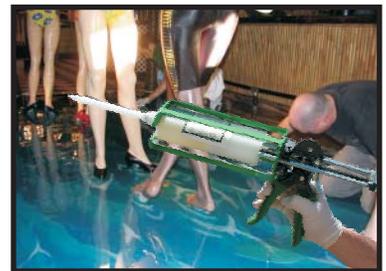


NORMAC

Urethane Coatings and Related Products

SURFACE PREPARATION GUIDE



REV.1.2

NORMAC

Normac Adhesive Products Inc.
1350 Heine Court
Burlington, ON, Canada
Tel: 905-332-6455 Fax: 905-332-6455
www.normacadhesives.com

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SURFACE PREPARATION GUIDE

Important Disclaimer:

The data is based on information believed to be reliable and is offered solely for evaluation. Normac products are sold with the understanding that clients make their own tests to determine the suitability of these products for their particular application. Since the use of this product is beyond the control of the Seller, the Buyer assumes all risks of use or handling, whether in accordance with directions or not, as the Seller makes no warranty, expressed or implied, concerning this product.

Revision History:

Rev.	Date	Description	Author
1.0-1.1		No revision history kept	
1.2	May 15, 2008	Added Revision History	Joe Ceretti
"	"	Added Rev. X.X to all pages	"
"	"	Updated © Dates	"
"	"	Modified header - removed gradient	"
"	"	Resampled bitmaps on cover - reduce file size	"
"	"	Modified section, "Carbon Steel" for clarity as follows - Merged paragraph 1 and 2 together - Paragraph 1 states "minimum requirement" - Fixed spelling error "patter" becomes "pattern"	"

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(905) 332-6455

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The information contained herein is provided to act as a guide only in selecting an appropriate surface preparation method for use with Normac Urethane Coating Systems.

The importance of good surface preparation to create bond strength to the substrate cannot be stressed enough. The success of Normac coatings is directly related to the quality of adhesion.

Normac Coatings rely on mechanical adhesion meaning surface roughness or anchor patterns to ensure the best possible bond.

METAL (General)

Prior to any substrate preparation all grease, oils and other contaminants must be removed by either detergent cleaning or solvent washing. Heavily oiled metals should be heat treated, then solvent washed. In all cases, the substrate should be dry before proceeding with the chosen preparation method.

All weld splatter and slag must be removed by grinding smooth prior to surface preparation. Sharp edges and corners should be rounded. Weld flux should be removed.

Special attention should be paid to bolts or rivets to ensure a good surface preparation as they can often be a cause of premature coating failure.

The cleaning of blasted surfaces is important. The best method is to brush clean and vacuum to remove all blasting media, dust and dirt prior to the priming operation. Normac recommends immediate priming of all blasted articles after proper cleaning.

CARBON STEEL:

The minimum standard requirement for the application of Normac coatings is NACE #2 or SSPC SP 10-63 Near White Metal Blast to a minimum anchor pattern of 50 microns (1½ to 2 mils).

The blasting media used in the above preparation methods greatly influences the profile and the ease of which a given surface is cleaned. Black Beauty 4016 has proven to be a most reliable and effective abrasive in preparing carbon steel for good adhesion with Normac Urethane Coatings. Other abrasives such as flint shot, aluminum oxide and steel grit are acceptable medias. Do not use steel shot, glass beads or beach sand. Blasting pressure should be a minimum 80 psi using oil free air lines and moisture traps.

Blasting operations in the field are limited to relative

humidity of 85% or less. The surface temperature of the steel at its coldest point must be at least -15°C (5°F) above the temperature of the dew point.

The third, but most controversial method, is that of cold or hot phosphate and pickling surface treatments. Many claims have been made to the overall effectiveness of these methods but none have proven reliable. Normac strongly suggests testing adhesion prior to full scale application as there are many different formulations available. However, should any of these methods be chosen it is necessary to completely neutralize the treatment and allow it to dry prior to application of the primer coat.

Power tool cleaning, wire brushing and solvent wiping are the least effective methods of surface preparation. Normac does not recommend the use of these methods for successful bonding of urethane coatings.

STAINLESS STEEL:

Best prepared by grit blasting as described for Carbon Steel. Our experience has shown an aluminum oxide of 24 grit at a minimum air pressure of 80 psi provides a good surface preparation for bonding.

