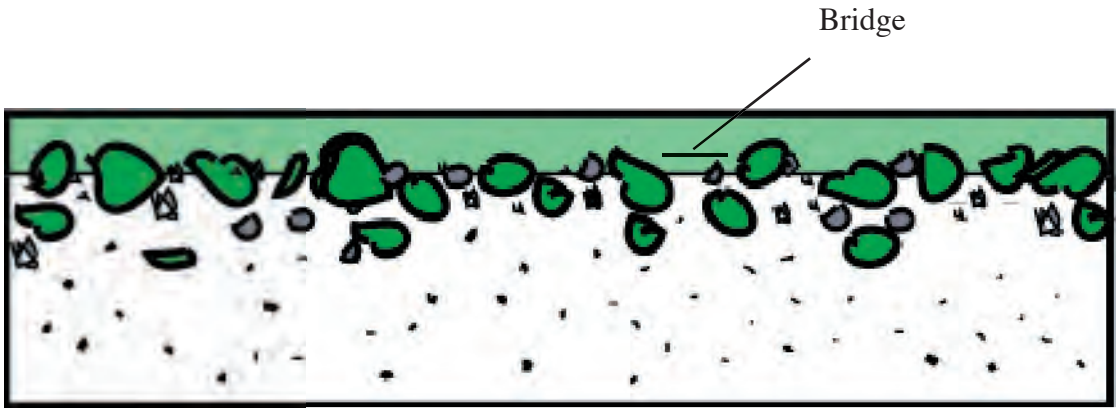
Advantages of Ultra-High Build Epoxy

The most common type of epoxy application is 80 to 125 mils which is used to provide a corrosion resistant barrier to common sewer gasses and concentrations of sulfuric acid.

Application of a higher mill thickness delivers a structural component that delivers substantial increased protection at a minimal cost. A higher mil thickness, typically 250 mils, greatly increases the ability of the liner to resist physical abuse and external loads. It also provides continuous protection when the surface has been scraped or chipped due to impact with pipeline maintenance equipment. With a traditional thin coating, chips or scrapes which expose the underlying host structure may not be noticed. With a structural liner such exposure would be much more difficult to have occur and would be visually noticeable and easily repaired by a maintenance person.

When compared to a thinner coating, the structural properties of a 250 mil liner eliminates the potential for future bond discontinuities that may otherwise result in a blister, crack or peel. The ability of the structural liner to bridge across the mortar between solid aggregates means that even if external forces become stronger, the liner will maintain its' integrity and the manhole will provide a much improved service life. We describe this type of liner/aggregate relationship as a "direct to aggregate bond". The drawing below depicts the design.



While traditional protective coatings provide good protection from chemical exposure, the structural liner optimizes the manhole structure and yields an improved long-term solution,

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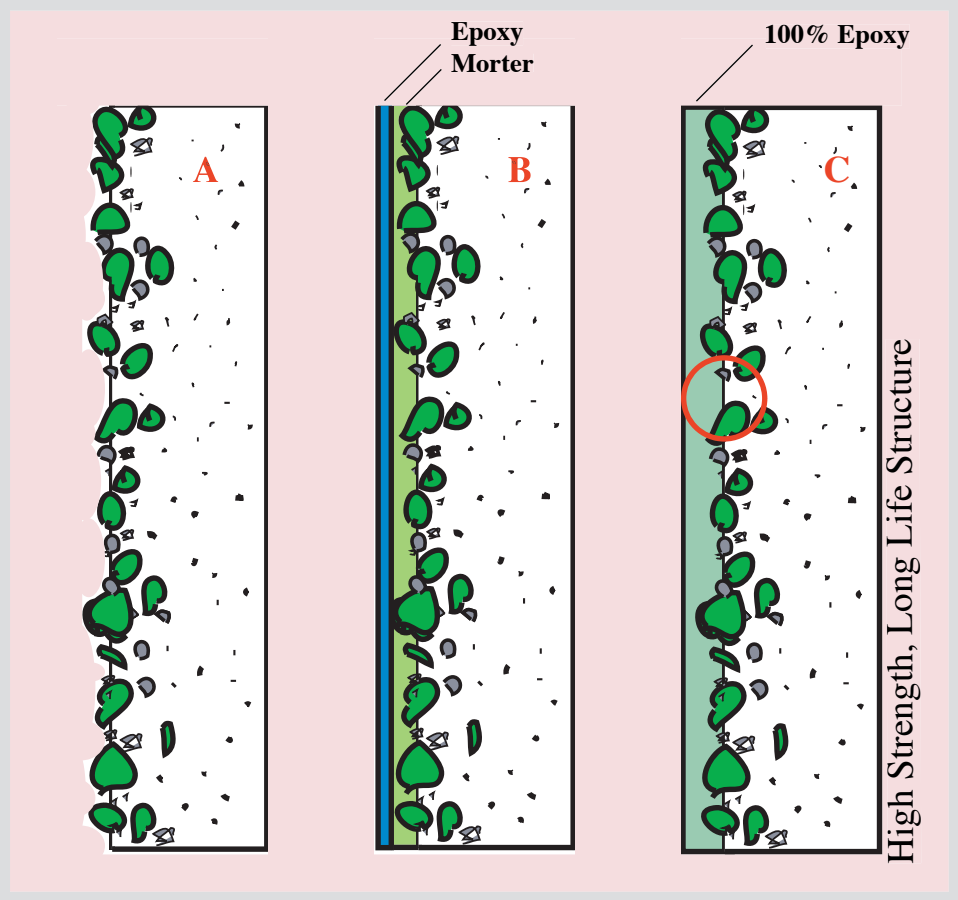
The Advantage of Direct To Aggregate Bonding

