



SURFACE PREPARATION GUIDELINES

GENERAL INFORMATION

Coating performance is affected by proper product selection, application and proper surface preparation. The Wyn-Stik coating integrity and service life will be reduced because of improperly prepared surfaces. As high as 80% of all coatings failures can be directly attributed to inadequate surface preparation that affects coating adhesion. Selection and implementation of proper surface preparation insures coating adhesion to the substrate and prolongs the service life of the coating system.

The major paintable surfaces encountered in the field are concrete, ferrous metal and galvanizing. Selection of the proper method for surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination and the effect on the substrate will also influence the selection of surface preparation methods. Regardless of substrate, all contamination must be removed prior to coating. Loose dirt must be removed by bristle brushes, blowing clean with air pressure or steam cleaning. Oil and grease must be removed with solvents or commercial detergents. Change rags frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.

All areas must be completely dry prior to coating.

RECOMMENDATIONS FOR CONCRETE SURFACES

EXISTING / OLD CONCRETE

The surface must be thoroughly clean. Lifting, bleeding or peeling can occur because of incomplete surface preparation. Use of commercial detergents on concrete floors to remove grease and grime is required. Brush blasting of poured concrete or a 10% muriatic acid etch with thorough rinsing of concrete is required. Elimination of moisture in or beneath the concrete is required before coating.

NEW POURED CONCRETE

The preparation of new concrete surfaces is as important as the surface preparation of steel. Although no national standards exist for surface preparation or its evaluation, the methods indicated below can serve as guides. The following precautions will also help assure maximum performance of the Wyn-Stik coating system and satisfactory coating adhesion.

1. CURE - Concrete must be cured prior to coating application. "Cured" is defined as concrete poured and aged at a material temperature of at least 70°F for at least 30 days.

2. MOISTURE - Concrete must be free from moisture as much as possible (it seldom drops below 15%). Vapor pressures, temperature and humidity differentials, and hydrostatic pressures can cause coatings to prematurely fail. One check of moisture content in concrete is to tape an asphalt tile on the surface, sealing all the edges. After 48 hours, remove and examine the backside for moisture condensation and inspect the concrete surface for darkened areas. The source of moisture, if present, must be located, and the cause corrected prior to coating.

3. TEMPERATURE - Air, surface and material temperatures should be at least 55°F for 24 hours prior to, during and after the Wyn-Stik coating application.

4. CONTAMINATION - Remove all grease, dirt, paint, oil, tar, glaze, laitance, efflorescence, loose mortar and cement by the recommendations indicated below.

5. SURFACE CONDITION - Hollow areas, bug holes, honeycombs, voids, fins, form marks, and all protrusions or rough edges are to be ground or stoned to provide a smooth continuous surface of suitable texture for proper adhesion of the Wyn-Stik coating. Imperfections may require filling with Wyn-Stik ES-4 paste adhesive / repair material prior to coating.

METHODS OF PREPARING CONCRETE SURFACES

METHOD A - BLAST CLEANING (BRUSH BLASTING OR SWEEP BLASTING)

This method includes dry blasting, water blasting, water blasting with abrasives, and vacuum blasting with abrasives.

1. Use 16 - 30 mesh sand and oil-free air.
2. Remove all surface contaminants.
3. Stand approximately 2 feet from the surface to be blasted.
4. Move nozzle at a uniform rate.
5. Laitance must be removed and bug holes opened.
6. Surface must be clean, dry (check for moisture using asphalt tile test) and exhibit a texture similar to that of medium grit sandpaper.
7. Vacuum or blow down and remove dust and loose particles from surface.

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METHOD B - ACID ETCHING

1. Sweep or blow down surface to remove loose dirt.
2. Wet surface with clean water.
3. Etch with 10 - 15% muriatic acid or 50% phosphoric acid at the rate of 1 gallon per 75 square feet.
4. Scrub with a stiff brush.
5. Allow sufficient time for scrubbing until bubbling stops.
6. If no bubbling occurs, surface is contaminated with grease, oil, or concrete treatment, interfering with proper etching. Remove the contamination with suitable cleaner and then etch the surface.
7. Rinse surface two or three times. Remove acid/water mixture after each rinse.
8. Surface should have a texture similar to medium grit sandpaper.
9. It may be necessary to repeat this step several times if texture is not achieved on first etch. Bring pH of surface to neutral with 3% solution of tri-sodium phosphate and flush with clean water to achieve sound, clean surface.
10. Allow surface to dry and check for the presence of moisture using the asphalt tile test.

METHOD C - POWER TOOL CLEANING or HAND CLEANING

1. Use needle guns or power grinders, equipped with a suitable grinding stone of appropriate size and hardness, which will remove concrete, loose mortar, fins, projections, and surface contaminants. Hand tools may also be used.
2. Vacuum or blow down and remove dust and loose particles from surface.
3. Check for the presence of moisture using the asphalt tile test.

METHODS OF PREPARING STRUCTURAL STEEL OR STEEL PLATE SURFACES

GENERAL INFORMATION

Structural steel or steel plate should be cleaned by one or more of the nine surface preparation methods described below. These methods were originally established by the Steel Structures Painting Council in 1952, and are used throughout the world as acceptable methods for cleaning structural steel.

SOLVENT CLEANING - Standard SSPC-SP 1-63

Removal of oil, grease, dirt, soil, salts and contaminants by cleaning with solvent, vapor, alkali, emulsifying agent, or steam.

HAND TOOL CLEANING - Standard SSPC-SP 2-63

Removal of loose rust, loose mill scale, and loose paint, by hand chipping, scraping, sanding and wire brushing.

POWER TOOL CLEANING - Standard SSPC-SP 3-63

Removal of loose rust, mill scale and loose paint, by power tool chipping, descaling, sanding, wire brushing and grinding.

WHITE METAL BLAST CLEANING - Std. SSPC - SP 5-63

Removal of all visible rust, mill scale, paint and foreign matter by blast cleaning by wheel or nozzle (dry or wet) using sand grit or shot. (For very corrosive atmosphere where high cost of cleaning is warranted.)

COMMERCIAL BLAST CLEANING - Std. SSPC - SP 6-63

Removal of all rust, mill scale, paint and all other foreign matter except for slight shadows of same in less than one third of each square inch of blasted area.

BRUSH-OFF BLAST CLEANING - Standard SSPC-SP 7-63

Blast cleaning of all, except tightly adhering residues, of mill scale, rust and coatings, exposing numerous evenly distributed flecks of underlying metal.

WEATHERING FOLLOWED BY BLAST CLEANING - Standard SSPC-SP 9-63T

Weathering to remove all or part of mill scale followed by blast cleaning to one of the above standards.

NEAR-WHITE BLAST CLEANING - Std. SSPC-SP 10-64

Blast cleaning to nearly white metal, until at least 95% of each element of surface area is free of all visible residues. (For high humidity chemical atmosphere, marine or other corrosive environment.)

WATER BLASTING - Standard NACE RP-01-72

Removal of oil, grease, dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 - 5,000 psi at flow of 4 - 14 gallons per minute.



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