

PRODUCT DESCRIPTION

Plasite 4301 HT is a glass flake-filled novolac epoxy vinyl-ester coating and lining system designed for application over steel and concrete. Its resistance to a wide variety of chemicals, including organic and inorganic acids, most alkalies, and many solvents; makes it highly suitable for immersion service as internal steel tank linings, as well as for splash, spill, and fume exposures on structural steel.

Plasite 4301 HT is a two component system consisting of a Part A resin and a Part B catalyst. It is applied by brush, roller, and spray techniques and is typically applied to a total thickness of 35-to-45 mils in two coats for internal linings and 15 to 40 mils for splash, spill and vapor zones for structural steel or concrete structures. It can be glass mat reinforced when exposure conditions dictate greater thicknesses.

USES/APPLICATIONS

Plasite 4301 HT is suitable for a variety of coating and lining applications including:

- Steel Tank and Vat Linings
- Secondary Containment
- Structural Steel Coatings
- Process Floors
- Grating Coatings
- Sumps and Trenches
- Scrubber Linings
- Clarifier Linings

HANDLING

Plasite 4301 HT may be applied using a brush or roller.

In high production application, the use of airless spray rig, plural component catalyst injected spray may be used. Small quantities may be applied using a 2-gallon bottom-fed pot. (Caution: pot life is short plan work according)

When applying PLASITE 4301 HT by plural component, do not mix Part B into Part A in its container. Rather, the Part B mixes with the Part A externally at the spray gun.

RECOMMENDED THICKNESS

Tank Linings	35-40 mils* applied in two (2) coats
Structural Steel	15-40 mils applied in one or two coats
Concrete Surface	15-40 mils applied in one or two coats dependent upon thickness

* Except where chemical service requires a thicker reinforced coating system.

COVERAGE RATES

Desired Dry Film Thickness	Per Coat	Wet Mil	Coverage
	15 mils	17 mils	94 sq.ft. per gallon
	20 mils	22 mils	73 sq.ft. per gallon

PACKING & STORAGE

Plasite 4301 HT is packaged in 1-gallon, 5-gallon kits and 30-gallon units (for catalyst injected machines). Each unit consists of a pre-measured Part A component and a pre-measured Part B component.

Keep Plasite 4301-HT tightly sealed in its original container until ready for use. Store at 50-to-75°F and out of direct sunlight. Refer to batch number on label for date of manufacture.

APPLICATION INSTRUCTIONS**JOBSITE ENVIRONMENTAL CONDITIONS**

1. Consider the following when scheduling a system application:

- The temperature of the surface to be coated and the ambient air temperature must be at least 50°F while applying PLASITE 4301HT, and while it cures.

PHYSICAL SPECIFICATIONS

Color: Gray & Off-White

Hardness - ASTM D-2240 Shore D: Neat: 86

Tensile Strength - ASTM D-638: Neat: 5,000-to-7,000 psi

Tensile Elongation - ASTM D-638: Neat: 0.5%

Flexural Strength - ASTM D-790: Neat: 7,000-to-8,000 psi

Flexural Modulus of Elasticity - ASTM D-790: Neat: 800,000 psi x 105

Bond Strength - ASTM D-4541: Concrete: Failure in Concrete Steel: 1,800 psi

Heat Distortion Temperature - ASTM D-648: 300°F

Pounds per Gallon: 10.23

Shelf Life: 2 months

Pot Life

Temperature	Pot Life	Recoat Time
50F	90-100 min.	Min. 12 hrs. - Max. 7 days
75F	30-40 min.	Min. 5 hrs. - Max. 7 days
90F	15-20 min.	Min. 2 hrs. - Max. 5 days

Cure Time @ 75F- (Splash and Spill) 24 Hours
(Immersion) 48 Hours

- 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 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.

JOBSITE STORAGE OF MATERIALS

1. Proper storage of product is essential to its performance. Follow these general storage procedures:

- Store components (Part A and Part B) unopened, in a dry place, at 50-to-90°F, out of direct sun light, and protected from the elements. Keep away from heat and flame.
- For the 24-to-48 hours just prior to use, narrow the storage temperature to 70-to-85°F to facilitate ease of mixing.

