



SELECTION & SPECIFICATION DATA

Generic Type	100% Solids epoxy
Description	Plasite 4500 S is a 100% solids, flake-filled, premium epoxy coating designed for internal steel and concrete tanks and pipe lining. Suitable for sheet piling, H and pipe pilings in marine immersion and splash zones.
Features	<ul style="list-style-type: none"> • High impact resistance • Superior adhesion to steel and concrete • Resistance to a broad range of chemicals • Can be applied in a one-coat application up to 60 mils • Can be sprayed using single component airless equipment • VOC compliant • Passes ASTM G210 - Severe Wastewater Analysis Tests (SWAT) • Certified by UL to meet the drinking water criteria of NSF 61 • Certified by UL to meet the drinking water criteria of NSF/ANSI/CAN 600 <p>*Valid if manufactured at certified location</p>
Color	U74P (Light Grey) and U80P (White) are standard. Other limited colors may be available on special order. Contact your Carboline Representative for availability.
Primer	Priming may be required in situations where outgassing could be a problem. Consult Carboline for primer recommendations.
Dry Film Thickness	20 - 30 mils (508 - 762 microns) per coat Applications for potable water service may be applied at a dry film thickness of 16 mils (406 microns) with a maximum of 60 mils (1,524 microns).
Film Build	The cure mechanism of this product is not affected for a minimum of 24 months. Maximum film build (per coat) on vertical surfaces and overhead decreases with age: Fresh: Over 60 mils 3-6 months: 50-30 mils After 6 months: less than 30 mils. Follow intercoat preparation requirements when applying multiple coats
VOC Values	As Supplied : 0.0

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.
Steel	Cleanliness: Abrasive blast to SSPC-SP10 (minimum) Profile: Minimum 3 mil (75 micron) dense, sharp anchor profile free of peening, as measured by ASTM D 4417. Defects exposed by blasting must be repaired.
Aluminum	Consult Carboline Technical Service

SUBSTRATES & SURFACE PREPARATION

Concrete or CMU

Concrete shall be designed, placed, cured, and prepared per NACE No. 6/SSPC-SP 13, latest edition. Abrade to remove all laitance, loose concrete, etc. and to create surface profile in accordance with the appropriate ICRI CSP 4-7. Do not apply coating unless concrete has cured at least 28 days @ 70°F (21°C) or equivalent. Voids in concrete may require filling and/or surfacing. Consult Carboline Technical Service for recommended primer/sealer.

PERFORMANCE DATA

Test Method	System	Results
Bond Strength (Steel)	Plasite 4500 S	1700 psi
Flexural Modulus of Elasticity (ASTM D-790)	Plasite 4500 S	5.9 psi x 10 ⁶
Flexural Strength (ASTM D-790)	Plasite 4500 S	10,800 psi
Hardness (ASTM D-2240 Shore D)	Plasite 4500 S	70+
Tensile Strength (ASTM D-638)	Plasite 4500 S	7,000 psi

MIXING & THINNING

Mixing

For Single Component Spray:

Use Jiffy type mixers for all mixing and stirring. When operating the mixer avoid plunging it up and down in the bucket, this can fold air into the resin, which may cause bubbles to form in the coating after it has been applied. Individually stir each separate Part A and Part B component to a smooth, uniform consistency and color. Any sediment in the container must be thoroughly scraped up and redispersed.

To prepare the material for spraying, mix Part A with a jiffy type mechanical mixer for two minutes, mix Part B until color is well blended, then mix Part A and Part B together for two minutes using the jiffy mixer. When using a single leg sprayer, pour mixed material into a front-mounted, gravity feed, stainless steel hopper, continually pushing old material down the sides of the hopper and adding freshly mixed material on top of the old material. No more than 3-5 gallons of mixed material should be in the hopper at any given point during the application. If the bottom feed tube reaches 105 degrees F or if the ability to maintain a spray fan is diminished, the material should be chased with thinner and the pump should be completely solvent purged to minimize the chance to have material harden within the pump. When using a 45:1, set the mixed material under the pump (it is best to remove the siphon tube and pump directly from the bottom of the pump) and start spraying. The air pressure required will vary between 55-65 lbs.

The mixed material temperature should be 75-85 °F (24-38 °C) for best spraying.