NeoPoxy NPR-5300 series is designed to be used as a high build structural liner for deteriorated concrete structures (drawing A). Using concrete materials (drawing B) to fill and smooth the surface prior to lining adds a layer which does not have the same bonding characteristics as epoxy. Using NPR-5300 series epoxy to fill and bond directly to the agregate (drawing C) anchors the coating deep within the host structure. Once the smothing layer cures, about one hour, then the final high build structure is applied. Can be used either as a coating, or for a 50 year design life, per ASTM F1216, section X1.1 and ASTM D5813 design and corrosion resistance criteria.



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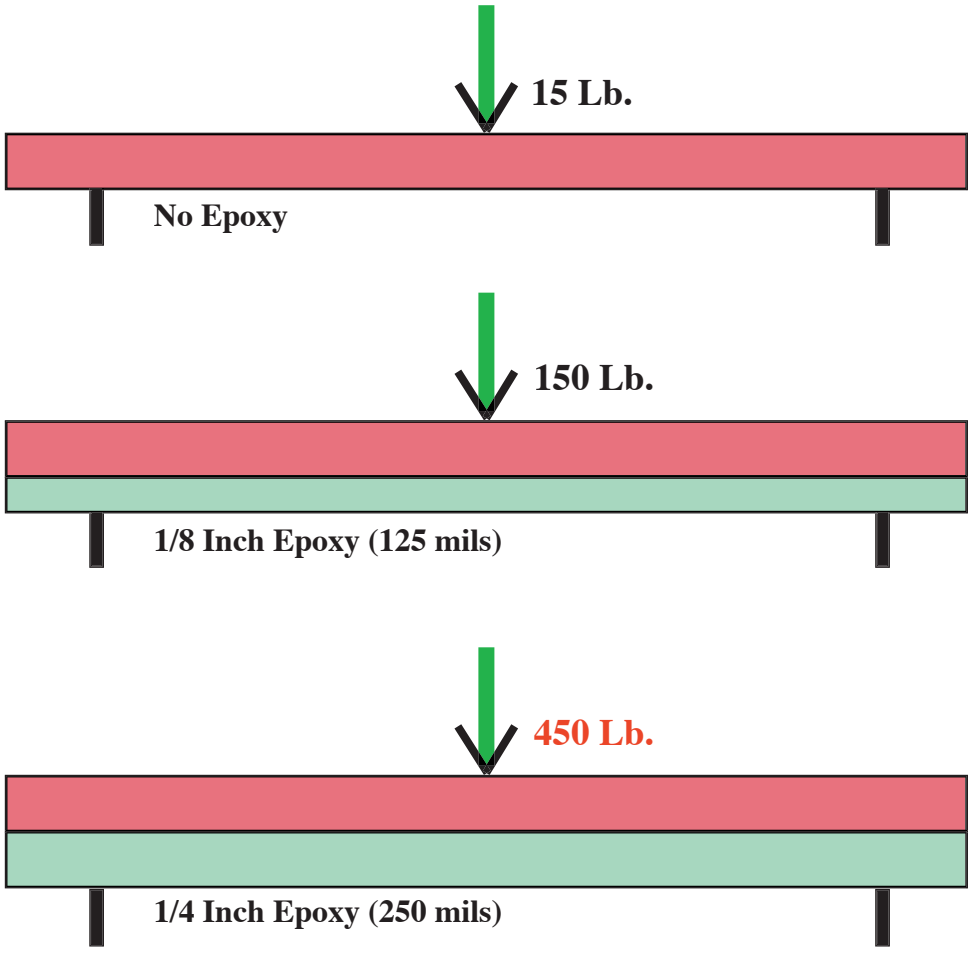
Epoxy Load Bearing Enhancement Study

