



SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

RUST GRIP

INSULATION
AND
CORROSION
SPECIALISTS

Technical Data Sheet (05/29/19)

DESCRIPTION

RUST GRIP® is a tough, one-part, moisture-cure polyurethane coating that absorbs atmospheric moisture to cure. RUST GRIP® is loaded with a metallic pigment for strength and is also resistant to chemical solvents and acid splash. Upon curing, RUST GRIP® provides a protective coating film of superior adhesion and flexibility, and is resistant to abrasion and impact. RUST GRIP® can be used as a primer or as a one-coating system. It is patented to encapsulate lead-based paints and other toxic materials, including asbestos. RUST GRIP® can be applied over pressure-washed, completely dry flash rust and firmly bonded commercial paints. In most cases, a white or near-white blasting is not required. A light to medium surface rust is preferred as the profile. Conforms to MIL-PRF-3135.

TYPICAL USES

- As a coating to encapsulate rust, lead-based paints and other hazardous materials.
- As a protective coating on metal, concrete, wood, etc. to add strength and prevent deterioration.
- As a one-coat system on new or existing bridges, oil platforms, roofs, and other commercial/industrial surfaces with minimal surface preparation and non-sparking.

APPLICATION METHODS

RUST GRIP® can be applied to concrete or masonry substrates. The coating can be applied by spray, brush or roller. For specific instructions on surface preparation, mixing and application, please refer to the SPI's application instructions for RUST GRIP® (millage may vary due to surface profile).

NOTE: This product must not be applied on or within 2 inches of chlorinated rubber.

NOTE: Never use mineral spirits to prep surfaces or to thin this product.

NOTE: For temperatures 95F/35C and above with less than 20% humidity: Rust Grip will dry to touch but will not be completely finished gassing off. If you can move the coating with your fingers, it is not set hard enough to overcoat; if overcoated too soon, bubbles will be caught in the top coat.

NOTE: Zinc rich primers >= to 8.2 kilo of organic zinc per gallon should be removed by sandblast, hand or power tool prior to application of RUST GRIP®. Also, surface should be allowed to develop surface rust as the profile before applying RUST GRIP®.

NOTE: For corrosion protection, RUST GRIP applied over surfaces will encapsulate to block air and moisture. Further, where RUST GRIP is not applied (ie: underside of panels, inside plate assemblies, etc.), the air/moisture is not sealed out to prevent the development of corrosion, which can penetrate through the entire metal thickness to impact structural strength.

MINIMUM SPREAD RATE (mil thickness)

No flat surface is completely smooth and will have a profile of 1-2 mils (25-50 microns). Because of this, we will establish a minimum wet application of 10 mils and dry of 5 mils (125 microns). The number of coats necessary to achieve a minimum of 4 mils (100 microns) dry thickness over the top of the tallest peak of rust or profile will be in accordance with the job specification, blast profile or rust profile. Allow for absorption into the substrate and filling profile when figuring spread rate. For example, if the profile is 3 mils (75 microns) and 4 mils of coating is needed then 7 mils of coating is needed (114 sqft or 11 sqm/gal).

TEST AND CERTIFICATIONS

1. Tensile Strength (6,780 psi after 3 weeks)
2. USDA approved
3. E-108-00: Spread of flame on pitched roofs (Class "A" non-combustible)
4. G85: Prohesion over rusted metal
5. Marine approvals for salt water/maritime user:
ABS (American Bureau of Shipping)
IMO (International Maritime Organization)
6. Mildew Resistance – excellent (ASTM D3273, 3274)
7. Chemical Resistance (24 hours/12 reagents)
8. Flexibility (Mandrel Bend: ASTM D522) – 1/8"
9. Direct Impact Resistance (ASTM D2794)
10. Adhesion (ASTM D3359, D4541)
11. Water Vapor Transmission (ASTM D1653)
12. Surface Burning Characteristics (E84)
13. Weathering (2000 hours) – China
14. Scrub Resistance (ASTM D2486)
15. ASTM B117 – 15000 hours, one coat 6 mils/150microns-Perfect score
16. ASTM E1795 – Encapsulation test group
17. ASTM D5894 at 10K hrs with perfect 10 score @ 6 mils
18. Corps Of Engineers Guide Spec. UFGS 099702; painting hydraulic structures
19. Naval Warfare Center, Caderock Div. #NSWCCD-61-TR-2012/65 Materials Dept.
20. US Army Construction Engineering Research Laboratories (USACERL) Reports: ERDC/CERL TR-03-05/3/A080263
MEETS USMC SPEC: TM4795-OR/1

