



THE BEST CORROSION CONTROL PERFORMANCE, GUARANTEED!

Painting Specification

TERMARUST[®] SERIES TR2100 HIGH RATIO CO-POLYMERIZED CALCIUM SULFONATE SELF-PRIMING TOPCOAT

1. SCOPE

- 1.1 This specification covers a proprietary non-hazardous High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat for steel known as Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat. This proprietary single component Self Priming Topcoat contains no leaded or chromate pigments. It derives its corrosion resistance from the complex's strong affinity for steel. It has outstanding wetting properties, even on non-blast cleaned steel.
- 1.2 Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat is suitable for use on all structural steel and provides a firm, tack free, corrosion resistant, highly adherent film. Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat that is exposed to salt spray for extended periods (ASTM B117) will show no under-film creep age around a damaged area (scribe). Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat is suitable for maintenance or repainting of in place structures and not as a shop applied coating. (For shop application use Termarust[®] TR2010RI Flash Rust Inhibitor. Optimal long term protection will be achieved when the steel surface is prepared to an SSPC-SP6 or SSPC-SP12-WJ3 (LtoM) Surface Preparation, satisfactory performance can be obtained with an SSPC-SP2, SSPC-SP3 or SSPC-SP12-WJ4 (LtoM) Surface Preparation.

2. DESCRIPTION

- 2.1 Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat contains approximately 63% by volume of film-forming solids (pigment and binder) and 2.3 lbs per US gal. VOC. The theoretical spreading rate for 10 mils DFT is 107 square feet/US gallon at 100% transfer efficiency. Actual spreading rates can be significantly lower.





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3. REFERENCE STANDARDS

- 3.1 The standards referenced in this specification are listed in SECTION 3.4, 3.5 and 3.6 and form a part of this specification.
- 3.2 The latest issue, revision, or amendment of the referenced standards in effect on the date of invitation to bid shall govern unless otherwise specified.
- 3.3 If there is a conflict between the requirements of the cited reference standards and this specification, the requirements of this specification shall prevail.
- 3.4 Steel Structures Painting Council Specifications:
 - SSPC-PA Guide 3 A Guide to Safety in Paint Application
 - SSPC-SP7 Brush Off Blast Cleaning
 - SSPC-SP6 Commercial Blasting
 - SSPC-SP3 Power Tool Cleaning
 - SSPC-SP2 Hand Tool Cleaning
 - SSPC-SP1 Solvent Cleaning
 - SSPC-SP12 Surface Preparation of Steel and Other Hard Materials by High and Ultrahigh-Pressure Water Jetting Prior to Recoating or Over coating
- 3.5 American Society for Testing and Material (ASTM) Standards:
 - 3.5.1 Test Methods for Properties:
 - B117 Salt Spray (Fog) Testing
 - D582 Consistency of Paints Using the Stormer Viscometer
 - D1210 Fineness of Dispersion of Pigment-Vehicle Systems
 - D1475 Density of Paint, Varnish, Lacquer and Related Products
 - D2196 Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield) Viscometer.
 - D2396 Volatile Content of Coatings
 - D2801 Leveling Characteristics of Paint by Draw-Down Method
 - D653 QUV Weatherometer
 - D3363 Ultimate Film Hardness

4. PROPERTIES

- 4.1 TERMARUST[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat meets the requirements of Section 3.5, and SECTIONS 4.2 through 4.7
- 4.2 ODOR: Shall be normal for the materials permitted (ASTM D-1296)



