



Heresite VR-514

Our 50 years of coating history speaks for itself.

In 1964, Heresite was the first company to apply coatings to aluminum-finned, copper-tubed heat exchangers. The Heresite coating became then, and still remains a standard in the industrial coatings industry. We provide the highest quality protective coatings for air conditioning and refrigeration systems that operate in moderate to severely corrosive environments, including both coastal and/or industrial applications.

New formulation for an easy application, air-drying phenolic

Thin film, air-drying phenolics are excellent for resistance to corrosive fume atmospheres, and are particularly good in marine and salt air environments.

HERESITE VR-514 air-dry phenolic coating is specially formulated to permit application by brush, spray or roller. Some of its outstanding properties are excellent durability, good adhesion, good film building characteristics and flexibility.

When cured, VR-514 will produce a hard, corrosion resistant film, recommended as a heavy-duty coating for exposure to splash, spillage and fumes.

Successful applications include: HVAC equipment, agricultural implements, chemical plants, canning factories, construction equipment, marine finishes, steel plants, sewage disposal plants, textile industry, underground and ventilating systems.

VR-514 is a primer-finish combination material specially formulated for marine/salt water environments.

When the finished product will be subjected to direct UV exposure, a topcoat of Heresite UC-5500 series is recommended.

Effective date: 6/12/2023

VR-514 Typical Properties

Salt Spray ASTM B117: Passes 2,000 hours as primer-finish. Passes 3,000 hours with UC-5500 topcoat.

Water Resistance by Controlled Condensation ASTM D4585 (Cleveland Condensing Humidity): Passes 250 hours

Dry Heat: Withstands 200°F with excursions to 250°F without damage

Dry Cold: Withstands -40°F without damage

Flame Spread Test ASTM E84: 18.4 on a scale of 0-100 (oak wood = 100)

Smoke Density ASTM E84: 5

Bend Test ASTM D522: Passes 1/2" mandrel

Meets Mil Specs: Mil-C-18468, Mil-V-1137, and Mil-V-134897

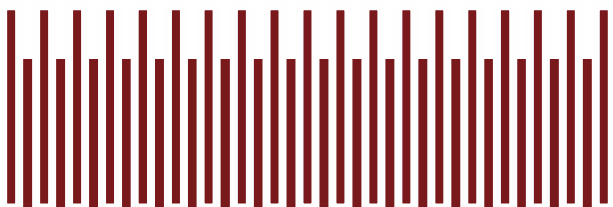
Pencil Hardness ASTM D3363: 4H

Cross-hatch Adhesion ASTM D3359: 5B

Impact Resistance ASTM D2794: Direct >25 in/pound; Indirect 13 in/pound

Heat Transfer Reduction: <1% as applied for heat transfer components

Meets FDA 175.300 for indirect food contact



Product Description

Air Dry Phenolic

Recommended Uses

Heresite VR-514 is a heavy duty primer-finish combination material specially formulated for marine/salt water environments — particularly for HVAC equipment, agricultural implements, chemical and wastewater treatment plants.

If the VR-514 coated surfaces will be subjected to direct ultraviolet (UV) exposure, a spray-applied topcoat of Heresite UC-5500 series should be applied.

Chemical Resistance

VR-514 is chemically resistant to a wide range of acids, solvents, and inorganic salts. Please review chemical resistance guide for further information.

Packaging Information

VR-514 is available in one gallon, five gallon and 54 gallon drum quantities.

An aerosol version (VR-514T) is available upon request.

Thinners and Cleanup

Recommended use of Heresite S-275.

Heresite S-440 may be used instead of S-275, although S-440 is not VOC exempt in the US.

Storage Conditions

Coating should not be stored longer than 2 years. Coating should be stored in a clean, dry environment at 50–75° F/10–24°C. Best practice is upon receipt to store coating upside down and rotate every six months. Keep out of direct sunlight. Avoid excessive heat and keep from freezing.

