

**PRODUCT DESCRIPTION**

PLASITE 4500 is a solvent free, flake-filled, high performance epoxy coating designed as an internal tank lining for chemical or other commodity storage. It is suitable for use in potable water tanks/piping conforming to ANSI/NSF Standard 61 for drinking water components. It also meets AWWA C210 specification. It is a two-component system consisting of 4-parts by volume of Part A resin and one part by volume of Part B hardener. It is applied by plural component spray equipment, at film thicknesses of 20-60 mils (500-1500 microns) in a one coat application, depending on the service for a variety of applications.(For potable water maximum DFT refer to Potable Water Usage section on second page)

**USES/APPLICATIONS**

- Chemical storage tanks
- Immersion Service for Jet Fuel
- Potable water tanks and piping (see "Potable Water Usage")
- Wastewater clarifiers
- Plating vats
- Oil storage tanks
- Ethanol Storage Tanks
- Contact Carboline Technical Services for other approved application

**PRODUCT ADVANTAGES**

- High impact resistance
- Superior adhesion to steel
- Resistance to a broad range of chemicals
- Can be applied as low as 35°F/2°C
- Can be applied as a one-coat 20-60 mil system

**CHEMICAL RESISTANCE**

PLASITE 4500 is resistant to a broad range of chemicals such as fuels, salts, alkalis, many acids, and some solvents.

**Note:** All linings used for potable water service must be cleaned to local specifications to meet potable water standards. There are several methods to disinfect and prepare a tank for service. The following is a synopsis of Method 2 of ANSI/AWWA Standard (C652) for Disinfection of Water-Storage Facilities.

1. Thoroughly rinse the entire tank.
2. Apply a solution of Sodium Hypochlorite (household bleach) of 200 mg/liter (0.2% solution) for a period of 30 minutes.
3. Thoroughly rinse with clean water.
4. Check the surface with pH paper.
5. The pH should be 6.8 to 7.2.

**COLORS**

PLASITE 4500 is offered in light gray, tile red, white, and blue (V131).

**FILM THICKNESS**

Depends on service and existing condition of the substrate, PLASITE 4500 is typically applied in a one coat application at the appropriate film thickness depending on the application. Typical film thickness is 20-25 mils. Higher film thicknesses are used for more aggressive or abrasive conditions. DFT checked in accordance to SSPC PA2.

**PRIMER**

N/A, coating is applied direct to metal

**PACKAGING**

PLASITE 4500 is available in 1, 5, and 20 gallon units.

**COVERAGE**

The theoretical coverage of PLASITE 4500 is 1,604 mil sq ft/gal. For estimating purposes, one gallon will cover 32 sq. ft./gal. at 40 mil/1 mm (20% loss included).

**PHYSICAL CHARACTERISTICS**

|  |  |
|--|--|
| <b>Tensile Strength</b> .....                              | 8,000 psi (ASTM D-638)   |
| <b>Flexural Strength</b> .....                             | 10,000 psi (ASTM D-790)  |
| <b>Flexural Modulus of Elasticity</b> .....                | 7.8 x 10 <sup>6</sup> psi (ASTM D-790)                           |
| <b>Hardness</b> .....                                      | 80 (ASTM D-2240 Shore D)   |
| <b>Abrasion Resistance</b> .....                           | 0.172 grams (ASTM D4060, 1000 cycles; 1000 gm, CS17 wheel) ..... |
| <b>Weight per Mixed Gallon</b> .....                       | 9.3 lbs.   |
| <b>Pot-life</b> .....                                      | @ 35°F/2°C: 30-to-40 minutes<br>@ 75°F/24°C: 15-to-25 minutes    |
| <b>Shelf Life</b> (Storage conditions on second page)..... | 6 months   |
| <b>Cure Time</b> (approx.)                                 |  |
| Dry To Touch.....  | @ 35°F/2°C: 8 hours<br>@ 75°F/24°C: 6 hours                      |
| Firm.....  | @ 35°F/2°C: 16 hours<br>@ 75°F/24°C: 8 hours                     |
| <b>Cure Times for Immersion Service @Cure Temp</b>         |  |
| Crude oil, unblended gasoline, and fuel oils: .....        | @100°F: 12 hrs<br>@77°F: 24 hrs<br>@40°F: 24 to 36 hrs           |
| All others exposures:.....                                 | @35°F or above: 5 days   |