PHYSICAL DATA

- ◆ RG-1 Solids: By weight 62.2% / By volume 51.4%
- ◆ 30-60 MINUTES TO TACK FREE AT 70°F (21°C)
- ◆ Overcoat window is three hours or less at 70°F (21°C)
- ◆ Hygroscopic: Cures by absorbing moisture in the air
- ◆ Net Weight: 9.1 lbs. per gallon
- ◆ Moisture-cure Polyurethane
- ◆ Shelf Life: Up to 3 years (unopened) under appropriate storage condition (see MSDS)
- ◆ One component coating; No curing agent needed
- ◆ VOC Level: 380 grams/liter; 3.17 lb./gal.
- ◆ Silver-gray in color; not available in colors
- ◆ Resistant to most solvents, chemicals and some acids
- ◆ Maximum Surface Temperature when applying; 150°F (65°C)
- ◆ Minimum Surface Temperature when applying; 50°F (10°C)
- ◆ Maximum Surface Temperature after curing; 325°F (163°C)
- ◆ Failure will occur at a constant temperature equal to or greater than 302°F (150°C); consult SPI for intermittent temperatures that exceed
- ◆ Non-sparking
- ◆ Viscosity: 150 centipoise
- ◆ Avg Perms: 0.24

LIMITATION OF LIABILITY: The information contained in this data sheet is based upon tests that we believe to be accurate and is intended for guidance only. All recommendations or suggestions relating to the use of the products made by SPI, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge is reliable. The products and information are designed for users having the requisite knowledge and industrial skills, and the end-user has the responsibility to determine the suitability of the product for its intended use.

SPI has no control over either the quality of condition of the substrate, or the many factors affecting the use and application of the product. Therefore, SPI does not accept any liability arising from loss, injury, or damage resulting from such use or the contents of this data sheet (unless there are written agreements stating otherwise).

The information contained in this data sheet is subject to modification as a result of practical experience and continuous product development. This data sheet replaces and annuls all previous issues and the user has the responsibility to ensure that this sheet is current prior to using the product.



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Application Instructions (1/22/19)

RUST GRIP® is a one-part, metallic-filled moisture-cured, penetrating polyurethane that can be used as a primer, topcoat or to encapsulate. It can be applied to metal, concrete, masonry and wood, as specified.

SURFACE PREPARATION

Surface must be clean from oil, tar, rust, grease, salts, and films.

- 1) Use general degreaser if needed.
- 2) Clean surface using TSP (tri-sodium-phosphate) or a citrus cleaner to release dirt and degreaser residue.
- 3) Pressure-wash, if possible @ 3500 psi.
- 4) Salt contamination on a surface can come as a result of salt water, fertilizers, and car exhaust. Use Chlor*Rid or equivalent to decontaminate surface if salts are present. Acceptable levels: Nitrates: 5-10 mcg/cm², Sulfates: 5-10 mcg/cm², Chlorides: 3-5 mcg/cm²

Surface must be completely dry before applying.

- 1) RUST GRIP® must be applied during proper temperatures and the prescribed overcoat window of the coating over which it will be applied.
- 2) If applied over an existing coating having a glossed or shiny finish, it must be sanded and roughed to remove gloss before application, to improve the profile.
- 3) Additional coats of RUST GRIP® can only be applied when the 1st coat becomes tacky to the touch and has little to no transfer of coating; in most cases, 1-2 hours or less. After this stage, the surface must be lightly sanded to improve the profile.

