

Adsil MicroGuard® Advanced Siloxane Technology

INTERIOR CONCRETE FLOOR - CLEAR SYSTEM SPECIFICATION

DOCUMENT NUMBER AD1130-01

SECTION 09800 - SPECIAL CLEAR PROTECTIVE TREATMENT

PART 1, GENERAL

1.01 General requirements of the Project Manual shall apply to all work specified in this section.

1.02 Quality Assurance

- A. Installer (installer shall be proficient in concrete floor protective coating systems).
 - 1. Installer shall be trained & certified by Adsil, or its appointed agents, using Specification #AD1130-01 procedures established in accordance with Adsil methods and standards for clear concrete floor system protective coatings.
 - 2. Installer shall ensure that all technicians utilized for work in this section are –
 - a. trained and certified journeymen in the Adsil Micro Guard® Inorganic Clear Concrete Protective Coating System.
 - b. shall have demonstrated a proficiency, in this area, by citing past projects.
 - 3. Installer shall ensure that any specialized equipment, as required by the manufacturer, will be used for work in this section.

1.03 Submittals

- A. Product Data: Submit manufacturer's technical information, including Product Technical Data Sheets, Material Safety Data Sheets, detailing job site and personal safety instructions, product mixing instructions and installation instructions for each material specified. Identify by manufacturer's catalog number and general classification.
 - 1. Technical Data Sheet TS-54; MicroKleen™ Phosphoric Acid PLC-35
 - 2. Technical Data Sheet TS-45; MicroKleen™ Industrial Cleaner & Degreaser PLC-1
 - 3. Technical Data Sheet TS-43; MicroKleen™ Retarder Solvent AD1-103
 - 4. Technical Data Sheet TS-44; MicroKleen™ Spray & Equipment Cleaner AD1-919
 - 5. Technical Data Sheet TS-34; MicroGuard® Concrete Clear Sealer AD702
 - 6. Technical Data Sheet TS-22; MicroGuard® Concrete Clear Gloss Treatment AD703/AD1000
- B. Third Party Data: Submit any relevant test studies, relative to floor treatment systems, when using MicroGuard® Inorganic Clear Concrete Protective Coating Systems on new or in use concrete floor surfaces.

1.04 Delivery and Storage

- A. Deliver materials in sealed containers with manufacturer's labels intact.
- B. Store materials in a protected area at a temperature range between 50° and 85° F.

1.05 Job Conditions

- A. Install MicroGuard® protective treatments only under the following prevailing conditions:
 - 1. Air, surface and material temperatures are not below 60° F. or above 100° F.
 - 2. Prevent wide temperature variations, which might result in condensation forming on the freshly treated surfaces or could affect hydrolyzing or curing.
 - 3. Avoid all water contact, of any sort, on freshly treated surfaces for a minimum of 12 hours following installation.
- B. Mask or place protective drop cloths over surfaces not to receive protective treatment.

PART 2, PRODUCTS

2.01 Manufacturers

- A. Products of Adsil, Inc., Daytona Beach, Florida, USA. (Phone: 386-274-1382)

2.02 Materials

- A. Cleaners, Conditioners & Solvents

1. Adsil MicroKleen™ PLC-35 Phosphoric Acid Etch & Clean
 2. Adsil MicroKleen™ PLC-1 Industrial Cleaner & Degreaser
 3. Adsil MicroKleen™ AD1-103 Retarder Solvent
 4. Adsil MicroKleen™ AD1-919 Spray & Equipment Cleaner
- B. Protective Concrete Floor Surface Treatments
1. Adsil MicroGuard® AD702 Concrete Clear Sealer
 2. Adsil MicroGuard® AD703/AD1000 Concrete Clear Gloss Treatment

2.03 Product Requirements

- A. Surface Cleaners & Conditioners
1. Cleaners shall be free from any known carcinogen or teratogen materials.
 2. Cleaners shall be phosphorous free.
 3. Cleaners shall be d'limonene free.
- B. Surface Rinses
1. Rinses shall be free from any known teratogens, mutagens, sensitizers or reproductive toxins.
- C. Concrete Protective Surface Coatings
1. Surface Coatings shall be ambient temperature cured inorganic film structures.
 2. Surface Coatings shall adhere to substrate by London Force Bonding methods.
 3. Surface Coatings shall produce a dry film thickness no greater than 12 microns, on average, per coat (1 mil = 25.4 microns).
 4. Surface Treatments shall have passed ASTM G-21, with a zero (0) microbial spore growth development rating*.
 5. Surface Treatments shall not lose more than 25 mg of film, when tested according to ASTM D 4060 Taber Abrasion; using the CS-17 wheel*.

