

## Application guide & recommendations for Steel surfaces

### ----- product storage & handling -----

All MCU-coatings should be stored in a covered shelter. Care should be taken to ensure that unused containers remain sealed and leftover, partial containers are properly resealed.

Storage temperature can range from -18°C to 38°C and should be kept constant. The material temperature must be brought to 3°C above the dew point temperature before opening and agitating the material to prevent condensation from entering the coating. TIP: Store the paint in the same temperature as the application temperature for 10 – 12 hours.

Since MCU coatings react with atmospheric moisture, it is important to limit the time the container is open. Mix and pour out only what is needed, then apply a solvent “fl oat” of approximately 100 – 150 ml of MCU’s thinner over the surface of the coating before resealing the container.

When in an extreme high humidity – rain or fog – place a plastic sheet over any opened cans of paint that can be exposed to water drips.

If it is not possible or practical to reseal the container during spray application, pour an MCU solvent “fl oat” over the coating to prevent moisture intrusion.

If a skin forms on the surface of the coating in a new, sealed container or a resealed partial container, remove it by cutting the edge of the skin at the skin/container interface, and discard. Agitate the remaining material until it’s homogeneous, adding MCU’s thinner as necessary. Filter the coating through a fine filter and proceed with the application.

### ----- mixing & thinning -----

MCU-coatings are single-component coatings. There is no mixing “Part A with Part B”; however, the coating should be mixed using power agitation for 3 minutes or until it’s completely homogeneous.

Use slow speed when mixing the paint with a mechanical mixer.

Do not use on paint shaker, and avoid repeated boxing.

Aged MCU-coatings (6 months or older) may develop significant settling.

Mix using power agitation until the coating is completely homogeneous.

Do not subject MCU-coatings to agitation during application. Once thoroughly mixed, the pigments will stay in suspension for up to 4 hours. Continuous agitation can cause premature gelling.

Thinning: Use only MCU-Thinner or MCU-Thinner 25. Make no exceptions, substitutes, or assumptions about using other reducers. Most industrial solvents contain water, or alcohol. Even a very small amount of water, alcohol or other hydroxyl bearing solvent can contaminate and destroy the moisture-cure reaction without any apparent indication or gelling. Substitutions may also jeopardize application and performance properties and will void any product warranty. Consult ‘MCU-Coatings’ Technical Service for thinning recommendations when MCU’s thinner is not available.

### ----- substrate times -----

‘MCU’ coatings are surface tolerant protective & marine coatings that can be applied to various types of metal surfaces in varying conditions.

Ferrous steel is a steel alloy containing iron. It makes up the bulk of the heavy industrial steel market, but is given to fast corrosion if not protected by a sealant, or coating system.

Galvanized metal has been coated with a thin film of zinc creating a sacrificial barrier between the metal and the environment. Since it

is the nature of zinc to attract corrosion to itself, galvanized surfaces break down over time and eventually lose effectiveness.

Corten steel, or weathering steel, is designed to rust, forming a corrosion barrier that encapsulates the steel. However, the long-term performance of weathering steel is greatly affected by environment, location and design details.

Other Metals: Aluminium, brass, bronze, copper, stainless and many other corrosion resistant metals or alloys.

## ----- project types -----

If the existing coating meets the following minimum requirements, it may qualify as a candidate for an 'MCU' overcoat system:

- The existing coating is in fair or good condition and exhibits adhesion strength of a minimum 250psi per ASTM D4541 Pull-off Adhesion Test
- The existing coating has been checked for system compatibility, and has been cleaned or prepared to the extent required by the overcoat system to allow for sufficient mechanical adhesion
- The existing coating has been checked for lead content (refer to your local state and federal regulations on lead pigment coatings)

4.2 For full removal projects where the existing coating system failed, MCU's coatings are surface tolerant, and for many full removal projects can be applied on steel prepared to a minimum ISO 8501 Sa 2. Additional spot preparation may be required on heavily corroded and pitted areas. Cleaning should produce a bare steel surface profile of 25 – 50µm (1.0 - 2.0 mils).

New bridge projects benefit from the versatility of MCU's coatings in shop application and field touch-up, with extended application parameters, indefinite recoatability on clean surfaces, and easy maintenance.

◇ Remove all mill scale on new steel structures with ISO 8501 Sa 2 (SSPC-SP 6) or Sa 2.5 (SSPC-SP 10) according to its service environment.

◇ Surface cleaning shall produce a profile of 25 – 50µm (1.0 - 2.0 mils).

## ----- surface preparation -----

The following standards reflect various degrees of cleanliness and surface preparation. Refer to the most current edition of ISO 8501 and the SSPC Painting Manual Systems and Specifications Volume 2 for more details on surface preparation standards and consult your MCU-Coatings Technical Representative for project specific recommendations.

**SSPC-SP1 Solvent Cleaning:** Uses solvents, emulsions, cleaning compounds, steam or similar materials to remove detrimental foreign matter like oil, grease, soil, drawing and cutting compounds and other contaminants.

**SSPC-SP2 (ISO St2 or St3) Hand Tool Cleaning:** Uses hand brushing, hand sanding, hand scraping, hand chipping or other hand impact tools alone or in combination to remove loose mill scale, loose rust, and loose paint.

