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# SPI Coating System Application Specification for Encapsulation and Corrosion Protection of Lead Based Paint

**(R1 – 04/20/2020)**

Please find below the SPI field applied coating system for encapsulation of lead-based paint and general corrosion protection. Scope of work includes encapsulation and corrosion protection of metal surfaces coated with lead-based paint.

**The SPI Coating System includes Rust Grip® and for custom colours use Enamo Grip**

**Rust Grip® is a patented and certified Functional Coating for Encapsulation of Rust and Bio-hazards. Rust Grip®** is a one-part polyurethane, metallic pigmented coating that absorbs atmospheric moisture to cure. **Rust Grip®** is a protective coating film of superior adhesion, flexibility, abrasion and impact resistance. **Rust Grip®** penetrates into the pores of the substrate and seals the surface.

**For Custom Colors**
Enamo Grip is a two-part aliphatic polyurethane enamel coating system that forms a uniquely hard and durable coating film. **Enamo Grip** will demonstrate unsurpassed semi gloss retention, color retention, and chalk resistance when utilized for exterior coating situations. **Enamo Grip** is resistant to water, humidity, stains, acids, solvents and chemicals as well as having tremendous scuff, mar and impact resistance and when applied as a topcoat over **Rust Grip®** provides an extra layer of protection.

**Application Procedures:**

**Surface Preparation:** SSPC-SP1, SSPC-SP2, SSPC-SP3 unless there is mill scale present in which case use SSPC-SP15 or SSPC-SP12 / WJ-3 or SSPC-SP12 / WJ-4 Surface Preparation (using low pressure less than 3,500 psi/25MPa) depending upon the condition of the surface.

Surface shall be free of all existing mill scale, pack rust, dirt, contaminants, embedded oils, foreign matter and shall have all loose rust and loose coatings uniformly removed. Surface of any shiny firmly bonded coating shall be sanded and roughed to remove gloss or shiny finish and to improve the surface profile.

Surface shall be cleaned using TSP (tri-sodium-phosphate) or a citrus cleaner to release dirt and degreaser residue. Surface must be completely clean and **dry**. If surface moisture exists, wipe down with acetone immediately before the first application of **Rust Grip®**.

Use Chlor*Rid or equivalent to remove any salt contamination (chlorides, sulphates, and nitrates). Acceptable levels: Nitrates: 5-10 mcg/cm2, Sulphates: 5-10 mcg/cm2, Chlorides: 3-5 mcg/cm2.

**SPI Coating System:** Coating over existing lead-based paint ("LBP") will result in variances in the applied wet film thickness of **Rust Grip®** depending upon the porosity of the LBP surface. Some LBP surfaces will absorb the initial coats of **Rust Grip®** resulting in the appearance of pinholes on the surface. Continue to apply additional coats of **Rust Grip®** until no further absorption is occurring to ensure that the LBP surface has been sealed and encapsulated – absorption will normally appear within thirty (30) minutes after the application of each coat.

Depending upon the porosity of the LBP surface, the total spread rate (coverage rate) of Rust Grip® after multiple coats may be 75-80 ft2 (5.5-7.5 m2) per gallon.

**1st Coat: (Brush) Rust Grip®** @ 10 mils (250 microns) WFT / 5 mils (125 microns) DFT – 160 ft2. (15 m2) per gallon. Surface must be **dry**. Firmly press brush against surface to ensure penetration. **Porous surfaces will absorb more.**

**2nd Coat: (Brush/Roll/Spray) Rust Grip®** @ 8 mils (200 microns) WFT / 4 mils (100 microns) DFT – 200 ft2 (18 m2) per gallon.

**3rd / Add'l Coats: (Brush/Roll/Spray)** Additional coats of **Rust Grip®** to achieve 5-6 mils (125-150 microns) DFT over the peaks of the surface profile. Depending upon the porosity of the LBP surface, additional coats may be necessary. Rust Grip® @ 4 mils (100 microns) WFT / 2 mils (50 microns) DFT – 400 ft2 (36 m2) per gallon.

**Top Coat: (Brush/Roll/Spray) Enamo Grip** @ 4 mils (100 microns) WFT / 2 mils (50 microns) DFT – 400 ft2 (36 m2) per gallon (for custom color) per coat.

