product data

carboline®

Plasite® 7156

Includes 7156HAR

TYPE
A water-resistant epoxy phenolic coating polymerized with an amine adduct-type curing agent. PLASITE 7156 HAR: Specially formulated for excellent abrasion resistance while retaining temperature, chemical and other physical properties of 7156. PLASITE 7156 and 7156HAR meet the FDA requirements for 21 CFR, 175.300. Also accepted by the U.S. Department of Agriculture for incidental food contact.

INTENDED USE
Primarily a tank lining for water, including low conductivity deionized or distilled water at elevated temperatures, as well as, use with brines or petroleum processes. Recommended for immersion in demineralized water up to 230°F/110°C.

TEMPERATURE RESISTANCE
Dry film basis is 400°F/204°C for short periods. Continuous immersion temperatures depend on particular reagent and temperatures.

PACKAGING
PLASITE 7156 is available in one and five gallon units.
A **one gallon** unit consists of:
1 short-filled one gallon can of Part A
1 short-filled quart can of Part B
1 short-filled pint container of Part C
A **five gallon** unit consists of:
1 short-filled five gallon pail of Part A
1 one gallon can of Part B
1 short-filled gallon container of Part C
COLORS Ivory, Lt. Gray

VOC CONTENT

	Coating as Supplied (ASTM Method D2369)		Thinned 10% by Volume with PLASITE 71 Thinner (Determined Theoretically)	
Color	**Lbs./Gal.**	**g/L**	**Lbs./Gal.**	**g/L**
7156 Ivory	3.06 ± 2%	368 ± 2%	3.39 ± 2%	406 ± 2%
7156HAR Ivory	2.91 ± 2%	349 ± 2%	3.26 ± 2%	391 ± 2%

VOC content varies between colors. Contact Carboline Technical Service Department for VOC of specific colors.

CHEMICAL RESISTANCE
Excellent resistance to waters and brines at elevated temperatures.

FILM THICKNESS PER COAT
A 5-6 mil/125-150 microns film is produced in one multi-pass spray coat. A total film thickness of 10-12 mil/ 250-300 microns is required for immersion service.

COVERAGE
850 mil ft^2/gal. (theoretical). For estimating purposes, 57 ft^2/gal (1.4 sq. m/l) will produce a 10-12 mil/ 250-300 microns DFT film (20% loss included). Two multi-pass spray coats will produce the 10-12 mil/0.25-0.30 mm DFT film recommended for immersion service.

DRYING TIME
Surface will normally be tack-free in 2 hours at 70°F/21°C. Cure will take place at 7 days at 70°F/21°C; 14 days at 50°F/10°C; 20 days at 30- 50°F/-1-10°C. Consult laboratory for possible difference in resistance of coating when curing at the lower temperatures. Adequate ventilation is required during cure cycle. For more complete cure information refer to curing section.

THINNERS
The following thinners are recommended:
PLASITE Thinner #71 - a medium-fast thinner to be used under most conditions (above 50°F/10°C).
PLASITE Thinner #20 - a fast thinner to be used when applying at lower temperatures (below 50°F/10°C).

PHYSICAL SPECIFICATIONS

***Abrasion Resistance:** Average loss per 1000 cycles, Taber CS-17 Wheel, 1000 gram weight.
PLASITE 7156……75.3 milligrams
PLASITE 7156HAR……14.3 milligrams

***Surface Hardness:** (ASTM Method D4366-84) Konig Pendulum (Glass Standard = 250 seconds)

PLASITE 7156……..113 seconds
PLASITE 7156HAR … … …… … 91 seconds

Pigments: Titanium dioxide, inerts and tinting colors.

Solid: 74% ± 2% by weight; 53% ± 2% by volume.

Pot Life: Approximately 8 to 10 hours at 70°F/21°C.

Shelf Life: 24 months at 70°F/21°C for all components A, B, C and D. Part A should be turned upside down every three months.