NOTE: If pack rust or mil-scale exists, they must be removed by grit blast, power tool or pneumatic zip gun. Glossy surfaces should be sanded to a dull finish to improve the profile and enhance adhesion. If mil-scale exists on hot rolled steel, the pores will be blocked, and the surface must be taken to a SSPC – SP6 or SP11. Once these steps are taken, begin Surface Preparation Instructions. (Above)

NOTE: Never use a needle gun. This compacts rust into the pores and blocks RUST GRIP from anchoring.

MIXING

Mix by hand or with a power drill using low-medium speed with NO vortex. (A vortex will draw moisture into the coating.) The coating will be a yellowish green color. Mix continuously (with no vortex) until the entire surface of the coating turns a silver gray color. Mix for two more minutes making sure all paste is off of the bottom.

NOTE: Once container is opened, the product must either be used completely, or sealed with plastic before re-attaching lid after use, or repackaged and sealed well in an unlined metal can. Product may thicken if left open in can. Pour off the amount you intend to use after proper stirring. If left open, the product will harden in the container. For start & stop (lunch), drop gun into solvent pail and cover.

ONCE OPENED, PAIL WORKABILITY CHANGES ACCORDING TO AMBIENT CONDITIONS – 4 hours at 70°F degrees (21°C) at 60% or higher Relative Humidity. Cooler temperatures or lower humidity, more workability time. Warmer temperature or high humidity; less workability time.

SAFETY PRECAUTIONS

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: proper ventilation, use of proper lamps, wearing of protective clothing and masks, tenting, and proper separation of application areas. This coating is flammable. Keep away from fire, or other sources of ignition. For more specific safety procedures, please refer to the RUST GRIP SDS. KEEP OUT OF REACH OF CHILDREN.

CURE TIME

RUST GRIP / RUST GRIP UL VOC: 30-60 minutes to tack-free when 70°F. (21°C) at 40% relative humidity; fully cures in thirty days when 70°F (21°C) at 40% relative humidity.

APPLICATION

- 1) RUST GRIP® can be applied by soft bristle brush or ¼" nap roller made for solvent use or spray. If application is by spray, use a standard airless sprayer (1.5 gallons/minute at 3,300 psi) with a .013-.017 tip.
- 2) In all applications (brush or roller), apply at "half-speed" and use a cross-hatch method (side-to-side, then top-to-bottom) slowly to prevent pinholes and allow penetration.
- 3) If encapsulating rust, lead-based paint, other bio-hazardous materials or bridges, brushing is the preferred application method. Apply the first coat by brush (keeping it very wet at all times), using the cross-hatch method. Go about 30 feet then return to the beginning and apply a second coat identical to the first. A third coat may be required. This method will insure the coating is worked into the pores and fully encapsulates the existing surface, while leaving enough coating over the surface to avoid pinholes.
 - Maximum/minimum surface temperature when applying: 150°F (65°C) / 50°F (10°C)
 - Maximum surface temperature after curing: 325°F (163°C)
 - Failure will occur at a constant temperature => 325°F (163°C)

APPLICATION NOTES:

- 1) The number of coats necessary and the thickness of each will be in accordance with the job specifications, blast profile, or rust profile.
- 2) Temperatures must always be a minimum of 5 degrees above the dew point during application. If there is a minimum of 5mph of wind, this can keep the surface dry.
- 3) At high RH values of 60% or more, Rust Grip® cures very quickly and the window for applying another layer of coating is very short. At 85% RH, it could be determined that one has only an hour or less over-coat window depending on the ambient temperature. The higher the temperature, the faster solvents evaporate out of the coating. It is always best to overcoat immediately when the first coat of Rust Grip® becomes dry to the touch. Since the curing process is so dependent on ambient temperature and RH, the physical touch-test is always the best approach when working in high humidity environments. RH of 60% and up.
- 4) Surface profile must be factored when estimating the spread rate and amount of product required. Allow for penetration into the profile and adjust accordingly (i.e. if the profile takes 2 mil (50 micron) to fill before achieving the 6 mils dry(150 microns) then you must figure 8 mil (200 microns) dry as the appropriate spread rate).
- 5) HIGH-HEAT SYSTEM: a) HPC applied over hot surface at thickness according to temperature level, b) RUST GRIP® applied @ 150sf (14.5sm) for toughness, then c) SP Liquid Membrane for water/air seal plus rubber flex for movement.
- 6) Over very rough surfaces apply RUST GRIP® at a minimum thickness of 12 mils wet/6 mils dry. Dry film thickness must be at least 4 mils (100 microns) over the highest peaks of the surface profile. Allow for absorption into the substrate and filling profile when figuring spread rate.
- 7) Use Acetone to aid in drying surface before applying RUST GRIP®, when needed. DO NOT use mineral spirits or any other solvent for this purpose.