Physical Properties

Solids by weight: Approximately 73%

Solids by volume: Approximately 56%

Pot life: NA

Mixing Ratio by Volume: NA (1 component)

Shelf life: 2 years

Color: Red Brown

VOC Content

2.83 lbs/gal (339 g/L) less exempt solvents, as supplied

Film Thickness

For heat transfer, a 2 coat spray process will typically yield a dry film thickness (DFT) of 1.5–2.5 mils (38–64 microns).

For use with Heresite UC-5500 series (in the event of UV exposure), apply approximately 1.5 mils DFT (~38 microns) of VR-514, followed by approximately 1.5–2.0 mils (~38–51 microns) of UC-5500 series topcoat.

For all other surfaces, a typical dry film thickness of 4–6 mils (101–153 microns).

Coverage

Theoretical coverage is 900 square feet per gallon at 1 dry mil (approximately 22 square meters per liter at 25 microns). At the recommended DFT for heat transfer surfaces (2 mils / 51 microns), theoretical coverage is 450 square feet per gallon (approximately 11 square meters per liter at 51 microns). Coverage rates are estimates and make no allowance for material loss. Actual rates will vary dependent on application method, surfaces, etc.

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Surface Preparation

All surfaces must be clean, sound, and free of any oils, dirt, grease, wax and any other contamination that may interfere with coating adhesion.

In general, for new construction, the surface should be cleaned by solvent or a cleaner at elevated temperature followed by a clean water rinse. All surfaces must be dried prior to application of coating.

In cases where there is a large amount of contamination, a commercial blast is acceptable. Contact Heresite for coil remediation process.

Thinning

Reduce VR-514 with S-275 to 20 – 25 seconds on a Zahn #2 EZ cup. This requires approximately 1 gallon of paint to 0.25 gallons of solvent. If using S-440, the reduction ratio is equivalent.

The amount of thinner required is dependent upon temperature, ventilation, humidity, application type and desired film thickness.

Application

Application is specific to heat transfer components, for other parts — please contact Heresite.

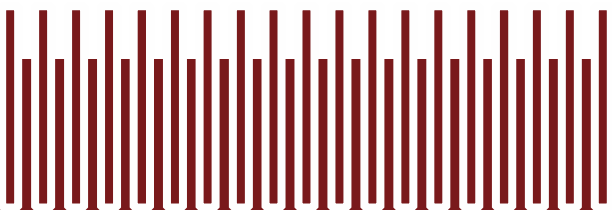
Spray Application For Heat Transfer Equipment:

1. Consult SDS prior to use.
2. Do not apply if temperature is less than 5°F above dew point, or if temperature is below 45°F.
3. Use standard production type spray equipment (conventional, HVLP, airless, etc.). A few starting recommendations can be found below:

Guns	Fluid	Air
Binks #2100	66-SS	66-SSx21MD-2
Graco Air Pro HVLP		

4. Spray viscosity will be dependent on type of equipment being used. Reduce per thinning instructions.
5. Spray equipment: always flush spray equipment with solvent to clean prior to applying coating.
6. Air supply must be uncontaminated. Adjust air pressure to approximately 50 pounds at the gun and provide 15–20 pounds at pressure pot. Adjust spray gun by first opening liquid valve and then adjust air valve to give approximately an 8"–12" fan, holding gun perpendicular to the surface at a distance of 12".
7. Apply a mist bonding pass.
8. Allow to flash off for approximately a minute, but not long enough to allow film to completely dry.
9. Coils shall be coated on both sides of fins (outside and inside)
10. Moving spray gun slowly — each coat consists of 3 spray passes: (1) straight into fins; (2) on 70-degree angle to right; (3) on 70-degree angle to left — on both sides of coil. These three spray passes are considered ONE coat — make sure to allow 15 minutes dry time between passes to avoid runs/sags.
11. VR-514 may be recoated with itself after 15–30 minutes of air dry.
12. Allow VR-514 to air dry for a minimum of 24 hours of before assembly.
 - a. Check dry by twisting thumb while applying pressure to paint, or check with fingernail. If the VR-514 appears to be soft, let dry further and recheck. The VR-514 is dry enough if you do not leave a thumbprint in the paint, or if the films feel hard/tough using your fingernail.
 - i. Temperature and humidity can dramatically impact dry times.