**Total System DFT**:

**Rust Grip®** 5-6 mils (125-150 microns) DFT (over peaks of surface profile)

**Rust Grip® and Enamo Grip** 7-8 mils (150-175 microns) DFT (over peaks of surface profile)

**Considerations:**
**Rust Grip®**: Avoid vortex when mixing, do not allow moisture to drop into pail when stirring. This will cause foaming in the pail. Use a 0.33–0.45 mm / 0.013 – 0.017 size tip with a 4-inch (100mm) fan width.

If encapsulating rust or lead-based paint, brushing is the preferred application method. Apply the first coat by brush (keeping it very wet at all times) at "half-speed" using the crosshatch method (side-to-side, then top-to-bottom). Go a short distance to allow the first coat to penetrate, then return to the beginning and apply a second coat. Additional coats may be required in the same manner to ensure that the coating penetrates into the pores of and fully encapsulates the existing surface with sufficient thickness to cover the peaks of the surface profile and to prevent pinholes.

**Surface Porosity and Profile:**

On surfaces that are extremely porous (i.e. thick, firmly bonded surface rust), apply multiple coats of **Rust Grip®** until the surface will not absorb an additional coat of **Rust Grip®** and the coating film is sagging.

Surface profile must be factored when estimating the spread rate and amount of coating required. Allow for penetration into the profile and adjust accordingly (i.e. if the profile takes 2 mils (50 microns) to fill before achieving the 5 mils (125 microns), then you must figure 7 mils (175 microns) dry as the appropriate spread rate).

**Rust Grip®** is a moisture cure polyurethane. When ambient temperature is above 32 C \ 90 F and above 60% humidity, **Rust Grip®** sets up tacky in 15 minutes to 1 hour. For optimum inter-coat adhesion, over coating of **Rust Grip®** should be performed as soon as the first coat is tacky. You can see the outline of your own fingerprint without wet paint sticking to it after pressing thumb against the coating. If an additional coat of **Rust Grip®** is applied after the specified overcoat time, the surface will need to be lightly sanded to achieve good adhesion. Refer to the Humidity Temperature Matrix for approximate moisture cure set up and re-coat times.

Spray **Rust Grip®** using a standard airless sprayer (1.5 gallons/minute at 3,300 psi) with a 0.33–0.45 mm / 0.013 – 0.017 tip. Spray may be used for the application of Rust Grip® on the first and/or second coats provided that **back brushing or back rolling** is used to force the coating into the pores of the surface.

**Enamo Grip**: Mix base and curing agent together (3 parts base and 1 part curing agent) and slowly stir for 2 minutes to mix well (with NO vortex). Use immediately if ambient temperature is above 60°F (16°C) or allow mixed product to stand for 30 minutes before using if ambient temperature is below 60°F (16°C) to sweat together. The hot ambient temperature allows the coating to sweat together (base and cure) faster.

Spray **Enamo Grip** using a standard airless sprayer (1.5 gallons/minute at 3,300 psi) with 0.28-0.38 mm / 0.011 – 0.015 tip.

If breaks are taken, spray systems should be flushed with solvent. After completion, spray system should be flushed and cleaned with solvent. After completion, brushes and rollers should be discarded.

See product documents (tech sheet and application instructions) for further explanation.

**Stripe Coats:** Typical areas where stripe coats must be applied include behind bars, plate edges, cut-outs (i.e. scallops, manholes, etc.), welds, chimes and seam areas, areas of difficult access, small fitments of difficult configuration and areas of pitting and existing rust. In general, stripe coats should be applied by brush focusing on corroded areas.

**Inspection: (Quality Control) (complete and submit Eagle QCR form)**

After the completion of the Surface Preparation but prior to application of the first coat of **Rust Grip®** measure the thickness of any remaining LBP and the surface profile of any remaining rust.

After application of each coating in the specified system and its surface has cured, measure its thickness with a properly calibrated dry film thickness gauge. Follow standard method for measurement of dry paint thickness. (SSPC – PA 2)

Make as many determinations as needed to ensure the specified thicknesses are achieved and make adjustments to all surfaces having less dry film thickness than specified until the specified thickness is achieved.