



# SAFE ENCASUREMENT SYSTEMS-MIDWEST

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## **ENCASUREMENT GUIDELINES FOR METAL SURFACES**

### INTRODUCTION

The use of an encasement system over metal surfaces requires consideration of the chemistry of corrosion. Corrosion is the reaction of the surface metal with oxygen from air, catalyzed by surface salts, and requiring a solvent such as water. Verifying these statements are the facts that metal does not corrode in extremely dry environments, (humidity below 30%, actually corrosion is very minor below 50%) or in electrolyte free systems. So to obtain a long lasting encasement coating on a metal surface, one must eliminate one of the following: the oxygen from the air, the water or humidity from the air, or any electrolytes from the surface. Since the elimination of air and water are nearly impossible tasks, chemists have sought to remove soluble salts that can act as catalysts from the surface, then coat with a coating that contains corrosion inhibitors which form the first film on the coated metal surface, a film which resists the movement of water and oxygen to the surface of the metal. *SE-C\*R Chlor\*Rid is an additive to wash water for removing the electrolytes from the surface to be coated.* SE-110-MS Multi-Surface primer contains a multi-metal formulation of 4 different environmentally safe corrosion inhibitors that, during drying will preferentially attract to the metal surface and form the first film the metal sees. This film is especially resistant to the passage of oxygen and water to the metal surface, and will significantly inhibit the chemistry of corrosion. Metal panels scrubbed with SE-C\*R Chlor\*Rid in water, coated with SE-110-MS, and top-coated with SE-120 flat-finish topcoat or SE-130 satin-finish topcoat were subjected to ASTM cabinet testing. All panels passed over 1,500 hours in the salt spray cabinet and over 1,400 hours in the humidity cabinet.

### SURFACE EVALUATION

Any metal surface with even the slightest indications of rust, corrosion, or oxidation, needs to be washed with SE-C\*R Chlor\*Rid soluble salt remover at 2% concentration in a power wash, or at 4% concentration as a scrub. Use of the C\*R test kits for determining the surface salt levels before and after removal to insure the surface is ready for coating (below 5 ppm salts) may be appropriate. Upon drying, the use of SE-110-MS, Multi-Surface Penetrating-Stabilizer (primer) should be applied. *Do not ever rinse a SE-C\*R treated surface with tap water, as this may re-contaminate the surface.*

### APPLICATION

The SE-C\*R should be used as part of a power wash or scrub, depending on what conditions allow. If a power wash is appropriate, 2% SE-C\*R in tap water should be used at a rate of 1 gal SE-C\*R/1000 sq. ft. This equates to 1 gallon of 2% SE-C\*R solution per 20 sq. ft. *If a scrub is appropriate, 4+% SE-C\*R should be used at a rate of 1 gal SE-C\*R/300 sq. ft.* This equates to 1 gallon of 4% SE-C\*R solution per 12 sq. ft. The applicator should make sure the entire surface is contacted directly with the power wash stream from a distance of 4-8 inches, *at a minimum of 3000psig.* If scrubbing is appropriate, the entire surface needs to be scrubbed. In areas where visible corrosion is present, these areas need to get a double dose of this treatment. It is not necessary to remove all the old paint or even the rust, as long as the described SE-C\*R treatment is used, what remains can stay. Do not rinse off the SE-C\*R treatment, but rather after air-drying, apply the recommended thickness of SE-110-MS. This should be a minimum of 10 wet mils (160 sq. ft./gallon on smooth surfaces). If the surface is not smooth or the corrosion is noticeably severe, 16 wet mils or more should be applied (100 sq. ft./gallon). The drying time before the application of the SE-120 or SE-130 topcoat can be as short as 4 hours. However, in no case should any topcoat be applied until the SE-110-MS is completely clear, which is an indication that it is substantially dry. This is particularly critical if SE-SUB submersible topcoat or any other water-impermeable coating is applied over SE-110-MS, in which case it will usually be desirable to allow the SE-110-MS to dry at least overnight. Overnight drying of SE-120 or SE-130 is also recommended if a high-gloss topcoat such as SE-160 or SE-170 is applied over the SE-120 or SE-130.

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