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Application of VR-514 and UC-5500 Series:

In the event that the VR-514 will be exposed to direct UV, a topcoat of UC-5500 series should be applied.

1. Following the directions above for spray application — follow steps 1 through 10
 - a. Apply approximately 1.5 mils of VR-514
2. After application of VR-514, allow the VR-514 to air dry for approximately 1 hour.
3. After 1 hour has elapsed, apply the UC-5500 series topcoat.
 - a. Part A and Part B are packaged in premeasured kits — with Part A being a short filled gallon allowing Part B to be added and mixed. The mixing ratio is 9 parts A to 1 part B. Mix Part A and Part B separately using an explosion-proof powder drill and blade type mixer. Add part B to Part A and thoroughly mix and blend using an explosion-proof power drill and blade type mixer. Mix only the amount that can be used within the estimated pot life. For optimum application, air and surface temperature should be from 10 to 32°C and at least 5°F above the dew point. Above 50°C, sagging may occur.
 - b. Spray application is preferred. Rolling or brushing is acceptable.
 - d. See UC-5500 series technical data sheet for additional information.
4. Allow the VR-514 with the UC-5500 series topcoat to air dry for at least 24–48 hours before assembly.

VR-514 Dip Application:

1. Consult SDS prior to use.
2. Do not apply if temperature is less than 5°F above dew point, or if temperature is below 45°F.
3. Consult Heresite for tank and pump recommendations.
4. Ensure as the part is prepared for dip, one will have a low point for drainage.
5. Immerse the cleaned part for 5 seconds in the reduced VR-514.
6. Upon removal of the part from the coating, apply light air pressure (approximately 15 psi) using an Air Knife or similar device to spread the air flow. Using the compressed air, remove excess coating. Minimal brushing should be required.
7. It may be deemed desirable to apply a final aesthetic spray. This can be accomplished immediately after the final dip is accomplished and prior to final bake.
8. During dip application, the viscosity must be maintained and monitored. It is recommended that the viscosity be checked every hour to ensure compliance with the specification of 17–19 seconds Zahn #2 EZ cup. Additional solvent and coating can be added to adjust viscosity as needed.

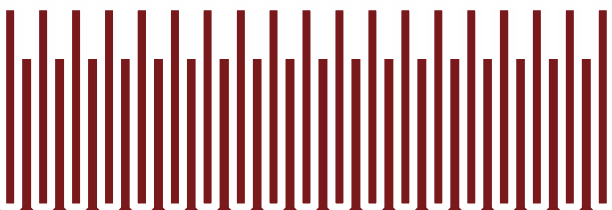
Spray Application For Higher Film Build:

1. Consult SDS prior to use.
2. Do not apply if temperature is less than 5°F above dew point, or if temperature is below 45°F.
3. Use standard production type spray equipment (conventional, HVLP, airless, etc.). A few starting recommendations can be found below:

Guns	Fluid	Air
Binks #2100	66-SS	66-SSx21MD-2
Graco Air Pro HVLP		

4. Spray viscosity will be dependent on type of equipment being used. Reduce per thinning instructions.
5. Spray equipment: always flush spray equipment with solvent to clean prior to applying coating.