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- 4.3 COLOR: The color may be pigmented to customers spec.
- 4.4 COMPATIBILITY: There shall be no evidence of incompatibility of any of the ingredients of the coating when two (2) volumes of coating are mixed with one (1) volume of mineral spirits (Federal Standards No. 141, Method 4203):
- 4.5 PIGMENT SETTLEMENT: The coating shall show perfect suspension when tested as specified in ASTM D869, when stored for six (6) months.
- 4.6 WORKING PROPERTIES: The coating shall be easily spray applied when tested in accordance with Federal Standard No.: 141, Method 4331. The coating shall show no streaking, running or sagging after drying.
- 4.7 CONDITION IN CONTAINER: The coating shall show no thickening, curdling, gelling, or hard caking when tested as specified in Federal Standard No. 141, Method 3011 after storage for six (6) months from date of delivery in tightly covered containers at a temperature of 50-110°F (12-38°C). A semi-cured coating skin may form on the surface of coating stored in a partially filled container or on the surface of coating when the container is exposed to prolonged periods of heat and direct sunlight. Care should be taken to minimize skinning by storing containers indoors and by transferring paint from partially filled containers to smaller sized containers (allowing little airspace above the liquid surface). All skins should be manually removed before application is attempted. The coating shall be filtered before application.

5. LABELING

- 5.1 MARKING OF CONTAINER: Each container shall be marked with the following information:

Name:
Color:
Lot Number:
Date of Manufacture:
Quantity of Paint in Container:
Manufacture's Name and Address:

- 6. A **SURFACE PREPARATION** ("recoat"- total removal of existing coating system)
- 6.A1 PRE-SURFACE PREPARATION - Before the actual removal of old paint and/or rust commences, all organic material such as bird nests, bird droppings, insect



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- nests and all other non-metallic obstructions or pollutants attached to the steel structures are to be removed.
6. A2 **SSPC-SP1 SOLVENT CLEANING** - The entire steel structure to be coated shall be inspected to determine the degree of chemical contamination. All oil and grease shall be manually removed from the steel with proper solvent cleaning as per SSPC-SP1. Areas that appear contaminated with road salts should be cleaned with a specialized chloride removal chemistry (e.g., Chlor*rid or Termaclean TC7101) before sandblasting. When water washing by adding Chlor-rid www.chlor-rid.com or Termaclean TC7101 soluble salt remover, chlorides should be removed during cleaning. No coating should be done until salt testing determines that the surface meets the salt levels indicated in the coating specification.
6. A3 **SSPC-SP6 COMMERCIAL BLASTING SSPC-SP12-WJ3 (LtoM)** - The thick, porous and highly salt contaminated black oxides present must be removed by sandblasting to an SSPC-SP6 or by Ultra-High Pressure Waterjetting to a SSPC-SP12-WJ3 (LtoM) specification. This will also remove all old, highly adherent coating to yield a smooth, clean surface. No tightly adhered Black oxides shall be allowed to remain on the steel surface. This black oxide is highly contaminated with Chloride, Nitrate and Sulfate Salts, and if allowed to remain, will result in accelerated, catastrophic coating failure. The cleaning process shall be performed in such a manner as to not contaminate freshly coated sections. Freshly prepared steel shall be kept free of contamination. If the freshly prepared steel is allowed to flash rust, and the flash rust does not exceed a light to medium flash rust as per SSPC-VIS 4 coating may be applied. If the steel is heavily flash rusted or is contaminated the loose flash rust and contaminant, this must be removed. In cases where exposed, freshly prepared steel may be exposed to direct contact with aqueous solutions of highway salts, the steel must be coated immediately after surface preparation, and the steel must be protected from highway runoff. The final SSPC-SP6 or SSPC-SP12-WJ3 (LtoM) prepared steel must be inspected by a representative of the coating supplier or responsible inspection authority before painting begins.
6. A4 **CHEMICAL ANALYSIS OF BLASTED STEEL** - The Chloride, Nitrates and Sulfate Ion content of the prepared steel must be analyzed before the SSPC-SP6 or SSPC-SP12-WJ3 (LtoM) spec. is approved, and before painting begins. A Chlor-Test or CSN analysis kit can be purchased from CHLOR*RID International. www.chlor-rid.com 1-800-442-3217 (USA) or 1-888-279-5497 (CDN). The allowable upper limit for all surface preparation other than that covered by SSPC-SP12 on Chloride Ion is 7 micrograms/sq. cm., Nitrate Ion 7 micrograms/sq. cm. and Sulfate Ion 10 micrograms/sq. cm. Testing shall be done