NeoPoxy NPR-5305 was applied to both concrete and brick samples cut to 1/4 inch thickness and one inch width. Uncoated brick and concrete samples were tested as controls. Epoxy was applied at two thicknesses, 0.125" and 0.250".

Flexural testing was performed on an Instron machine with a span of 4 inches. Pounds force to break was recorded. The following graphics depict the results.



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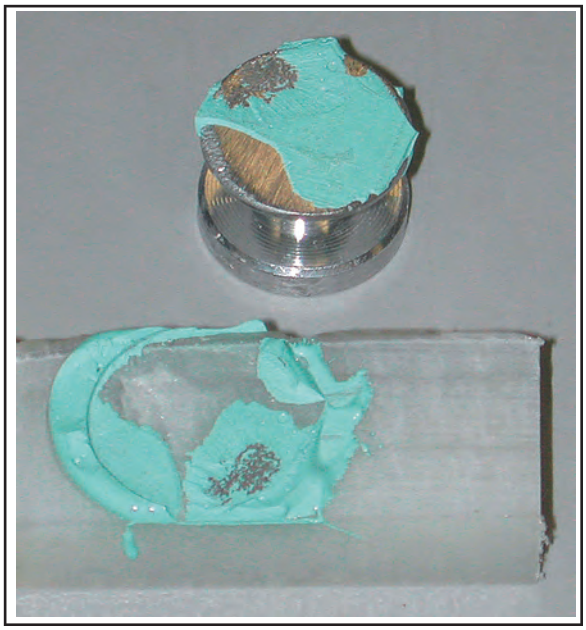
Adhesion To CIPP Pipeline Material

NeoPoxy NPR-5300 series is suitable for sealing of manhole structures to all brands of cured-in-place pipeline (CIPP) materials containing polyester or epoxy resins.

Adhesion testing of NPR-5305, medium viscosity epoxy, to a lightly profi led cured CIPP laminate of polyester resin and PET felt demonstrated a pull of strength per ASTM D-4541-95el to be in excess of 5000 psi. A photograph of the tested sample is below. Note that partial failure occured at the aluminum dolly/epoxy interface which effectively lowered the ultimate adhesive strength. although the CIPP sample had a relatively smooth surface compared to what we anticipate fi eld preparation would achieve, adhesion was excellent. Adheres perfectly to all CIPP materials.



Break >5000 psi

TECHNICAL DATA SHEET

NPR-5304 SERIES EPOXY

Structural Epoxy System for Infrastructure Protection

Rev. 20260331

DESCRIPTION

Neopoxy NPR-5304 Epoxy is a two-part 100% solids structural epoxy coating with exceptional chemical resistance and adhesion to a variety of surfaces including concrete and steel. High build formulation allows NPR-5304 Epoxy to be spray applied at up to 300 mils in a single pass. Cures rapidly to allow the application area to go back into service within one hour. Third party testing and decades of field experience demonstrate excellent chemical resistance to sulfuric acid, nitric acid, sodium hydroxide, hydrogen sulfide, caustics, gasoline, and other hydrocarbons.

