

**PRODUCT DESCRIPTION**

PLASITE 4500 is a 100% solids, 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.

**USES/APPLICATIONS**

- Chemical storage tanks
- Immersion Service for Jet Fuel
- Potable water tanks and piping (for tanks 5 gal or larger, and piping from ¾-4" dia., or larger than 8" dia.)
- Wastewater clarifiers
- Plating vats
- Oil storage tanks
- Ethanol Storage Tanks
- Catwalks

**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 (up to 50 mils for potable water applications if necessary)

**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.

**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>Weight per Mixed Gallon</b> .....	9.3 lbs.
<b>Pot-life</b> .....	@ 35°F/2°C: 30-to-40 minutes
	@75°F/24°C: 15-to-25 minutes
<b>Shelf Life:</b> .....	6 months
<b>Cure Time (approx.)</b>	
Dry To Touch.....	@ 35°F/2°C: 8 hours
	@ 75°F/24°C: 6 hours
Firm.....	@ 35°F/2°C: 16 hours
	@ 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;
	@ 75°F/24°C: 24 hrs;
	@77°F: 24 hrs;
	@40°F: 24 to 36 hrs
All others exposures:.....	@35°F or above: 5 days
<b>Flammability</b> .....	Nonflammable
<b>Bond Strength</b> .....	1,500 psi
(ASTM D-4541)	

**THINNERS**

**NO THINNER IS RECOMMENDED**

**CLEANUP THINNER:** Thinner #71

**VOC CONTENT**

Coating as Supplied (Determined Theoretically)		
Color	lbs./gal.	g/l
Lt. Gray	0.00	0.00

**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. To ensure maximum film build, material should be used within three months from date of manufacture for applications of 20-60 mils. After 3 months, limit application to no more than 20 mils per coat. 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.

**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.

# PLASITE® 4500

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. All projections, sharp edges, high points and fillets must be ground smooth to a radius of at least 1/8 in./0.32 cm and all corners must be likewise rounded.

All pitting, gouges, scratches, and other defects must be repaired either by welding or by filling with repair materials that are compatible with the coating or lining system and suitable for the intended service conditions.

All surfaces to be coated or lined must be readily accessible.

For 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.

Defects exposed by blasting must be repaired.

## MASKING & PROTECTION

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

Protect nearby pumps, motors and other equipment from spent abrasive venting from the tank during blasting.

## EQUIPMENT

Use a fixed ratio (4:1 by volume) plural component spray rig such as: Graco King Hydro-Cat (or equal) 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°F/43°C and the "B" side at 90-100°F/32-38°C. This will ensure proper spraying of Plasite 4500.

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.

## APPLICATION GUIDELINES

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.

## APPLICATION

### Mixing

#### For touch-up only

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.

We recommend using 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.

Immediately before applying a spray coat, 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. Contact Technical Service for start-up and clean-up procedures. 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.

**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).

## LINING REPAIR

Before any touch-up or recoat material can be applied, the first coat must be properly prepared for intercoat adhesion.

## May 2007 replaces February 2007

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 or injuries resulting from use. Liability, if any, is limited to replacement of products. 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. Carboline® and Plasite® are registered trademarks of Carboline Company.

The first coat must be cured firm to the touch. Coating on floors must be able to support foot traffic.

Scrub the first coat with soap and water and thoroughly rinse and dry it. 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.

## INSPECTION

Degree of surface preparation shall conform to appropriate specifications as outlined in SURFACE PREPARATION section. Film thickness of each coat and total dry film thickness of the coating system shall be determined with a non-destructive magnetic gauge properly calibrated.

## 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.
  - Maximum ambient and surface temperatures are 85°F/29°C and 110°F/43°C respectively at the time of application
  - Relative humidity should be between 0-85%.
  - Substrate temperature should be 5°F/3°C above the dew point.
  - Service Department if conditions are not within recommended guidelines
- Application and curing times are dependent upon ambient conditions. Consult Carboline's Technical Service Department.

## PRECAUTIONS

- PLASITE Thinner #71 is recommended for clean up of the PLASITE 4500 material.
- Before handling and application of this material consult the MSDS sheets. As with any product, those handling PLASITE 4500 materials should employ proper safety practice. Hypersensitive persons should wear protective clothing, gloves, and use protective cream on any exposed areas.
- When PLASITE 4500 is used as a tank lining or in an enclosed area circulation should be used during and after the installation. Circulation 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 on PLASITE 4500 are available upon request.
- Specific information regarding the chemical resistance of PLASITE 4500 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.
- Requests for technical literature or service can be made through local sales representatives and offices worldwide.

### 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 rubber 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.



350 Hanley Industrial Court, St. Louis, MO 63144-1599  
314/644-1000 314/644-4617 (fax) www.carboline.com

An Company