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- in areas where salt contamination has most likely occurred. Directions for analysis are contained in the kit.
6. B **SURFACE PREPARATION** ("**overcoat**"- spot cleaning and complete encapsulation of the existing coating system).
- 6.B1 **PRE-SURFACE PREPARATION** - Before the actual spot cleaning of old paint and/or rust commences, all organic material such as bird nests, bird droppings, insect nests and all other non-metallic obstructions or pollutants attached to the steel structures are to be removed.
6. B2 **SSPC-SP1 SOLVENT CLEANING** - The entire steel structure to be painted shall be inspected to determine the degree of chemical contamination. All oil and grease shall be manually removed from the steel with proper solvent cleaning as per SSPC-SP1.
6. B3 **SSPC-SP2 HAND TOOL CLEAN, SSPC-SP3 POWER TOOL CLEAN or SSPC-SP12 WJ4-NV2 (L to M)**. The thick, porous and highly salt contaminated black oxide present must be removed by hand tool cleaning, power tool cleaning to a SSPC-SP11 specification, or by using a SSPC SP12-WJ4 (L to M) at 5000 PSI using a rotating head, zero degree tip and a four inch stand off. No loose rust, black oxide or loose paint shall be allowed to remain on the surface. The black oxide is highly contaminated with Chloride, Nitrates and Sulfate Ions and if allowed to remain, will result in accelerated, catastrophic coating failure. The cleaning shall be performed in such a manner as to not contaminate freshly painted sections. Freshly prepared surfaces shall be spot primed (contaminant free bare metal and tightly adhering rust) then coated. If the freshly prepared surface is allowed to stand, the steel must be free of contaminants which may have accumulated on the surface before coating. In cases where exposed, freshly prepared steel may be exposed to direct contact with aqueous solutions of highway salts, the steel must be coated immediately after cleaning, and the surface must be protected from highway runoff. The final SP2, SP3, SSPC-SP12-WJ4-SC2-NV2 (L to M) High Pressure Water Cleaned, prepared surface must be inspected by a representative of the coating supplier or responsible inspection authority before coating begins. (Note: Excellent results in reduction of chlorides, nitrates and sulfates have been achieved using a 1% solution of Chlor*rid or Termaclean TC7101 in the wash water. Chlor*rid is available from Chlor*rid International Inc. www.chlor-rid.com or (1-800-442-3217) USA or (1-888-279-5497) CDN or Termaclean TC7101 Soluble Salt Remover.
6. B4 **CHEMICAL ANALYSIS OF CLEANED STEEL** - The Chlorides, Nitrates and Sulfate Ion content of the prepared surface must be analyzed before the SSPC-SP2, SSPC-SP3, SSPC-SP6 or SSPC-SP12-NV2 cleaning specification is



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approved, and painting begins. A Chlor-Test or CSN analysis kit can be purchased from CHLOR*RID International. www.chlor-rid.com or 1-800-442-3217 . USA or (1-888-279-5497) CDN. The allowable upper limit for all surface preparation other than that covered by SSPC-SP12 on Chloride Ion is 7 micrograms/sq. cm., Nitrate Ion 7 micrograms/sq. cm. and Sulfate Ion 10 micrograms/sq. cm. Several areas shall be tested, preferably in areas where salt contamination has most likely occurred. Directions for analysis are contained in the kit.

7. TERMARUST® TR2100 HIGH RATIO CO-POLYMERIZED CALCIUM SULFONATE SELF PRIMING TOPCOAT APPLICATION

7.1 THINNING: The coating may be thinned up to 10% by volume with Termarust® Thinner TRT01, however airless spray application normally requires no solvent reduction.