Thinning

No thinner is recommended

Pot Life

45-60 minutes at 75 °F (24 °C)

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Airless Spray	<p>Single Component Airless Spray A front-mounted, gravity feed hopper is highly recommended for optimum results. All filters should be removed from the pump Air ratio 45:1 Material hose 3/8" I.D. (minimum) not to exceed 100 In ft Fluid nozzle 0.019-0.35" Inline filter of 60 mesh if desired</p>
Plural Spray	<p>Fixed ratio pump 4:1 by volume Heated hoppers and hoses 50 ft whip hose self-cleaning reverse-a-tip spray nozzle 0.19-0.35" Note: The "A" side should be at a minimum of 110 °F (43 °C) and the the "B" side at 90-100 °F (32-38 °C). This will ensure proper spraying of Plasite 4500 S. Take care to prevent the mixed material from setting up in your hoses. For best results, keep your hoses as short as possible, purge them immediately if work is interrupted, keep them out of direct sunlight and insulated from hot surfaces.</p>
Brush & Roller (General)	<p>Not recommended for tank lining applications except when striping welds</p>

APPLICATION PROCEDURES

General	<p>Before mixing and applying any material, make sure environmental conditions are satisfactory for application. Weather conditions, and especially dew point, should be constantly monitored in light of the work being done. Final blast cleaning and application of the lining system must only be performed when it is clear the temperature of the steel substrate will not fall within 5 °F (3 °C) of the dew point. Dehumidification and/or temperature control may be necessary to meet this requirement. Use a surface thermometer to frequently monitor the temperature of the steel substrate. this requirement.</p> <p>Spray: Immediately before applying a spray coat, stripe all continuous welds and edges with a brush-coat to assure adequate protection of these areas.</p> <p>All spray equipment should be clean and in proper working order. Contact Carboline Technical Service for start-up and clean-up procedures.</p> <p>Adjust pressure to 50-70 psi and open the valves at the manifold and purge materials at the spray gun. Attach spray tip and begin to spray. Dependent upon tip size, each pass will be 8-14 mil (200-350 microns) per pass. Apply material to specified thickness. Apply criss-cross multi-passes, moving gun at a fairly rapid rate, maintaining a wet appearing film. Use a wet film thickness gauge to monitor film build.</p> <p>LINING REPAIR Before any touch-up or recoat material can be applied, the first coat must be properly prepared for intercoat adhesion. The first coat must be cured firm to the touch. Coating on floors must be able to support foot traffic If the first coat cures more than 24-hours, lightly sand or mechanically abrade the surface after scrubbing it down with soap and water. Any surface to be touched up or recoated should be protected. When the recoat material is applied, the surface must be dry and free of all dirt, dust, debris, oil, grease and other contamination.</p> <p>Force curing may be desirable in certain circumstances. Check with Carboline's Technical Service Department. Plasite 4500 S does have a propensity to blush during its cure cycle. The blush is to be removed before top-coating or placing this material into potable water service.</p>
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APPLICATION PROCEDURES

Dry Film Thickness	Film build decreases with age
	<i>Fresh:</i> Over 60 mils
	<i>3-6 months:</i> 30-50 mils
	<i>After 6 months:</i> less than 30 mils

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	75°F (24°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	80°F (27°C)	100°F (38°C)	100°F (38°C)	90%

Substrate temperature should be 5 °F (3 °C) above the dew point.

CURING SCHEDULE

Surface Temp.	Dry to Touch	Firm	Limited Chemical Service	Service Final Cure
50°F (10°C)	48 Hours	72 Hours	5 Days	14 Days
75°F (24°C)	18 Hours	24 Hours	36 Hours	7 Days

TESTING / CERTIFICATION / LISTING

Potable Water Certifications	Potable Water Use Limitations @ 75°F (24°C):
	<i>Meets drinking water criteria of NSF/ANSI/CAN 600</i>
	Max DFT: 60 mils (1524 microns)
	# Coats: 1
	Tank Rating: > 1000 gal (3785.41 Liters)
	Pipe Rating: 42" or larger (106.68 cm)
	Valve Rating: Not Rated
	Thinning: Thinner N/A
	7 Day Cure Required before service
	Approved Colors: U80P (White), U74P (Light Grey)
Special Order Colors: U11P (Light Blue), U51P (Red)	

CLEANUP & SAFETY

Cleanup	Clean with Thinner #2. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
Safety	Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Keep container closed when not in use.
Ventilation	When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to insure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved respirator.

CLEANUP & SAFETY

Caution	This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workers should be required to use non-ferrous tools and wear conductive and non-sparking shoes.
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PACKAGING, HANDLING & STORAGE

Packaging	5 Gallon Kit: Part A: 4 Gallons Part B: 1 Gallon 1 Gallon Kit: Part A: 0.8 Gallons Part B: 0.2 Gallons
Shelf Life	Part A: 24 months Part B: 24 months
Storage Temperature & Humidity	Store tightly sealed in original container at 40-110°F (4-43°C)
Flash Point (Setaflash)	Part A: 310 °F (154 °C) Part B: 485 °F (251 °C)

WARRANTY

To the best of our knowledge the technical data contained herein is true and accurate on the date of publication and is subject to change without prior notice. User must contact Carboline Company to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. We guarantee our products to conform to Carboline quality control. We assume no responsibility for coverage, performance, injuries or damages resulting from use. Carbolines sole obligation, if any, is to replace or refund the purchase price of the Carboline product(s) proven to be defective, at Carbolines option. Carboline shall not be liable for any loss or damage. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARBOLINE, EXPRESS OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated.