



# TECHNICAL BULLETIN 111

Subject: Ferrous Metal Surface Preparation

## FERROUS METAL SUBSTRATES

### **SSPC-SP10 or NACE 2 – Near White Blast Cleaning / Dry Abrasive Blasting**

A Near-White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products and other foreign matter, except for staining. Staining shall be limited to no more than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks or minor discoloration caused by stains of rust, stains of mill scale or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods. For complete instructions, refer to Joint Surface Preparation Standard SSPC-SP10/NACE 2.

### **SSPC-SP1 - Solvent Cleaning (used in conjunction with SSPC-SP10)**

Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation. For complete instructions, refer to Steel Structures Paint Council Surface Preparation Specification No.1.

### **SODA BLASTING METHOD – alternate to SSPC-SP10 or NACE 2.**

Soda blasting is a non-destructive method for many applications in cleaning, paint stripping, industrial equipment maintenance, rust removal, graffiti removal, molecular steel pacification against rust, oil removal by saponification and translocation, masonry cleaning and restoration, and soot remediation. The soda blasting material consists of formulated sodium bicarbonate (also known as baking soda) having a crystalline structure that has a naked eye appearance of coarse granular sugar as opposed to the conventional powdery baking soda. Blasting soda is an extremely friable material that has micro fragmentation on impact, literally exploding away surface materials without damage to the substrate. Blasting soda is specially formulated and processed sodium bicarbonate (baking soda) that is nonabrasive, dissolves in water, and is formulated to be pure and free flowing. Blasting soda is typically packaged in easy to handle 50 lb bags. Approved for use by FDA, USDA, CODEX, USP, and EPA.

*In the functional process of soda blasting you will use a piece of specialty equipment which is a self contained system that includes a blast generator, high pressure compressed air, moisture decontamination system, blast hose with remote controls, and a blast nozzle that is capable of handling dry or wet blasting material.*

When Soda Blasting is used as the surface preparation method in removing old paint and rust in preparation of a protective coating or bonding agent, other phenomenon occur that are unique to the process. Soda Blasting will remove electrolytes, such as acids and chlorides, which is referred to as a passivity process to the metal. The result is that the metal will not have activated anode and cathode steel molecules, which can be observed by the absence of rust over, bare metal after extended periods. Sandblasted and mechanically cleaned surfaces will rust in as little as a matter of hours.

### **Aluminum**

Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning. Abrade surface to produce exposed profile for enhance mechanical adhesion and bond strength when used in conjunction with epoxy adhesives and silicone and polyurethane sealants.

### **Galvanized Metal**

Allow to weather a minimum of six months prior to coating. Clean per SSPC-SP1 using detergent and water or a degreasing cleaner, then prime as required. When weathering is not possible or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP7 is necessary to remove these treatments.

### **IMPORTANT NOTE:**

**When possible MM Systems recommends the removal of all ferrous steel used in conjunction with the forming and construction of blockouts and structural expansion joint openings in concrete structures. It is our experience that it is not a matter of “if” the ferrous steel will rust after surface treatment but rather “when” the rust will propagate. The propagation of rust will eventually cause delamination of any adhesive or sealant that was originally bonded to the surface.**