FEATURES

- 100% solids, solvent free, no VOCs
- Chemical and corrosion resistant
- Very strong surface bond
- Prevents inflow and infiltration
- Protects for decades
- Structural coating
- Verified by independent testing
- Over 25 years of proven performance

USES

- Protection of new or corroded concrete and steel infrastructure, including manholes, sumps, wet wells, pipelines, vaults, tanks, concrete surfaces, cracks, WTPs, and more
- End sealing or patching for CIPP liners
- PVC coating and bridging with other materials (requires primer coat with Neopoxy NPR-3200 PVC Adhesive

PACKAGING OPTIONS

- 8.5 Gallon Set (Hand Application), Five 55-Gallon Drum Set (Spray Application)
- Additional sizes available in One-Step Kits and Sets (see separate TDS): .5 gal, 1 gal, 1.5 gal, 3 gal

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Hayward, California 94545
Phone: 510-782-1290
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PHYSICAL PROPERTIES

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

Description	Standard	Data
Mix Ratio (Resin/Hardener)	-	**1.5 to 1 by Volume 1 to 1 by Weight**
Initial Cure Time, 100 Grams @ 77°F (25°C)	-	30 Minutes
Pot Life, 100 Grams @ 77°F (25°C)	-	20 Minutes
Appearance	-	Resin (Part A): Green Hardener (Part B): White Mixture: Light Green
Weight Per Gallon (Resin)	-	8.9 – 9.1 lbs.
Weight Per Gallon (Hardener)	-	13.9 – 14.3 lbs.
Weight Per Gallon (Mixture)	-	10.9 – 11.2 lbs.
Specific Gravity (Resin)	-	1.06 – 1.09 G/ml
Specific Gravity (Hardener)	-	1.64 – 1.71 G/ml
Maximum Service Temp. (Ambient Cure)	-	150°F (66°C)
Maximum Service Temp. (Postcured)	-	168°F (76°C)
Coefficient of Linear Thermal Expansion	-	37×10^{-6} cm/cm/°C
Shrinkage	-	<0.5%
Flexural Strength	ASTM D-790	15,000 psi
Flexural Modulus	ASTM D-790	600,000 psi
Tensile Strength	ASTM D-638	7,500 psi
Tensile Modulus	ASTM D-638	290,000 psi
Tensile Elongation	ASTM D-638	5%
Compressive Strength	ASTM D-695	20,000 psi
Shore D Hardness	ASTM D-2240	>86
Adhesion to Concrete	ASTM D-4541 ASTM D-7234	Concrete Failure
Adhesion to Steel	ASTM D-4541	>2,500 psi
Abrasion Resistance (Taber Abraser)	ASTM D-4060	50 mg loss (1000 cycles @ 1000 gram load)
Volatile Organic Compounds (VOCs)	ASTM D-3960	0.0 lbs./Gallon
Chemical Resistance	ASTM F-1216 ASTM D-543 ASTM D-2122	Requirements Met

DIRECTIONS FOR USE

SHELF LIFE & STORAGE: Store product in closed container at 40°-80°F. Shelf life is one year from the manufacture date indicated on label.

APPLICATION CONDITIONS: The temperature of the air and surface to be coated should be between 40-80°F during application. It is important to apply the product while the temperature is either stable or falling. Relative humidity must be below 80%.

SURFACE PREPARATION: Any concrete surface must be fully cured prior to coating (typically 28 days for Portland cement). All inflow and infiltration must be stopped prior to application. High pressure wash all surfaces to be coated at minimum 4000 PSI in order to remove contaminants, paint, laitance, etc. After power washing, remove standing water and blow warm air on surface until visibly dry. There should be no darkened areas, as this may indicate surface moisture. For confirmation of surface dryness, applicant may perform "Plastic Sheet Method" test detailed in ASTM D-4263. Surface pH should be between 6-10. The product may be applied to any concrete surface profile, CSP 1 to CSP 10 (the rougher the surface the stronger the adhesion). Steel surfaces to be coated should be prepared according to SSPC-SP 10/NACE No. 2 "Near White Blast Cleaning". Steel surfaces may also require following SSPC-SP-1 (Solvent Cleaning) to remove any soluble contaminants.

MIXING & HAND APPLICATION: Product must be mixed according to the Mix Ratio shown in the Physical Properties table in this document. Mix product in bucket with paint stick or right angle ½" drill (such as Milwaukee Super Hawg) with paint mixing paddle until there is no streaking and color is a consistent light green. When mixing, make sure to scrape the sides and reach all the way to the bottom of the bucket. Using a paint trowel or putty knife, remove mixed epoxy from the bucket as rapidly as practical and safe. Spread the epoxy directly onto the surface to be protected.