**Potable water curing notes and restrictions on second page**

**THINNERS**

**NO THINNER IS RECOMMENDED**

**CLEANUP THINNER:** Thinner #71

**VOC CONTENT**

| Coating as Supplied (Determined Theoretically) |     |
|--|-----|
| lbs./gal.                                      | g/l |
| 0  | 0   |

**SURFACE PREPARATION**

**Steel**

Immediately prior to application of the coating or lining, the steel substrate must be clean of all oil, grease, dirt, dust, mill scale, rust, flash rust, corrosion products, salts, solvents, chlorides, other chemicals and existing coatings. All welds must be smooth and continuous; no skip welds. All weld splatter, buckshot, laminations and slivers must be removed and ground smooth; undercuts and pinholes must be ground smooth and filled with weld metal.

Immersion applications steel must be blasted to a minimum Near-White Metal Finish (NACE NO. 2, SSPC SP10) with a 4 mil/100 microns dense, sharp anchor profile free of peening, as measured by ASTM D 4417.

**Concrete**

Concrete: Clean and dry. Remove all loose, unsound concrete. Do not apply coating unless concrete has cured at least 28 days @ 70°F (21°C) and 50% RH or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require filling/surfacing.

**MASKING & PROTECTION**

Mask or remove adjacent surfaces and equipment that are not to be lined. Once applied, PLASITE 4500 is difficult to remove.

# PLASITE® 4500

## EQUIPMENT

Use a fixed ratio (4:1 by volume) plural component spray rig with heated hoppers, heated hoses to a mixer manifold through a static mixer to a 50 ft/15.2 m whip hose followed by a silver gun (Binks 1M or equal) utilizing self-cleaning reverse "a" tips from .017-.035 inches. See equipment specifications for more details.

**Note:** The "A" side should be at a minimum of 110 to 140°F and the "B" side at 90 to 131°F. This will ensure proper spraying of Plasite 4500.

Take care to prevent the mixed material from setting up in the 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.

## APPLICATION GUIDELINES

Final blast cleaning and application of the lining system must only be performed when the temperature of the steel substrate will not fall within 5°F/3°C of the dew point. Dehumidify and/or control temperature to meet this requirement. Monitor the temperature of the steel substrate.

## APPLICATION

### Mixing

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. Use a Jiffy type mixer and 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.

Stripe all continuous welds and edges with a brush-coat to assure adequate protection of these areas. All spray equipment should be clean and in proper working order. 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.

**Note:** Force curing may be desirable in certain circumstances. Check with Carboline's Technical Service Department.

## CURING

PLASITE 4500 will be dry to the touch in 8 hours at 35°F/2°C or 6 hours at 75°F/24°C. The PLASITE lining will be ready for limited immersion service in 36 hours at 35°F/2°C or above. Plasite 4500 does have a propensity to blush during its cure cycle. It is imperative that the blush be removed before top-coating or placing this material into potable water service (see note on Page 1).

## POTABLE WATER USAGE: (ANSI/NSF Standard 61 Certified)

Refer to [www.ul.com](http://www.ul.com), UL File No. MH26118 for specific application and use requirements.

(Colors available: Light Grey, Tile Red, Blue, or White)

| Service Temp | Cure @70-75°F | Max DFT                     | # of Coats | Rating                           |
|--------------|---------------|-----------------------------|------------|----------------------------------|
| 73°F (23°C)  | 3 days        | 50 mils                     | 1          | >5 gal (tank)<br>>8" dia. (pipe) |
| 95°F (35°C)  | 7 days        | 55 mils                     | 1          | >8" dia. (pipe)                  |
| 95°F (35°C)  | 14 days       | 63 mils                     | 1          | >48" dia. (pipe)                 |
| 95°F (35°C)  | 14 days       | 84 mils<br>(42 mils/ct max) | 2*         | >48" dia. (pipe)                 |
| 113°F (45°C) | 14 days       | 50 mils                     | 1          | >15" dia. (pipe)                 |

\*24 hours minimum time between coats. After 1<sup>st</sup> coat, wash surface with water and abrade (de-gloss), followed by water rinsing and drying.