Primer selection - For bonding Normac Sprayable or Brushable Urethane Coatings use Normac NR-9500 Urethane to Metal Primer.

ALUMINUM:

Best prepared by grit blasting as described for Carbon Steel and Stainless Steel.

Primer selection - For bonding Normac Sprayable or Brushable Urethane Coatings use Normac NR-9500 Urethane to Metal Primer.

For bonding rubber or urethane sheet stock to metal use our Normac XL-4000/4001 rubber to metal primer.

CONCRETE:

Normac recommends either a normal or hard troweled concrete surface for the application of urethane coatings of less than 0,8mm (.032"). For coating thicknesses of greater than 1mm (.040") wood floated concrete is acceptable.

For swept concrete finishes a minimum thickness of urethane coating should be 1,5mm (.060"). For surfaces poured against forms contact our office as the process for coating preparation can be quite involved.

New concrete must be allowed to cure and dry for a minimum of 30 days prior to any coating application. After this time, test the concrete for moisture by placing a sheet of heavy gauge plastic film approximately 12 inches square taped to the cured concrete surface in places considered to be slow drying. If the concrete is not dry, moisture will appear on the concrete side of the plastic film or the concrete will be darker or damp indicating the presence of moisture. Do not apply any coating until the concrete is thoroughly dry.

Oils, greases and waxes must be thoroughly removed from concrete. This is usually accomplished using a 1 kg. blend of trisodium phosphate to 4 liters of 71°C (160°F) hot water. Scrub the area repeatedly until the contaminants are removed. Wash the area with clean water and allow to dry before continuing surface preparation.

If concrete curing compounds are used they must be removed and the concrete allowed to dry as previously stated. Blasting is the best method for removal of these curing compounds.

The two common forms of concrete surface are sandblasting and acid etching. Sandblasting is the preferred method especially when walls, ceilings or other irregular shaped articles are involved. Use a medium/fine blasting media, usually 16 to 40 mesh, so that damage such as cratering is kept to a minimum, yet heavy enough to remove concrete laitances.

Acid etching is accomplished by diluting concentrated hydrochloric or muriatic acid with 3 or 4 parts of water, applying it to the concrete and allowing it to react with the calcium compounds in the concrete until all bubbling of the surface stops. The calcium compounds neutralize the acid forming calcium chloride which is washed away with clean water. Scrubbing the concrete surface with a broom while rinsing will ensure removal of all laitances. Allow the concrete to dry thoroughly prior to continuing the surface preparation.

Primer selection - Normac 900R, EP100, EP200 and NR-9500 have proven successful for bonding urethane and to concrete.

URETHANE/RUBBER:

New urethane/rubber must be washed with solvent to remove any waxes, release agents etc. prior to preparation.

The best surface preparation for rubber or urethane is either slow speed sanding (2000 RPM or less) with a 24, 36 or 50 grit aluminum oxide sanding disc or a rotating stiff-bristled wire brush, 75 to 100mm (3" to 4") in diameter x 25mm (1") face attached to an electric drill or air motor of

approximately 1400 RPM.

The key is to roughen the surface without "burning" or "charring" the substrate. Roughening means cutting or abrading the surface creating a rough texture on the rubber or urethane which you can visually confirm.

Remove all loose sanding dust and solvent. Solvent wipe the surface. Begin the application of primer.

Primer Selection Use Normac NR-9500 or 900R for adhesion to urethane and Normac 900R for adhesion to rubber substrates.

FIBREGLAS:

A successful procedure for preparing fibreglas has been to abrade the surface in the same manner as *Urethane/Rubber*.

For large areas, sandblasting with a medium-fine blast media can provide satisfactory surface preparation. It is well advised to test adhesion of blasted fibreglas prior to coating.

Primer Selection - Both the Normac 900R and NR-9500 have proven successful as primers for properly prepared fibreglas.

WOOD:

New wood should be free from all oils, greases, tars or pitch. Remove with mineral spirits or other types of recommended solvents. Rough spots should be sanded and dust removed. Fill cracks and holes with appropriate wood putty and sand flush with the existing surface.

Primer Selection - As wood is a porous substrate priming is not necessary. However, a single coat of either the Normac 900R or NR-9500 will act as a barrier coat to moisture and air pockets.

TECHNICAL SERVICE:

Other substrates of metals or non-metals can be coated with Normac Urethane Coatings. Contact our office for more specific information on substrates not listed or any other questions you may have regarding surface preparation.