ABSURDLY BLOATING

Abrasive blast to the most effective method of cleaning steel and masonry surfaces prior to coating. It is mandatory for certain specialized applications such as water immersion and high temperature exposures. Recommended for removal of oxide film, rust scale, and previous coatings from large areas. Careful selection of equipment, nozzles, and abrasives are essential to economical operation and achievement of the desired results. Avoid using coarse abrasive, 18–40 mesh grit or grind the 2 to 3 ½-min dry-blast profile recommended for use with most coating systems.

For optimum results, follow this sequence:

1. Prior to blasting, remove grease, oil, salt, chemicals, rust, and other contaminants by Chemical Cleaning.
2. Prior to blast cleaning, always wear all protective apparel.
3. Absorb blast to one of the grades described below.
4. After blasting, remove all abrasive dust and grit with a vacuum cleaner, clean and dry compressed air, or a clean brush.
5. Surface must be dry and free from the blast to the same day they blast the surface before the cleaned surface can become contaminated.

SPSC–SF (NACE 1): WHITE METAL BLAST CLEANING
Completely remove all rust, oxide film, mill scale, previous coating, etc., leaving the surface a uniform gray-white color.

SPSC–SF (NACE 2): COMMERCIAL GRAY BLAST CLEANING
Completely remove all dirt, rust scale, loose material, and previous coating, etc., leaving shadows and/or striations caused by rust stain and mill scale coalesced. Random standing shall be limited to no more than 20% of each unit area of surface (a unit of area is defined as 9 square inches).

SPSC-7 (NACE 0): BRUSH-OFF BLAST CLEANING
Remove rust scale, loose mill scale, loose rust, and loose coatings, leaving lightly bruised mill scale, rust, and previous coatings. An ideal method for removing oxides and/or loose and peeling coatings from galvanized metal. Results are comparable to those achieved by thorough scraping, rolling, or wire brushing.

SPSC–SA 10: NEAR WHITE METAL BLAST CLEANING
Remove all rust scale, mill scale, previous coating, etc., leaving only light rust from mill scale, rust, and small patches of previous coating. Random standing shall be limited to no more than 5% of each area of surface (a unit of area is defined as 9 square inches).

SPSC–SF 14 (NACE 8): INDUSTRIAL BLAST CLEANING
Remove all oxides, oil, grease, dust, dirt. Traces of lightly adherent mill scale, rust, and coating residues are permitted to remain on 10% of each unit area of the surface if they are

evenly distributed (a unit of area is defined as 9 square inches). The traces of mill scale, rust, and coating shall be considered tightly adherent if they cannot be lifted with a putty knife. Shadows, streaks, and discoloration caused by stains of rust, stains of mill scale, and stains of previously applied coating may be present on the remainder of the traces.

CONCRETE, MASONRY, PLASTER AND WOOD (FLOORS OR WALLS)

Note: Uncoated. Allow new substrates to cure thoroughly before coating. This requires 30 days under normal curing conditions. If there is any doubt about the dryness of the substrate, conduct a test by placing a weighted rubber mat, plastic sheet, or other non-porous material on the substrate for 24 hours. Then, check the underside of the mat and the substrate for signs of moisture. The substrate will be either damp if moisture is bound, substrate is too damp to coat with solvent-based coatings. Allow additional drying time of 10 to 14 days. Repeat test if moisture persists, substrate cannot be coated (ASTM D 4263-83). Evenly distributed moisture may result from freshly poured cement, air conditioning, or warm water blisters. To avoid proper coating penetration, determine porosity by pouring one ounce of water onto the substrate. If water soaks in, the concrete is not porous enough, and treatment is warranted. All surfaces must be free of grease, oil, salt, dust, dirt, and other contaminants. Remove with one of the chemical cleaning methods. Acid etch with Rust-Oleum 108 Cleaning & Etching Solution (ASTM D 4263-83).

Uncoated Wood
Remove all loose dirt, dust, etc., by swabbing or vacuum cleaning. Remove floor compound or wax by appropriate method. The surface must be thoroughly dry before coating.

Coated Concrete and Wood
Remove loose dirt, dust, etc., by swabbing or vacuum cleaning. Remove grease, oil, floor compound, or wax by Chemical Cleaning. Scraps or sawdust can be used to remove deteriorated coatings. On concrete, deteriorated paint is best removed with a high-pressure blasting (ASTM D 4263-83). If remaining coating is glossy or very hard, sand lightly for good adhesion of subsequent coatings. The surface must be thoroughly dry before coating. 6000 and 6500 Systems may be applied over most existing floor coatings without lifting them. Refer to SPSC–SF (NACE 0) for additional and more complete information regarding the surface preparation of concrete.