Spray Viscosity: At 70°F/21°C, 17 ± 5 seconds Ford Cup #4.

Shipping Weight: Approximately 13.5 lbs./gallon.

Thermal Shock: Unaffected in 5 cycles, - 70°F/-57°C to plus 212°F.

Gloss: Low sheen.
***Note**: Above tests were conducted on film cured at 150°F.

The amounts of thinner required will vary depending on air and surface temperatures and application equipment. Normal application temperatures and conditions will require addition of approximately 10% by volume with approximately 5% additional thinner added for each 5°F/3°C of increased temperature. Above normal temperatures require additional thinning.

It is recommended that the amount of thinner included on each order amount to approximately 20% of the coating order.
Cleanup Thinner: Thinner #71

PRIMERS
Consult Carboline Technical Service Department for appropriate primers.

CURING
For immersion service, curing will normally take place in 7 days at 70°F/21°C, 14 days at 50°F/10°C, or 20 days at 30- 50°F/-1-10°C. As ventilation and other factors affect the time/cure of coatings, additional time allowance is recommended at any temperature if cure time is questioned. When exposure is severe, force curing is recommended to obtain maximum resistance.

With adequate ventilation when applying at tempera tures between 30-50°F/-1-10°C, coating surfaces will normally be tack-free in 16 to 24 hours and between 50-70°F/10°C-21°C in 2 to 16 hours.
Force curing at elevated temperature is desirable for certain exposures. Where coating is to be subject to immersion in taste sensitive solutions, it is recommended that the curing temperature be at 200°F/93°C for 4 hours. In order to ensure the complete removal of solvent and odor, force curing is recommended when coating is to be used in potable water and food material service.

Listed below are a few force curing schedules that may be used for time and work planning. When applying at temperatures of 30-60°F/-1-16°C, allow 16 to 24 hours air dry time prior to raising the metal temperature to the force curing temperature. When applying at temperatures above 60-70°F/16-21°C, allow 2 to 5 hours air dry time. After the appropriate air dry period, raise metal temperature approximately 30°F/17°C each 30 minutes until the desired force curing metal temperature is reached.

Final cure may be checked by exposing coated surface to denatured ethyl alcohol for ten minutes. If no dissolving and only minor softening of film occurs, the curing can be considered complete. The film will reharden after exposure if cured.

METAL TEMPERATURE	CURING TIME	METAL TEMPERATURE	CURING TIME
130°F/54°C	18 Hrs	170°F/77°C	3 ½ Hrs
140°F/60°C	10 Hrs	180°F/82°C	2 ½ Hrs
150°F/66°C	6 Hrs	190°F/88°C	2 Hrs
160°F/71°C	4 ½ Hrs	200°F/93°C	1 ¾ Hrs

SURFACE PREPARATION
Steel
Immersion Service:
All sharp edges shall be ground to produce a radius and all imperfections such as skip welds, delaminations, scabs, slivers and slag shall be corrected prior to abrasive blasting. Skip welds shall be welded solid.

Degrease surface prior to sandblasting. Organic solvents, alkaline solutions, steam, hot water with detergents or other systems that will completely remove dirt, oil, grease, etc. may be used. Used tanks may require additional decontamination.

The surface shall be blasted to an SSPC-SP5/NACE No. 1 Joint Surface Preparation Standard white metal surface using a Venturi blast nozzle supplied with 80-100 psi/6-7 bars. An anchor pattern or "tooth" in the metal shall correspond to approximately 20% to 25% of the total film thickness of the coating. Contaminated grit shall not be used for the finish work.

The blasting media used shall be a natural abrasive, or steel grit, or slag grit (similar or equal to BLACK BEAUTY®). These abrasives shall be sharp with a hard-cutting surface, properly graded, dry and of best quality. The media shall be of proper size to obtain the specified anchor pattern and shall be free of objectionable contaminants.

The anchor pattern shall be sharp and no evidence of a polished surface is allowed.