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6. Air supply must be uncontaminated. Adjust air pressure to approximately 50 pounds at the gun and provide 15–20 pounds at pressure pot. Adjust spray gun by first opening liquid valve and then adjust air valve to give approximately an 8"–12" fan, holding gun perpendicular to the surface at a distance of 12".
7. Apply a mist bonding pass.
8. Allow to flash off for approximately a minute, but not long enough to allow film to completely dry.
9. Apply a 3–4 crisscross multi-pass maintaining a wet appearing film.
10. Allow a minimum of 15 minutes of air dry.
11. Apply another coat of VR-514 following same steps as above.
12. Repeat steps 9 and 10 until the desired film build is achieved [typically two to three coats for 4.0 to 6.0 mils (102–152 microns)].
13. VR-514 may be recoated with itself after 15–30 minutes of air dry.
14. Allow VR-514 to air dry for a minimum of 24 hours of before assembly or follow force cure schedule outlined in the Curing/Drying section.
 - a. Check dry by twisting thumb while applying pressure to paint, or check with fingernail. If the VR-514 appears to be soft, let dry further and recheck. The VR-514 is dry enough if you do not leave a thumbprint in the paint, or if the films feel hard/tough using your fingernail.
 - i. Temperature and humidity can dramatically impact dry times.

Curing/Drying:

Air Dry:

1. Coil should be dry to touch within 5 hours of final application — warmer temperatures will enhance dry, cooler temperatures will lengthen the dry time.

Force Cure:

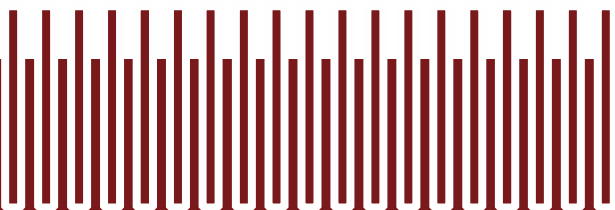
1. A force cure at 180°F for 30 minutes is an option if an appropriate oven is available.

These instructions are not intended to show product recommendations for specific service. They are issued as an aid in determining correct surface preparation, mixing instructions and application. It is assumed that the proper product recommendations have been made. These instructions should be followed closely to obtain the maximum service from the materials.

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Heresite VR-500 Series coatings will withstand exposure to the fumes noted below

Acetylene	Calcium nitrate	Hydrosulfites	Sodium alum
Alcohols	Carbone dioxide	Lubricating oils	Sodium aluminate
Alum	Carbon monoxide	Manesium carbonate	Sodium bicarbonate
Aluminum chloride	Carbon tetrachloride	Magnesium hydroxide	Sodium silicate
Aluminum nitrate	Carbonic acid	Magnesium oxide	Stearic acid
Aluminum sulfate	Caustic lime (dehydrated)	Magnesium sulfate	Stoddard solvent
Ammonium acetate	Chlorine fumes (up to 100 ppm)	Manganese ammonium sulfate	Sugar
Ammonium alum	Citric acid	Manganese chloride	Sulfur
Ammonium chloride	Copper chloride	Manganese sulfate	Surfactants
Ammonium phosphate	Copper nitrate	Mercuric chloride	Tannic acid
Ammonium sulfate	Dextrose	Mineral oils	Varnish
Ammonium sulfide	Ethylene glycol	Naphtha	Vegetable oil
Borax	Formaldehyde solution	Palmitic acid	Zinc acetate
Boric acid	Fruit juice	Potassium bicarbonate	Zinc chloride
Brine	Gelatine	Potassium carbonate	Zinc plating solution
Calcium carbonate	Glycerine	Salt spray	Zinc sulfate
Calcium chloride	Glycerol	Sea water	
Calcium cyanamide	Glycols	Silicic acid	
Calcium hydroxide	Hydrogen gas	Soaps	

CAUTION: CONTAINS FLAMMABLE SOLVENTS. KEEP AWAY FROM SPARKS AND OPEN FLAMES. IN CONFINED AREAS WORKERS MUST WEAR FRESH AIR LINE RESPIRATORS. PERSONS SHOULD WEAR GLOVES OR USE PROTECTIVE CREAM. ALL ELECTRICAL EQUIPMENT AND INSTALLATIONS SHOULD BE MADE AND GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. IN AREAS WHERE EXPLOSION HAZARDS EXIST, WORKMERS SHOULD BE REQUIRED TO USE NONFERROUS TOOLS AND TO WEAR CONDUCTIVE AND NONSPARKING SHOES.

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