CLEANING EQUIPMENT

- 1) If breaks are taken, spray systems should be flushed with solvent.
- 2) After completion, spray system should be flushed and cleaned with MEK or Xylene; brushes and rollers should be discarded.

SAFETY DATA SHEET

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SECTION 1: Identification of the substance

- 1.1 PRODUCT IDENTIFIER: RUST GRIP
GHS PRODUCT IDENTIFIED: Global Harmonized System#3208.90.0000
- 1.2 PRODUCT USE: Corrosion coating protection for steel and concrete surfaces
- 1.3 SUPPLIER: SUPERIOR PRODUCTS INT'L, INC.
10835 W. 78th St., Shawnee, KS 66214 USA
- 1.4 EMERGENCY TELEPHONE NUMBER: 800-424-9300; 202/483-7616

SECTION 2: Hazard identification

- 2.1 Classification of the substance: This product is a flammable, solvent-based coating and should be treated according to all known safety precautions.

- 2.2 Label elements: Signal Word: DANGER

Hazard Symbol:



Hazard Statement: Flammable liquid and vapor. Harmful in contact with skin. May cause cancer. Causes eye irritation. May cause respiratory irritation or damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways. May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.

SECTION 3: Composition/information on ingredients

3.2	<u>Ingredient compositions</u>	<u>%</u>	<u>CAS/PIN</u>	<u>TLV</u>
	Aromatic 100	8.3%	64742-95-6	50.00
	Aromatic 150	20.0%	64742-94-5	25.00
	Mineral spirits	8.12%	64742-47-8	100.00
	4,4 Methylene Bis (Phenyl Iso) Diphenylmethane	0.64%	26447-40-5	Not established
	4,4 MDI, Bis (4-isocyanatopheny methane) Polyiso	34.97%	Proprietary	Not established
	4,4 Diphenylmethane Diiso	10.12%	101-68-8	.002-ceiling (.051 mg/m3)
	Metallic paste	17.85%	7429-90-5	Not established

SECTION 4: First aid measures

- 4.1 Description of first aid measures
INHALATION: Remove to fresh air. Give oxygen if required. Seek medical help, if needed.
EYES: Flush w/water for at least 15 minutes; see physician.
SKIN: Remove contaminated clothing; wash affected areas w/mild soap & water.
INGESTION: Do not induce vomiting. Give 1-2 glasses milk or water. Seek medical attention according to amount of product ingested.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media: Foam, dry chemical, carbon dioxide; water fog to cool containers exposed to heat.
- 5.2 Special hazards arising from the substance or mixture:
Hazardous combustion products: Carbon monoxide, isocyanate-based fume
Autoignition Temperature.: 214C. degrees Minimum ignitions energy: 6.1%
Flash point: 44C. TCC Flammable limits: (Lower) 1.4%/(Upper) NAV%
Sensitivity to static discharge? Yes
Sensitivity to mechanical impact? Possible due to aluminum content
Conditions of flammability: Spraying/activities that create fine mist
- 5.3 Advice for firefighters: Firefighters should wear full-body protection & SCBA

SECTION 6: Accidental release measures

- 6.1 Personal precautions: Use protective clothing; use non-sparking tools. Product may form flammable vapour-air mixture so take measures against build up of static discharge.
- 6.3 Methods of cleanup: Use kitty litter or similar absorbent to contain spill. Neutralize w/solution of 80% water/20% Tergitol TMN-10.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling: Ground all containers; use non-sparking tools. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.
- 7.2 Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition. Keep away from children.

