

SURFACE PREPARATION STANDARDS

Two common standards used in industry to describe surface preparation are the National Association of Corrosion Engineers Standards, (NACE), and Steel Structures Painting Council, (SSPC), "Surface Preparation Specifications".

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| 1. SSPC SP-5
NACE No. 1
"For Tank Linings" | WHITE METAL BLAST - This is defined as removing all rust, scale, paint, etc. to clean white metal which has uniform gray-white appearance. Streaks and stains of rust or other contaminants are not allowed. |
| 2. SSPC SP-10
NACE No. 2
"For Some Tank Linings
& Heavy Maintenance" | Near-White Metal Blast - This provides a surface about 95% as clean as White Metal. Light shadows and streaks are allowed. |
| 3. SSPC SP-6
NACE No. 3
"For Maintenance" | Commercial Blast - This type of blast is more difficult to describe. It essentially amounts to about 2/3 of white metal blast which allows for very slight residues of rust and paint in the form of staining. |
| 4. SSPC SP-7
NACE No.4
"For Very
Light Maintenance". | Brush-off Blast - This preparation calls for removal of loose paint, scale is permitted to remain. |

ABRASIVE/PROFILE COMPARATIVE CHART

The following chart should be used only for approximating abrasive size required to obtain a specified anchor pattern. This information can be used for centrifugal wheel as well as pressure blasting. Pressure blasting should be done using 90-100 psi nozzle pressure. The depth of anchor pattern used in this chart is an average and not a minimum or maximum depth obtainable.

2 Mil Profile

16/35 Mesh Silica Sand
G-40 Steel Grit
S-230 Steel Shot*
36 Mesh Garnet
36 Grit Aluminum Oxide
Clemtex #3
Black Beauty 20/40

3-4 Mil Profile

8/20 Mesh Silica Sand
G-25 Steel Grit
S-330 or 390 Steel Shot*
16 Mesh Garnet
16 Grit Aluminum Oxide
Clemtex #2
Black Beauty 10/40 or 12/40

* The steel shot alone will not give a good angular anchor pattern and should be used in combination with steel grit for best results.

Surface Preparation Standards

- National Association of Corrosion Engineers (NACE)
- Steel Structures Painting Council (SSPC)
- Swedish Standards (Sa,St)

National Association of Corrosion Engineers (NACE)

- NACE 1 White Metal Blast Cleaning
- NACE 2 Near-White Blast Cleaning
- NACE 3 Commercial Blast Cleaning

Steel Structures Painting Council (SSPC)

- SP-1 Solvent Cleaning
- SP-2 Hand Tool Cleaning
- SP-3 Power Tool Cleaning
- SP-4 Flame Cleaning
- SP-5 White Metal Blast Cleaning
- SP-6 Commercial Blast Cleaning
- SP-7 Brush-Off Blast Cleaning
- SP-8 Pickling
- SP-9 Weathering Followed By Blast Cleaning
- SP-10 Near-White Blast Cleaning

Swedish Standard (St,Sa)

- St 2 Hand Tool Cleaning
- St 3 Power Tool Cleaning
- Sa 1 Brush-Off Blast Cleaning
- Sa 2 Commercial Blast Cleaning
- Sa 2 1/2 Near-White Blast Cleaning
- Sa 3 White Metal Blast Cleaning

SSPC-SP-1

Solvent Cleaning - Removal of all detrimental foreign matter such as oil, grease, dirt, soil, salts, drawing and cutting compounds, and other contaminants from steel surfaces by the use of solvents, emulsions, cleaning compounds, steam or other similar materials and methods which involve a solvent or cleaning action.

SSPC-SP-2

St 2

Hand Tool Cleaning - Removal of all rust scale, mill scale, loose rust and loose paint to the degree specified by hand wire brushing, hand sanding, hand scraping, hand chipping or other hand impact tools or by a combination of these methods. The substrate should have a faint metallic sheen and also be free of oil, grease, dust, soil, salts and other contaminants.

SSPC-SP-3

St 3

Power Tool Cleaning - Removal of all rust scale, mill scale, loose paint, and loose rust to the degree specified by power wire brushes, power impact tools, power grinders, power sanders or by a combination of these methods. The substrate should have a pronounced metallic sheen and also be free of oil, grease, dirt, soil, salts and other contaminants. Surface should not be buffed or polished smooth.

SSPC-SP-4

Flame Cleaning - Removal of all loose scale, rust and other detrimental foreign matter by passing high temperature, high velocity oxy-acetylene flames over the entire surface, followed by wire brushing. Surface should also be free of oil, grease, dirt, soil, salts and other contaminants.

SSPC-SP-5

Sa 3

NACE 1

White Metal Blast Cleaning - Removal of all mill scale, rust, rust scale, paint or foreign matter by the use of abrasives propelled through nozzles or by centrifugal wheels. A White Metal Blast Cleaned Surface Finish is defined as a surface with a gray-white, uniform metallic color, slightly roughened to form a suitable anchor pattern for coatings. The surface, when viewed without magnification, shall be free of all oil, grease, dirt, visible mill scale, rust, corrosion products, oxides, paint, or any other foreign matter.

SSPC-SP6

Sa 2

NACE 3

Commercial Blast Cleaning - Removal of mill scale, rust, rust scale, paint or foreign matter by the use of abrasives propelled through nozzles or by centrifugal wheels, to the degree specified. A Commercial Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, rust scale and foreign matter have been completely removed from the surface and all rust, mill scale and old paint have been completely removed except for slight shadows, streaks, or discolorations caused by rust stain, mill scale oxides or slight, tight residues of paint or coating that may remain; if the surface is pitted, slight residues of rust or paint may be found in the bottom of pits; at least two-thirds of each square inch of surface area shall be free of all visible residues and the remainder shall be limited to the light discoloration, slight staining or tight residues mentioned above.

SSPC-SP-7

Sa 1

Brush-Off Blast Cleaning - Removal of loose mill scale, loose rust, and loose paint, to the degree hereafter specified, by the impact of abrasives propelled through nozzles or by centrifugal wheels. It is not intended that the surface shall be free of all mill scale, rust, and paint. The remaining mill scale, rust, and paint should be tight and the surface should be sufficiently abraded to provide good adhesion and bonding of paint. A Brush-Off Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, rust scale, loose mill scale, loose rust and loose paint or coatings are removed completely but tight mill scale and tightly adhered rust, paint and coatings are permitted to remain provided that all mill scale and rust have been exposed to the abrasive blast pattern sufficiently to expose numerous flecks of the underlying metal fairly uniformly distributed over the entire surface.

SSPC-SP-8

Pickling - Removal of all mill scale, rust and rust scale by chemical reaction, or by electrolysis, or by both. It is intended that the pickled surface shall be completely free of all scale, rust, and foreign matter. Furthermore, the surface shall be free of unreacted or harmful acid or alkali, or smut.

SSPC-SP-9

Weathering Followed By Blast Cleaning - Weathering to remove all or part of the mill scale followed by one of the blast cleaning standards.

SSPC-SP-10

Sa 2-1/2

NACE 2

Near-White Blast Cleaning - Removal of nearly all mill scale, rust, rust scale, paint, or foreign matter by the use of abrasives propelled through nozzles or by centrifugal wheels, to the degree hereafter specified. A Near-White Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, mill scale, rust, corrosion products, oxides, paint or other foreign matter have been completely removed from the surface except for very light shadows, very slight streaks or slight discolorations caused by rust stain, mill scale oxides, or light, tight residues of paint or coating that may remain. At least 95 percent of each square inch of surface area shall be free of all visible residues, and the remainder shall be limited to the light discoloration mentioned above.

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