Mildewed Surfaces
Surfaces with mildew and mildewed areas should be cleaned with an alkaline cleaning solution and rinsed with water. If any mold or mildew remains on the surface, clean further with one part household bleach added to a gallon of water. Rinse with clean water. Severely mildewed areas should be cleaned with a chlorinated cleaning powder and thoroughly rinsed with water.

APPLICATION

Brush: Brush results are obtained when good quality brushes are used. Rust-Oleum products are formulated to provide brushing consistency. If thinning is necessary, carefully follow instructions found on containers or in specific system literature. Cover the surface completely to avoid retouching afterwards. Apply successive coats by overlapping to minimize brush marks.

Spray: Most Rust-Oleum products are suitable and economically applied by the various spray methods. Good equipment and skilled operators are essential for successful spray application. Equipment and nozzles instructions should be carefully followed. Special Rust-Oleum publications on spray applications are available on request.

Air Atomized Spray: Ideal for many Rust-Oleum coatings. Thinning to proper viscosity is important and usually requires 10% to 15% of the appropriate thinner. For low viscosity coatings, use a .011–.017” tip. Metallic coatings (aluminum or Zinc-Sele) may cause clogging and require Restart. For very high pressure, use a .017–.021” tip.

Electrically Sprayed: Well suited with most products, except metallics.

Mixing, Thinning and Application Guide

Most Rust-Oleum products can be applied by brush, roll, or spray. For recommended thinning instructions, film thickness, drying times, and other pertinent information, refer to the Technical Data charts, product labels, and separate technical literature.

Drying time of coatings varies with temperature, humidity, and ventilation. When low temperature, high humidity, or poor ventilation exist, longer drying times should be expected. Drying can be accelerated by heating the surface up to 150˚F (65˚C) after application. If coatings are sprayed at low temperatures, allow them to return to application temperatures before thinning or use. Do not apply coatings when ambient or surface temperature is below 32˚F (0˚C) or above 100˚F (38˚C). Surface temperature must be at least 5˚F above the dew point to prevent formation of condensation and premature curing. If the temperature of the coating exceeds 100˚F (38˚C), premature curing may occur and result in a defective coating.

Technical Data charts, product labels, and separate technical literature.

To store partially used containers, pour a small amount of recommended thinner over the coating residues are permitted to remain on 10% of each unit area of the surface if they are

evenly distributed (a unit of area is defined as 9 square inches). The traces of mill scale, rust, and coating shall be considered tightly adherent if they cannot be lifted with a putty knife. Shadows, streaks, and discoloration caused by stains of rust, stains of mill scale, and stains of previously applied coating may be present on the remainder of the traces.

SPSC–SF (NACE 1): WHITE METAL BLAST CLEANING
Completely remove all rust, oxide film, mill scale, previous coating, etc., leaving the surface

 Công ty cổ phần Công nghệ RUST-OLEUM - Đại diện Việt Nam: 13 Gia Định, Phường 13, Quận 10, Thành phố Hồ Chí Minh; Tel: +84-70-3932393, Email: ularus@gmail.com © 2008 Rust-Oleum Corporation Form No. 001797 (03/08)
Steel Shapes

**Wet Film Thickness**

This formula will calculate the needed wet film thickness (WFT) required to achieve the desired or specified dry film thickness (DFT).

\[
WFT = \frac{Specified\ Dry\ Film\ Thickness}{%\ Volume\ Solids}\times\ (1 + \%\ Thinner\ Used)
\]

**Coverage Rate**

This formula will calculate the coverage rate in square feet per gallon.

\[
CR = \frac{1604}{(%\ Volume\ Solids)}\times\ Dry\ Film\ Thickness\ (mil)\times\ Practical\ coverage\ rate\ generally\ allows\ for\ a\ 10\%\ material\ loss,\ so\ multiply\ the\ above\ result\ by\ 0.85
\]

**Steel Shapes**

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<th>Dimensions per linear foot (in. sq. ft.)</th>
<th>4 x 4 (11)</th>
<th>5 x 5 (15)</th>
<th>6 x 6 (20)</th>
<th>8 x 8 (30)</th>
<th>10 x 10 (48)</th>
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**Pipe**

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<td>0.65</td>
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<tr>
<td>Surface area per linear foot (in. sq. ft.)</td>
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**Surface Preparation Guide**

**MINIMAL PREPARATION**

For coatings requiring only minimal surface preparation, the surface needs to be prepared in accordance to SSPC–SP 1 and SSPC–SP 2. With SSPC–SP 1, tightly adhered rust, mill scale or previous coating can remain provided it cannot be removed by lifting a dull putty knife using moderate pressure. (SSPC–SP 2 (NACE 4) is available for the preparation of large areas).