**SSPC-SP3 (ISO St2 or St 3) Power Tool Cleaning:** Uses power impact tools, power wire brushes, power grinders, power sanders alone or in combination to remove loose mill scale, loose rust, and loose paint.

**SSPC-SP5/NACE No. 1 (ISO Sa 3) White Metal Blast Cleaning:** Uses abrasives propelled through nozzles or by centrifugal wheels to remove all mill scale, rust, paint, and other foreign matter. All contaminants, loose residues, surface imperfections and visible rust that forms following cleaning and prior to painting, shall be removed. Cleaned surface must be roughened to impart a profile suitable for the coating system.

**SSPC-SP10/NACE No. 2 (ISO Sa 2.5) Near-White Blast Cleaning:** Uses abrasives propelled through nozzles or by centrifugal wheels to remove all mill scale, rust, paint, and other foreign matter. Up to 5% staining may remain due to rust, mill scale, or previously applied paint on each 23cm x 23 cm (9-in. x 9-in.). Cleaned surface must be roughened to impart a profile suitable for the coating system.

**SSPC-SP6/NACE No. 3 (ISO Sa2) Commercial Blast Cleaning:** Uses abrasives propelled through nozzles or by centrifugal wheels to remove mill scale, rust, paint, and other foreign matter. Up to 33% staining may remain due to rust, mill scale, or previously applied paint on each 23cm x 23 cm (9-in. x 9-in.) surface area. Slight residues of rust and paint may remain in bottoms of pits if original surface is pitted. Cleaned surface must be roughened to impart a profile suitable for the coating system.

**SSPC-SP7/NACE No. 4 (ISO Sa1) Brush-Off Blast Cleaning:** Uses abrasives propelled through nozzles to remove loose mill scale, rust scale, paint, and other foreign matter. Tightly adherent mill scale, rust and paint may remain if they cannot be removed by lifting with a dull putty knife. The cleaned surface must be roughened to impart a profile suitable for the coating system.

**SSPC-SP11 Power Tool Cleaning to Bare Metal:** Uses rotary impact tools, needle guns, non-woven abrasive wheels and discs or coated abrasive discs to remove all visible mill scale, rust, paint, and other foreign matter. Slight residues of rust and paint may remain in bottoms of pits if original surface is pitted. Cleaned surface must be roughened to impart a profile no less than 25µm (1 mil).

**SSPC-SP12/NACE No. 5** uses high- and ultrahigh-pressure water jetting without the addition of aggregate to achieve various degrees of visible and non-visible surface cleanliness.

**High-Pressure Water Jetting (HP WJ):** Uses water at pressures from 70 to 170 MPa (10,000 to 25,000 psi).

**Ultrahigh-Pressure Water Jetting (UHP WJ):** Uses water at pressures above 170 Mpa (25,000 psi).

**High-Pressure Water Cleaning (HP WC):** Uses water at pressures from 34 to 70 MPa (5,000 to 10,000 psi).

**Low-Pressure Water Cleaning (LP WC):** Uses water at pressures less than 34 MPa (5,000 psi).

----- **surface preparation cont..** -----

SSPC-SP14/NACE No. 8 Industrial Blast Cleaning: Uses abrasives propelled through nozzles or by centrifugal wheels to remove mill scale, rust, paint, and other foreign matter. Traces of tightly adherent rust, mill scale, or previously applied paint may remain on 10% of each 23cm x 23 cm (9-in. x 9-in.) surface area. Cleaned surface must be roughened to impart a profile suitable for the coating system.

----- **equipment & set-up procedures for airless and conventional spray** -----

Inspect all air/liquid hoses for cracks, leaks, etc., and replace as necessary. Use a set of clean hoses exclusively for MCU and PU coatings to avoid blocking guns.

Inspect the spray apparatus and its components. Insure spray guns are clean and properly functioning. Change or clean filters prior to use. Check for proper tips and tip sizes, and use a reversible spray tip. Refer to the recommended Pressure and Tip Sizes chart in this section. Check valves and gauges for proper operation, and replace as necessary. Adjust to proper pressure.

Flush MCU's thinner through the system to clean the hose and flush out condensate. Never allow old thinner in the paint lines to enter the coating.

Filter the paint if the gun is blocking and clean hoses are used. Double check the pumps and filters. If a skin has formed on top of the paint

i.e. from transport, make sure and remove entirely before mixing in with the paint.

It is a good idea and recommended by "the Good Painting Practises" – SSPC to box the paint. This means; after mixing to filter the paint through a 500 mesh sieve into a clean uncontaminated can to remove unwanted particles

Stage large pails (10, 15 or 20lt) away from paint pump to prevent relief valve moisture from contaminating the product.

All MCU coatings are supplied ready to mix and spray. Use standard production type spray equipment. Air supply must have an effective moisture trap. Use air pressure at gun of 20 – 34 kg (45 - 75 pounds). Use 7 – 9 kg (15 - 20 pounds) pot pressure. Do not agitate in pressure pot. Use professional pumps 28-40:1.