SURFACE PREPARATION

1. 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.
- All projections, sharp edges, high points and fillets must be ground smooth to a radius of at least 1/8 inch and all corners must be likewise rounded.
- All surfaces to be coated or lined must be readily accessible.
- Defects exposed by blasting must be repaired. • 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. Refer to PA 4000 document.
- For interior tank linings, the steel must be blasted to a White Metal Finish (NACE No. 1, SSPC SP 5) with a 3.5-to-4 mils (or greater) dense, sharp anchor profile free of peening, as measured by ASTM D 4417.
- For exterior coatings, the steel must be blasted to a Near White Metal Finish (NACE No. 2, SSPC SP 10) with a 2-to-4 mils dense, sharp anchor profile free of peening, as measured by ASTM D 4417.

PLASITE® 4301 HT

2. Refer to Carboline separate document PA 3 Document for instruction in the preparation of steel surfaces to accept a Carboline protective lining system.

MASKING & PROTECTION

1. Mask or remove adjacent surfaces and equipment that are not to be lined. Lining materials are difficult to remove, once applied.
2. Protect nearby pumps, motors and other equipment from spent abrasive venting from the tank during blasting.

APPLICATION EQUIPMENT

PLASITE 4301 HT may be applied using a spray rig, brush or roller. Types of equipment include: conventional, airless 30 to 1 Bulldog or plural equipment catalyst injected

Spraying PLASITE 4301 HT:

Conventional atomizing spray system shall be equal to: Binks Model 2001 Gun with 59ASS Fluid Nozzle – 251 Air Cap; 559SS Needle. Heavy-duty trigger spring recommended. Pot pressure of approximately 50 psi/3.4 bars. Atomizing pressure of approximately 60 psi/4.1 bars. (Use standard production-type pressure pot with air motor drive agitator.)

Note: Application by conventional spray equipment may affect maximum film building capabilities and coverage rates. Airless spray system requires a large capacity pump with a capacity of 3 g.p.m./11.1 l.p.m. similar or equal to: Graco (Bulldog may be used in certain instances) King air motor with 0.025" or larger fluid nozzle; 12in/30 cm minimum spray width is recommended. Use liquid pressure of approximately 1800 to 2200 psi/124-152 bars. All screens should be removed from pump and gun. A 3/8 in./9 mm diameter fluid line is recommended.

CONTINUOUS MIXING DURING USE at low speed may be required to assure proper suspension of the glass flake. Applicators may prefer to apply the coating in more than two coats to achieve the 40 mils/1000 microns nominal DFT.

Plural Component (Catalyst Injection)

Use a Graco 45 to 1 King Air (Extreme) pump (less filters) on a special cart with a Binks Super Slave, 12 gal Stainless Steel hopper, air regulator assembly, up to a 100' resin, catalyst and air hose assembly, swivel, Century Gun with T.C.Seat, needle and tip.

The following equipment may be used but it is not currently available:

- Use air assist Binks 37:1 ratio B8-DSQ cart mounted super slave spray unit with air controls, 7-1/2 S.S. hopper with cover and quick disconnect, SQ S.S. line filter, 50' resin, catalyst and air hose assembly, swivel, Century Gun with T.C.Seat, needle and tip.
- When applying PLASITE 4301 by plural component, do not mix Part B into Part A in its container. Rather the Part B mixes with the Part A externally at the spray gun.

2. Always use spray equipment in accordance with manufacturer's instructions.

MIXING & APPLICATION

1. 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 re-dispersed.
2. If using a catalyst injection spray rig, skip this step.
3. Thinning generally not necessary. If thinning is implemented do not exceed 5% using styrene monomer.
4. Do not thin if placing this product in immersion service.

Note: Adding styrene monomer will slow the cure of this product.

Otherwise:

- a. Pour the entire contents of Part B into the container holding the Part A, and mix thoroughly for 2-minutes.

- The pot-life of the mixture will be approximately 30-to-40 minutes at 75°F (significantly less at elevated temperatures).
- The longer the material is in the bucket after mixing, the shorter its pot-life will be. Use it immediately.

3. If applying with a catalyst injection spray rig:

- a. Pour the pre-mixed Part A and Part B components into their appropriate hoppers on the rig. Continuous mixing of the A side will be required to assure proper suspension of the glass flake.

4. Apply the PLASITE 4301 HT at the specified mil thickness and allow to cure.

JOB SPECIFIC MODIFICATIONS

These guidelines assume optimal jobsite conditions. Differing conditions may necessitate alternate procedures. Common reasons for modifications include higher temperatures, lower temperatures, moisture at the jobsite, the condition of the substrate, restricted access to the work area, and tight project deadlines.

IMPORTANT NOTES

PLAN AHEAD: Before mixing begins, carefully review the procedures for applying your system.