**CHEMICAL**

SSPC–SP 1: CHEMICAL CLEANING

This method involves the removal of dirt, oil, grease and other foreign materials with organic solvents, detergent or commercial cleaners using one of a variety of cleaning methods such as wiping, steam cleaning, or vapor degreasing. See one or more of the following techniques:

- **Power Cleaning**: Removing dirt, grease, oil, and similar contaminants with an air or water jet. Apply directly to the surface to be cleaned and rub with cloth, sponge, or stiff bristle brush, and then rinse thoroughly with fresh water. Use full strength or heavily soiled surfaces or where general pollution cleaning. The surface must be completely dry before the application of coating.

- **Steam Cleaning**: Recommended for removing grease, oil, dirt, acid, alkali and other chemical residue from large areas. For maximum effectiveness, steam cleaning should be used in combination with alkaline cleaning. The surface will be thoroughly dry and free of residue before it is coated.

- **Alkaline Cleaning**: For removal of dirt, wax, rust, oil, tar, salt, and residue, acid or alkali with a strong commercial detergent solution such as Sodium Thiosulfate (STS), then flush thoroughly with fresh water. Surface must be completely dry and free of any residue before it is coated.

- **Volatile Solvent Cleaning**: Makes certain the area is well ventilated. Apply solvent to the surface with cloths, sponges, or brushes and to remove grease and oil. Some solvents are toxic and should be avoided. A surface profile shall be achieved to a degree comparable to the use of power tool cleaning.

- **Pneumatic Sanding**: Chip, scrape, or wire brush rusted surfaces thoroughly to produce a tightly adhered surface suitable for powder coating. This is limited to no more than 33% per unit area of surface. A surface profile shall be achieved to a degree comparable to SSPC-SP 1 and SSPC-SP 2 or SSPC-SP 3. Tightly adhered rust, mill scale, rust, paint, oxide, corrosion products, and other foreign material. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. If the surface is to be sprayed, the surface profile produced shall be not less than 1 mil (25µ) and shall be to a degree specified in the painted or coated system.

**SSPC–SP 15: Commercial Grade Power Tool Cleaning**

Power tool cleaning to produce a bare metal surface for alkyd and other non-volatile coatings, such as oil and chlorinated hydrocarbon-type coatings. The surface shall be free of visible dirt, oil, grease, rust, scale, rust, paint, oxide, corrosion products, and other foreign material. This standard is limited to no more than 33% per unit area of surface. A surface profile shall be achieved to a degree comparable to SSPC-SP 1 and SSPC-SP 2 or SSPC-SP 3.

**SSPC–SP 12 (NACE 5): HIGH AND ULTRA-HIGH PRESSURE WATER JETTING**

This standard provides procedures for the use of high and ultra-high pressure water jetting to achieve various degrees of surface cleanliness. This standard is limited in scope to the use of water only without the addition of solid particles in the stream. This standard defines four levels of working pressure:

- **Low-Pressure Water Cleaning (LPWC):** Less than 34 MPa (5000 psi)
- **High-Pressure Water Cleaning (HPWC):** 34–70 MPa (5000–10,000 psi)
- **Ultra-High-Pressure Water Jetting (UHPWJ):** Above 70 MPa (10,000 psi)

**PRESSURIZED WATER**

This standard provides procedures for the use of high and ultra-high pressure water jetting to achieve various degrees of surface cleanliness. This standard is limited in scope to the use of water only without the addition of solid particles in the stream. This standard defines four levels of working pressure:

- **Low-Pressure Water Cleaning (LPWC):** Less than 34 MPa (5000 psi)
- **High-Pressure Water Cleaning (HPWC):** 34–70 MPa (5000–10,000 psi)
- **Ultra-High-Pressure Water Jetting (UHPWJ):** Above 70 MPa (10,000 psi)