NOTE: When used as a spot primer during overcoating operations Termarust® 2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat may be thinned 25% with Termarust® thinner TRT01 depending on the condition of the steel.)

7.2 SPRAY EQUIPMENT: The Self Priming Topcoats may be applied by airless, air assisted airless, electrostatic, HVLP, LVP, or conventional air atomize spray equipment.

7.2.A Manual application: The Self Priming Topcoats may be brushed, rolled, or paint mitt applied where necessary.

7.3 FILM THICKNESS: The Termarust® TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat shall be applied to prepared steel at 15-18 wet mils, 10-12 mils dry film thickness. There shall be no areas of steel that receive less than 15 mils wet coverage. Extreme care shall be taken to thoroughly coat all joints, flange edges, sharp angles, rivets, bolt heads, nuts, threads and flange bottoms. Wet film thickness shall be confirmed by the contractor at regular and frequent intervals and is key to proper fulfillment of this specification. Wet film thickness over the specified level to a maximum of 25 mils wet will be acceptable; however, film thickness below 15 mils wet will not be accepted. When **overcoating**, all areas of bare metal or contaminant free tightly adhered iron oxide shall be spot primed at 5 mils DFT with a spray or brush coat of Termarust® TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat. When spot priming, the Termarust® TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat may be reduced to a maximum of 25% with Termarust® Thinner TRT01, depending on surface



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conditions and temperature. The spot primer may be sprayed and worked in by brush. All paint termination points must be brushed in. All pack rusted joints must be treated with Termarust[®] 2200LV High Ratio Co-Polymerized Calcium Sulfonate Penetrant/Sealer. An additional caulk coat of 15 to 18 wet mils of Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat shall be applied to the joints treated with the Termarust[®] TR2200 High Ratio Co-Polymerized Calcium Sulfonate Penetrant/Sealer. After the spot prime is complete the topcoat may be applied to all surfaces wet on wet at 7 to 8 mils and/or 5 mils DFT. The total film thickness over the spot primed steel should be a minimum 10 mils DFT, the pack rusted joints with penetrant, caulk coat and topcoat 20 mils DFT, areas of tightly adhering paint only require 5 mils DFT.

- 7.4 APPLICATION TEMPERATURE; The Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat should not be applied at temperatures below 2+C with a steel temperature not less than 2+C. There must be a 2 degree C spread between temperature and dew point. To apply the coating the relative humidity should be no greater than 99% and the steel should be free of surface moisture.(note: Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat may be applied below freezing (-18°C).This is not recommended unless steps are taken to control ice crystals before application ie. spot heating. The cold temperatures will also slow the coating's cure.)
- 7.5 INSPECTION - Film thickness 15 - 18 mils (wet) over bare steel or contaminant free tightly adhered iron oxide, 7-8 mils (wet) over existing coatings shall be checked at time of application. 10 mils dry film thickness (bare steel) or contaminant free tightly adhered iron oxide, 5 mils dry film thickness (existing coatings) shall be confirmed when film has cured by the on-site inspector using the method described in SSPC-PA-2.

Note: Preparing the substrate to a SSPC SP6 or SSPC-SP12-WJ3L Surface Preparation, will optimize the Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat's corrosion resistance. Testing indicates 50+ year service life. Excellent results have been achieved on corroded surfaces prepared to SSPC-SP2, SSPC-SP3 or SSPC-SP12-WJ4 Surface Preparation (25+ year service life). Tremendous cost saving (50% to 75%) on lead abatement projects have been obtained over corroded steel and remaining tightly adhering paint systems, by cleaning the surface to a SSPC-SP12-WJ4 then overcoating the entire structure with Termarust[®] TR2100 High Ratio Co-Polymerized Calcium Sulfonate Self Priming Topcoat as opposed to complete removal of the existing coating system. (See section 7.3 for application instructions).