NAP = Not Applicable

NAV = Not Available

SECTION 8: Exposure Controls/personal protection

- 8.1 Control parameters: To be worn when spraying or within contained areas--Half-face respirator w/organic vapor filter, safety glasses w/shields, PVA or nitrile chemical-resistant gloves, skin protection; for all other applications, good judgement should be used.
ENGINEERING CONTROLS: To spray, mechanical exhaust ventilation is required.

SECTION 9: Physical and Chemical Properties

- 9.1 Information on basic physical and chemical properties:
 PHYSICAL STATE: Liquid SOLUBILITY IN WATER: Insoluble pH: NAP
 APPEARANCE AND ODOR: Silver grey liquid, aromatic odor FREEZING POINT: NAP
 BOILING POINT: >150C. deg. SPECIFIC GRAVITY: 1.1 ODOR THRESHOLD: 0.4ppm
 COEFF. WATER/OIL: NAV EVAPORATION RATE: very slow% VOLATILES: 45
 VAPOUR DENSITY (Air=1): NAV VAPOUR PRESSURE: 8mmHg@20C. deg. CORROSIVE: NO

SECTION 10: Stability and reactivity

- 10.1 Conditions of Reactivity: dry aluminum powder 10.2 Conditions of Instability: Impact, heat and friction
 10.3 Possibility of hazardous reactions: None known. 10.4 Conditions to avoid: None known.
 10.5 Incompatible materials: Ammonium nitrate chlorofluoro carbons, chlorinated solvents, zinc rich greater than or equal to 8.2 kilo of organic zinc per gallon, strong bases, peroxides, amines
 10.6 Hazardous decomposition products: Hydrogen gas, reactive chlorides when wet. ABS tested non-toxic when burned.

SECTION 11: Toxicology Information

- 11.1 Information on toxicological effects:
Acute toxicity - oral: If swallowed: HARMFUL OR FATAL - Causes chemical burns of mouth and stomach; corrosive to gastrointestinal tract; Paleness and cyanosis of the face; Excessive fluid in the mouth and nose; Bloating of stomach and belching; Nausea and vomiting; Risk of chemical pneumonitis and pulmonary edema
Acute toxicity - inhalation: Vapors or mist can cause irritation. People with asthma or lung problems may be more affected; smokers.
Acute toxicity - dermal: May cause TEMPORARY skin discoloration and irritation. May cause severe eye damage.
Health effects to over exposure to CONCENTRATE: Corrosive to mucuse membranes, eyes and skin. The seriousness of the lesions and the prognosis of intoxication depend directly upon the concentration and duration of exposure.

SECTION 12: Ecological Information

- 12.1 Toxicity
 Air: 3.17 lbs./gallon; 380 grams/liter VOC*
 Water: Insoluble in water; reacts slowly w/water forming polyurea polymer and liberating CO2 gas
 Soil: Lead- and chromate-free, not hazardous under RCRA 40CFR

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods: Dispose of as paint/aluminum waste according to local regulations.

SECTION 14: Transport information

- 14.1 UN number: 1263 14.2 UN proper shipping name: Paint Related Material
 14.3 Transport hazard class: Class 3 14.4 Packing Group: III
 Product is considered hazardous material, to be handled according to IATA regulations

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance: No listed materials under Superfund Amendments & Reauthorization Act of 1988 (SARA) 302, 304, 311, 312. Meets European codes under Article 59(10) of the Reach regulation. California Proposition 65 Reproductive Toxins: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

SECTION 16: Other information

*Product is compliant with many national and local VOC content regulations. However, because manufacturer is not familiar with all local VOC requirements, the user is responsible for understanding the local VOC rules and for verifying that the product selections meet the most current VOC requirements of the area in which the products are to be used.

PREPARED BY: J. Pritchett, Superior Products Int'l II, Inc.

DATE: 1/31/20