SPRAY APPLICATION: Specialized high pressure plural component spray equipment is required for spray application (i.e. Graco XP-50). Please consult with Neopoxy representative if interested in spray application.

CLEAN UP: Clean any surface spills or overspray as quickly as possible with isopropyl alcohol or acetone. For cleaning skin, first wipe off epoxy with soft rag and then wash area with soap and warm water.

TESTING & INSPECTION: Once the coating is cured, visually inspect application area to ensure coating surface free of defects. To test coating continuity, applicant may perform "Holiday/Spark" test detailed in ASTM D-5162. To test adhesion strength, applicant may perform "Pull-Off Adhesion Strength" test detailed in ASTM D-4541. Typical project specifications require a test result of 250-300 PSI.

SAFETY: Use of safety goggles, particle masks, coveralls, and chemical resistant gloves is recommended. Work in a clean, well-organized area with adequate ventilation. Keep uncured product containers tightly closed and away from children at all times. Please read and understand the full safety recommendations as set forth in the Safety Data Sheets (SDS) available on our website.

ADDITIONAL PRODUCT INFORMATION

COATING THICKNESS: Refer to Viscosity Options chart to determine maximum coating thickness. Exceeding the listed maximum coating thickness may result in sagging. While every project and surface is different, it is considered "standard" to apply 125 mils to new concrete infrastructure and 250 mils to corroded concrete infrastructure. Please consult with Neopoxy representative to determine the best thickness for your project. Since this is a 100% solids solvent-free product, there is minimal shrinkage. Wet and dry-film thicknesses are equal.

COVERAGE: One gallon covers 12 square feet at 1/8" thickness (125 mils).

CURE TIME: Epoxy is "temperature sensitive," meaning that it will cure faster at higher temperatures. Epoxy is also "mass sensitive," meaning that the larger the volume, the shorter the working time. For example, when applied onto a surface at ¼" thickness, the product will harden in approximately one hour. However, when applied at thickness of ½", the time to harden may be as little as 30 minutes. It is important to limit the mass of mixed epoxy by continuing to mix it or by spreading it to extend the working time.

RECOAT WINDOW: Multiple layers may be applied to build thickness, but the materials must be allowed to cure and become cool to the touch before applying the next layer. Recoat window may be extended up to several months as long as the surface is clean and free of contaminants and amine blush.

THINNING: To lower viscosity, place containers in heated room or submerge bottom of container in hot tap water. For plural component spray application, drum heaters or inline heaters may be used. **Do not thin with solvents.**

ENVIRONMENTAL: Neopoxy epoxies are comprised entirely of reactive solids (resin & hardener), which means that there are no solvents or thinners that evaporate during the curing process. Since the curing process binds all reactive components, the cured epoxies are inert, non-leeching, and safe for use on stormwater infrastructure, wastewater infrastructure, or for discharge into a wastewater treatment facility or natural body of water. Prior to mixing the epoxy, the applicant must handle the uncured resin and hardener with care and clean up any spills in accordance with local environmental regulations. For additional information please reference Safety Data Sheets (SDS) available on our website.

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Excellence in Engineering, Consulting, Testing and Inspection

February 26, 2001

NeoPoxy Corporation
6805 Sierra Court, Suite A
Dublin, CA 94568-2654

Attn: Mr. David H. Johnson, President

Re: Chemical Resistance Testing of
Epoxy Resin NPR-5300 Series Plate Samples

Dear Mr. Johnson:

Please find attached chemical resistance test results for nine (9) samples of cured epoxy material plate samples. The samples were cut and test specimens were prepared by HTS laboratory personnel. The testing program was conducted in general accordance with the following:

- **ASTM F1216, "Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin –Impregnated Tube".**
- **ASTM D543, "Test Method for Resistance of Plastics to Chemical Reagents".**
- **ASTM D2122, "Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings".**
- **ASTM D790, "Test Method for Flexural Properties of Unreinforced and Reinforced Plastics".**

The initial weight and dimensions of each specimen were recorded prior to immersion. One (1) sample of 5 specimens was utilized as a control base sample.

Eight (8) samples were immersed in 8 different chemical reagents in accordance with ASTM F1216, section X2, Table X2.1. The samples were exposed to the reagents for a period of 30 days. At the end of 30 days the specimens from each sample were removed from the reagent containers, rinsed, dried, weighed and dimensions recorded.