Remove all traces of grit and dust with a vacuum cleaner or by brushing. Care must be taken to avoid contaminating the surface with fingerprints or from detrimental material on the workers' clothes.

The surface temperature shall be maintained at a minimum of 5°F/3°C above the dew point to prevent oxidation of the surface. The coating shall be applied within the same day that the surface has been prepared.
When utilized, inhibitive primer should be applied as soon as possible after surface preparation.

Concrete
Contact Carboline for a recommendation.

Aluminum
Surface shall be clean and grease-free with a blast produced anchor pattern or "tooth" as described earlier under STEEL. In addition, the blasted surface shall be given a chemical treatment such as:

IRIDITE 14-2 produced by MacDermid Incorporated

OAKITE CRYSCOAT 747LTS and OAKITE CRYSCOAT ULTRASEAL

produced by Oakite Products

For immersion, blasting with sharp grit followed by the chemical surface treatment is required.

APPLICATION
Mixing
PLASITE 7156
Plasite 7156 is supplied as a three-component kit. Thoroughly mix Part A (resin) and Part C together. Add Part B (curing agent) and mix completely. Allow a 30 minute induction time before using.
PLASITE 7156HAR
Supplied as a four-component system. Thoroughly mix Part A (resin) and Part D together. Then add Part B (abrasion resistant pigment) and mix completely with the coating. Add Part C (curing agent) and mix well. Allow a 30 minute induction time before using.

Spray
All spray equipment should be thoroughly cleaned and the hose, in particular, should be free of old paint film and other contaminants.
Use standard production type spray guns.

PLASITE 7156HAR requires an agitated pot.

GUN	FLUID	AIR
DeVilbiss JGA-510	E	797
Binks #2001	66-SS	63-PB
Graco P800	04	02

When airless spray equipment is used, the recommended liquid pressure is 1500-1800 psi/100-120 bars with tip size from .015-021in./0.38-0.46 mm. Airless spray equipment is not recommended for PLASITE 7156HAR due to the high rate of wear to spray tips and pump parts. Expect a higher rate of wear on the airless pump lower unit packing and spray tips when using the HAR version.
Air pressure shall be uncontaminated. Adjust air pressure to approximately 50 lbs./200 N at the gun and provide 5-10 lbs./20-40 N of pot pressure. Adjust spray gun by first opening liquid valve and then adjusting air valve to give an 8-12 in./20-30 cm spray pattern with best possible atomization.

Apply a "mist" bonding pass.
Allow to dry approximately one minute but not long enough to allow film to completely dry. Apply crisscross multi-passes, maintaining an even continuous wet appearing film. This technique will enable a 10-12 mil/ 250-300 microns wet film (approximately 5-6 mils/ 130-150 microns DFT) to be applied per multi-pass coat. Repeat this procedure for the second coat to obtain a 10-12 mil/250-300 microns DFT. Overcoat Time will vary both with temperature and ventilation and will normally require 8 to 12 hours at 70°F/21°C for enclosed spaces with additional time needed if coating is being applied at lower temperatures. Remove all overspray by dry brushing or scraping if required.

Equipment must be thoroughly cleaned immediately after use with thinner to prevent the setting of the coating.

Note: Prior to spray application, stripe brush all welds, attachments and surface irregularities using PLASITE 7156 or 7156HAR thinned 50% by volume with PLASITE Thinner #71.

Brush
Recommended for small areas and repairs only. PLASITE 7156HAR requires frequent stirring. Use a high quality brush and apply a very light crisscross brush coat. Allow to dry for approximately 5 minutes. Then apply a heavy coat using a crisscross brush pattern. "Flow" the coating on rather than try to "brush out". Allow to dry tack-free. Repeat until sufficient film thickness is obtained. Normally, a film thickness of 2.5-3 mils/ 62-75 microns can be obtained per coat by this method.

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 coating system shall be determined with a non-destructive magnetic gauge properly calibrated. Refer to Plasite Bulletin PA-3, Section 3, for inspection requirements.

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.

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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