WILKO PAINT, Inc.

W I C H I T A, K A N S A S 67204-0089

MANUFACTURERS OF THE FINEST INDUSTRIAL FINISHES

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COATING CONCRETE

1. SURFACE PREPARATION

In almost every plant location, a different situation exits with respect to the condition of concrete floors. Each floor will require somewhat different preparation prior to painting. However, most floors can be placed under one of the following categories.

A. New Concrete

New concrete must cure for a minimum of thirty (30) days prior to coating. After this period the only surface preparation necessary is etching. This can be accomplished with an acid solution. Following the application of acid, reaction residues must be removed with a combination of fresh water and squeegee. Allow floor to dry thoroughly, sweep or vacuum to remove powdery residue, and apply the first coat of material. NOTE: Refer to "Etching Process."

B. Previously Painted Concrete

Paint may be removed with scrapers, power abrasive equipment, or one or more applications of Paint and Varnish Remover. If abrasives or scrapers are used, treat the exposed concrete as indicated in "A. New Concrete" Effective scrapers can be made by welding or brazing a sharp carboloy tip (carbide steel) to the end of a chisel or suitable instrument. If the Paint and Varnish Remover method is used, follow the directions outlined under "D. Waxed Concrete."

C. Oil Saturated Concrete

One or more applications of commercial dispersants and emulsifiers, combined with scrubbing, will remove enough of the oil to allow good penetration of the acid etching solution. A solution consisting of three ounces of Tri Sodium Phosphate, one ounce household detergent, one quart Clorox, and two gallons of water, is also quite effective in removing oil from concrete. Again, as with previously waxed concrete, use multiple applications of acid until the desired surface texture is obtained. The acid reaction products (salts) and released oil must be removed with fresh water and squeegeeing following each application. Allow floor to dry thoroughly, sweep or vacuum to remove powdery residue, and apply the first coat of material. NOTE: Refer to "Etching Process"

D. Waxed Concrete

Wax may be removed, if in a thin film, with commercial detergents, which are readily obtainable from a number of manufacturers or distributors. If the wax film is excessively thick as a result of accumulation over a long period of time, removal will probably involve one or more applications of Paint and Varnish Remover. The waxed area must be thoroughly wet with the remover, and allowed to stand until the wax film has wrinkled and lifted, then scraped with a wide blade scraper, hoe or other suitable implement. Paint and Varnish Remover may leave a waxy residue which, of course, must be removed prior to the application of acid.

If detergents or commercial wax removers are not effective in removing this residue, use Wilko No. 11 Thinner, Butyl Cellosolve. No. 11 is a combustible solvent and must be employed with care. Clean only small areas at a time with solvent saturated rags, then wipe with dry mops or rags while the wax is still suspended in solvent. To test the effectiveness of the process of wax removal, apply a solution of acid to treated area. If foaming occurs quickly, you may conclude that the wax has been eliminated. If foaming does not occur, residual wax is preventing the acid from entering the concrete.

It has been observed that successive applications of acid solution, each rinsed and squeezed after reaction, will eventually penetrate and release this wax residue, and leave a surface with excellent texture for mechanical bond. Allow floor to dry thoroughly, sweep or vacuum to remove powdery residue, and apply the first coat of material. NOTE: Refer to "Etching Process."

2. REMOVING OTHER CONTAMINANTS

If contaminants other than those described above are present, they must be removed by mechanical means. Use scrapers, wire brush, or power washers to remove loose paint, loose concrete and mortar, tile glue, dust, etc., then treat as described under "NEW CONCRETE". Tile glue, even it is tightly adhering, may soften when painted and may cause premature failure.

3. ETCHING PROCESS

The process of etching involves the use of acid to react with or "eat" into the binding matrix of hardened concrete, leaving a rough porous surface to which coating material can establish a strong mechanical bond. The reaction products of the etching process are primarily the salts of magnesium, calcium and aluminum, and if not removed with fresh water and squeegeeing, will form a powdery, absorbent area at the interface of concrete and paint, which will prevent complete wetting and bond. Vacuuming and sweeping are also effective for removing the dry powdery residue.

Acids generally used for etching are Hydrochloric (Muriatic), Sulfamic, Sulfuric and Phosphoric. Muriatic acid is an impure form of Hydrochloric acid and is probably the most available, effective and inexpensive of the four. For etching purposes, these acids are usually diluted at the rate of one (1) part acid to five (5) parts water. However, more vigorous reactions and quicker results may be obtained when the proportion of acid to water is increased. CAUTION: When preparing acid solution, always add the acid to the water. When handling acid, avoid contact with skin. As a precaution, workers should wear goggles and gloves. If skin does come in contact with acid, wash the affected areas with water.

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3. ETCHING PROCESS (cont'd)

Commercially available powdered forms of acid, which are certainly easier to handle, do not react with concrete as quickly or as effectively as liquid acids. It is suggested that the use of this type of material be confined to new or very clean concrete.

Such preparations are not as effective as liquid acids on contaminated floors. Acid solutions, for most effective results, are applied by saturating the concrete, allowing the solution to stand without disturbance until foaming ceases. A garden type sprinkler can make a good acid applicator. When the solution ceases to foam, remove residual material with a combination of fresh water and squeegee. Some floors may require multiple application of acid before surface texture is obtained. To test floor texture, move the thumbnail over the treated area. If the texture resembles that of coarse sandpaper, it is ready to receive the first coat of material.

4. SEALING CONCRETE

Coatings over concrete that stay dry last longer than those applied over concrete that has a tendency to remain damp. It is necessary that steps be taken to keep the concrete dry by sealing cracks and crevices where water can gain entry. This can be done before or after painting using a quality paintable, mildew resistant silicone caulk. Water on the painted side of the concrete should not pose a problem since the paint will act as a sealant for the concrete, assuming that the coating is properly applied and void of holidays.

5. APPLICATION

The first coat should be thinned 25-50% to assure proper penetration into the pores. This will prolong the life of the coating by improving its mechanical adhesion and sealing some pores. If feasible, apply the first coat with a brush, working the bristles into the pores and/ore residual loose contaminants not removed by cleaning. Allow the first coat to dry tack-free before applying the second coat. The same procedure must be followed if applied by roller. If application by brush or roller is not feasible, apply the first coat at a heavy enough film that the surface will be saturated enough for the paint to be absorbed into the pores.

6. HAZARDOUS WASTE

It is the user's responsibility to determine if any surface contaminants removed, as well as the medium used to remove them, and all pretreatments, are hazardous. If they are determined to be hazardous, they must be handled and disposed of in accordance with local, state, and federal regulations.