MIXING TECHNIQUE: 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.

WORKING TIME: The working time for mixed material is short. If work is delayed, immediately flush the whip hose and gun.

1. Vinyl esters will not cure if exposed to moisture or contamination. Therefore it is essential that the primer and PLASITE 4301 HT be applied only to a clean, dry substrate, and protected from moisture and contamination throughout the application and curing process.
2. The following tips may help maximize your working time and protect your spray rig:
 - The warmer the components are when mixed, the shorter the working time will be. Lining materials should be at least 80°F to spray properly.
 - Never mix more material than can be comfortably sprayed out within the working time.
 - If possible, shade the spray rig.
 - Keep hoses as short as possible; keep them out of direct sun light and insulated from hot surfaces; purge them immediately if work is interrupted.
 - The lining materials are packaged in pre-measured kits. For optimum performance, kits should not be broken.
3. Stripe all continuous welds and edges with a brush-coat to assure adequate protection of these areas.
4. All spot welds should be caulked before applying final coats.

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RECOATING and INTERCOAT ADHESION PROCEDURE:

Before applying the second coat verify that the recoat window have not been exceeded and the surface is free of surface contaminants. If the surface is free of contaminants and the recoat window has not exceeded proceed with the second coat.

If the recoat window is exceeded or repairs are needed then the following intercoat preparation will need to be performed.

1. Check and verify the surface is clean of any oil, grease, dirt or air-born contaminants.
2. If contaminated clean the surface with soap and water and thoroughly rinse and dry it.
3. Then mechanically abrade the surface to create an anchor profile and remove all dust and debris.

Note: 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.

If Plasite 4301HT is exposed to direct sunlight for more than 36 hours or steel temperatures exceeding 130°F follow the touch-up and recoat procedure.

Consult Carboline's Technical Services for a repair procedure document for vinyl ester coatings.

Refer to PA- 4000 document for application instructions.

CLEANUP

The following tips will be helpful in cleaning hand tools and equipment after use;

- Before Polymers coating and lining materials gel, they can be cleaned from hand tools and equipment using acetone.
- Spray equipment should be cleaned before coating and lining material begins to gel.
- Follow equipment manufacturer's recommendations for proper cleaning and care instructions.
- After Carboline Polymers coating and lining materials gel, acetone or MEK will be required for cleaning. Chlorinated solvents may be used if flammable solvents are not allowed.

SAFETY PRECAUTIONS

When using PLASITE 4301 HT products, be aware of these safety precautions:

- Part A is flammable. Do not store near open flame, sparks or heat.
- Part B is a strong oxidizer. Do not store near amines.
- Avoid contact with eyes and skin.
- Do not ingest or inhale.
- Always wear chemical goggles, rubber gloves, and appropriate work clothing.
- Make provisions for forced ventilation when working in a confined area.
- Wear fresh air hood when spraying in confined area.
- Wear fresh air hood or an organic mist respirator when spraying in an open area.
- Prolonged or repeated exposure to the mixed material or the unreacted Part A and Part B components may cause skin irritation or allergic reaction.
- Refer to material safety data sheets (MSDS) regarding individual components.

FOR INDUSTRIAL USE ONLY.

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.

THE SOLVENT IN THIS COATING IS FLAMMABLE AND CARE AS DEMANDED BY GOOD PRACTICE, OSHA, STATE AND LOCAL SAFETY CODES, ETC. MUST BE FOLLOWED CLOSELY. 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.

The coating system may be handled safely by trained personnel following normal laboratory and plant standards for housekeeping and personal hygiene. In the event of skin contact complications, the affected areas should be washed with soap and water. Eye protection is recommended. Work in well ventilated areas away from open flame. In enclosed areas, although ventilated, fresh air masks should be provided.

The catalyst (Part B) is relatively stable at room temperatures but must be protected from contamination, heat, fire and contact with promoter (in Part II). The catalyst (Part B) is classified by the Interstate Commerce Commission as an "oxidizing material." All shipping containers bear a yellow caution label. The catalyst is highly irritating if it gets into the eyes. Immediately rinse eyes thoroughly with water and get medical attention. The catalyst also can be a skin irritant and should be removed with large quantities of soap and water. Since this is an oxidizing material, it should not be allowed to accumulate or remain in soaked rags or clothing.

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

This product does contain solvent (styrene monomer) and is flammable and care as demanded by good practice, osha, state and local codes, etc... must be followed.



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

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