NeoPoxY

REPORT OF TEST

SGS U.S. Testing Company Inc.

291 Fairfield Avenue
Fairfield, NJ 07004-3833
Tel: 973-575-5252
Fax: 973-244-1694

Report Number: 122619
Date: 03/31/99

CLIENT: ***NeoPoxy Corporation***

SUBJECT: One (1) sample received on 03/29/99 and identified by the client as:

Concrete

AUTHORIZATION: Client's Purchase Order #IP0-2270. ***NPR-5305***

PURPOSE: To test the oull-off strength of a coating on the concrete.

TEST DATE: 03/30/99

PROCEDURE: Testing was conducted in accordance with ASTM D-4541.

RESULTS:

	Force Required for Failure	
Trial 1	60 Kg/cm^2	1000 lb/in^2
Trial 2	60 Kg/cm^2	1000 lb/in^2
Trial 3	60 Kg/cm^2	1000 lb/in^2

All trials concrete failed.

SIGNED FOR THE COMPANY BY:

Lisa Van Savage
Manager, Chemistry Department
/ls

FOR Joseph Kwiatkowski
Director, Chemistry Department

Neopoxy LLC
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Hayward, California 94545
Phone: 510-782-1290
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www.neopoxy.com

3/31/2026

Vortex Services LLC, dba Sancon Technologies
Attn: Ryan Helmuth

RE: Certified Applicator Letter

Mr. Helmuth,

This letter certifies that Neopoxy LLC has evaluated the Vortex Services LLC (dba Sancon Technologies) team's experience, equipment training, and quality programs and found that your company has met the standards required to apply Neopoxy NPR-5304 Epoxy using trowel or spray-on methods.

The following employees have been certified for application of Neopoxy products:

Miguel Mendoza
Marco Mendoza
Francisco Mireles
Jeremy Marquez
Jesus Montoya-Casillas
Gilbert Mendoza
Edgar Mendoza
Martin Chavez
Edgar Lopez
Dylan Cowles
Jonathan Huerta
Luis Canal
Alex Ceja

It is with pleasure that we issue this annual certification and look forward to many years of quality workmanship. This certification expires one year after the issuance date above and may be reissued upon successful completion of the recertification review.

Feel free to reach out to me at any time with questions.

Best,

Alex Levin

Alex Levin
Project Manager

Neopoxy Project Experience

DATE	PERSON	Agency	Contractor	Project	PHONE	JOB DESCRIPTION
1/14/2026	Aaron Cook	FPUD	Sancon	Fallbrook Sewer Main Relining FY26	(760)-999-2713	Rehab (2) MHs with Neopoxy
5/1/2025	Matthew Watson	LACSD	Sancon	Joint Outfall F Unit 1 Phase 2	(562) 908-4288	Rehab (6) MH's with Neopoxy
4/2/2025	Matthew Watson	LACSD	Sancon	District 17 Trunk Sewers Group 1 Rehabilitation	(562) 908-4288	Rehab (2) MHs with Neopoxy
3/17/2025	Steve Nowak	City of Vista	Sancon	Buena Vista Manhole Rehab	(760) 643-5403	Rehab (3) MHs with Neopoxy
2/15/2025	Matthew Watson	LACSD	Sancon	ESR JOH Unit 1F Emergency	(562) 908-4288	Rehab (5) MHs with Neopoxy
1/6/2025	Matthew Watson	LACSD	Sancon	JOB Trunk Sewers Group 2 Rehabilitation	(562) 908-4288	Rehab (3) MHs with Neopoxy
2/5/2024	Bryce Swetek	Montecito Sanitation District	Sancon	Citywide Sewer Manhole Rehabilitation Project	(805) 883-6872	Rehab (24) MHs with Neopoxy
6/12/2020	Matthew Watson	LACSD	Sancon	South Whittier Outfall Relief Trunk Sewer Rehabilitation	(562) 908-4288	Rehab (4) Structures with Neopoxy
4/3/2020	Matthew Watson	LACSD	Sancon	Joint Outfall F Unit 3 Trunk Sewer Rehabilitation Phase 1	(562) 908-4288	Rehab (10) Structures with Neopoxy
2/3/2020	Mario Ingrasci	City of Chula Vista	Sancon	Manhole Rehabilitation Program FY17/18 and 18/19	619-409-5476	Rehab (35) MHs with Neopoxy