## LINING REPAIR or RECOATING

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.
- Scrub the coating with soap and water and thoroughly rinse/dry.
- If the coating has cured more than 24-hours, lightly sand or mechanically abrade (de-gloss) the surface; rinse and dry.

## STORAGE CONDITIONS

Keep PLASITE 4500 products tightly sealed in their original containers until ready for use. Store at 50-85°F/10-29°C out of direct sunlight. The shelf life of the Plasite 4500 is 6 months to maintain film build properties up to 40 mils. The cure mechanism of this product is not affected for a minimum of 24 months. During the first three months, the product will hold maximum film build of 50-60 mils and from 3-6 months it typically will hold 40-50 mils. Follow intercoat preparation requirements.

Proper job site storage of PLASITE 4500 is essential to its performance. Follow these general procedures for storage at the job site:

Store components (Part A and Part B) unopened, in a dry place, at 50-85°F/10-29°C, out of direct sunlight, and protected from the elements. Keep away from heat and flame.

For the 24-48 hours just prior to use, narrow the storage temperature to 70-85°F/21-29°C to facilitate ease of mixing.

## RECOMMENDATIONS

- Apply only on a clean, sound, properly prepared substrate.
- Minimum ambient and surface temperatures are 35°F/2°C at the time of application.
- Do not exceed 110°F/43°C ambient or surface temperature for application without consulting Carboline.
- Relative humidity should be between 0-85%.
- Substrate temperature should be 5°F/3°C above the dew point.
- Contact Technical Service Department if conditions are not within recommended guidelines. (1-800-848-4645)

## PRECAUTIONS

- PLASITE Thinner #71 is recommended for clean up.
- Before handling and application of this material consult the MSDS sheets and employ proper safety practice. Hypersensitive persons should wear protective clothing, gloves, and use protective cream on any exposed areas.
- When used as a tank lining or in enclosed area ventilation should be used during and after the installation. Ventilation can be discontinued once the material has cured. The ventilation equipment should be capable of preventing the solvent concentration from reaching the lower explosion level for the solvents used. The applicator should monitor the exposure levels or use MSHA/NIOSH approved air respirators.

## NOTES

- Material Safety Data Sheets are available upon request.
- Specific information regarding the chemical resistance can be found by contacting Carboline's Technical Service Department.
- A staff of technical service engineers is available to assist with product application, or answer questions related to Carboline products.

### SAFETY READ THIS NOTICE SAFETY AND MISCELLANEOUS EQUIPMENT

For tank lining work or enclosed spaces, it is recommended that the operator provide himself with clean coveralls and rubbers soled shoes and observe good personal hygiene. Certain personnel may be sensitive to various types of resins which may cause dermatitis.

**FIRE AND EXPLOSION HAZARDS: PRODUCT CONTAINS LESS THAN 1% VOLATILE COMPONENTS. HOWEVER, VAPORS ARE HEAVIER THAN AIR AND COULD TRAVEL LONG DISTANCES, IGNITE, AND FLASHBACK. ELIMINATE ALL IGNITION SOURCES.** Keep away from heat, sparks and open flame and use necessary safety equipment, such as, air mask, explosion-proof electrical equipment, non-sparking tools and ladders, etc. Avoid contact with skin and breathing of vapor or spray mist. When working in tanks, rooms and other enclosed spaces, adequate ventilation must be provided. Refer to PLASITE Bulletin PA-3. Keep out of the reach of children.

**CAUTION** - Read and follow all caution statements on this product data sheet, material safety data sheet and container label for this product.

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