*Standard ASTM testing must have been conducted and validated by an accredited, third party, independent laboratory.

2.04 Material Preparation

- A. Catalyze and/or mix materials strictly in accordance to manufacturer's most current published technical literature.
- B. Thinning of material, upon specific need, should only be accomplished using MicroKleen™ Retarder Solvent AD1-103 for the MicroGuard® Clear Sealers and Treatments.

PART 3, EXECUTION

3.01 Pre-work Inspection

- A. Examine the concrete floor to be treated and report any conditions that would adversely affect the general appearance or performance of the protective treatment system and which cannot be repaired or put into an acceptable condition by repair or specified surface preparation methods.
- B. Do not proceed with the mixing or installation of the specified protective treatments until the concrete floor can be placed into an acceptable condition.

3.02 Equipment Requirements

- A. Spray Equipment (for spray or spray & back roll application method)
1. Air compressor, which can deliver 3 CFM of air @ 90 PSI (minimum).
 2. Adsil Dual Regulated Stainless Steel Pressure Pot (2 gallon tank)
 3. Adsil Spray Gun/Wand with 45° connector
 4. Adsil #5 & #10 cone tips (4 sets of each)
 5. Adsil Chemical Resistant Hose with quick connect couplers
 6. Adsil Product Mixer and Paddle, with Timer
 7. Adsil Pump & Wand Soap Delivery System
- B. Clean, white or clear HDPE plastic buckets (5 gallon size).
- C. Roller Frame, extension handle, solvent resistant, short nap roller covers.
- D. Assorted tools, extension cords, water hose & nozzle, squeegee, clean buckets, clean rags, etc;
- E. 175 RPM Swing Machine with black pads, clean-grit nylon brush attachments & 200 grit sanding screens.

- F. High Pressure Rinse & Reclaim Equipment.
- G. Tarps, drops, plastic sheathing and masking tape.
- H. Safety Equipment - ½ Face Respiratory NIOSH Black Cartridge, eye goggles, latex gloves, first aid kit, eye wash station; Adsil Product MSDS & Technical Sheets.

3.03 Surface Preparation

A. General

1. Prior to all surface preparation and installation operations, mask, remove or otherwise adequately protect all fixtures or adjacent surfaces from preparation and treatment procedures.
2. Place drop cloths, tarps, plastic sheathing or other protection over any fixtures, baseboards, wall surface areas that should be protected from the cleaning and protective treatment installation.

B. Specific Cleaning

1. Uniformly wet the surface with clean tap water. The concrete floor should be dampened, but no puddles of water should be present.
2. Liberally flush the concrete floor area with Adsil MicroKleen™ Industrial Cleaner & Degreaser PLC-1. Pre-dilute the PLC-1 Cleaner, 1 part cleaner to 1 part clean, hot water. Avoid contact with wall or column surfaces. Allow the PLC-1 Cleaner to soak on the surface for approximately 5 minutes, but do not allow the cleaning solution to dry. If drying in an area occurs, lightly refresh that area with more PLC-1 Cleaner or a very light spray of tap water to keep the PLC-1 Cleaner functioning in a moist environment.
3. After the PLC-1 Cleaner has “worked” on the surface for 5 minutes, work area using a 175 RPM Swing Machine with nylon (nylo-grit) brush attachment. Liberally rinse the surface with high pressure rinse and reclaim equipment. In many instances, the concrete floor to be treated may be overly soiled or oil laden. A second cleaning may be required in order to remove all surface contaminates. Continue the cleaning process, as specified above, until the surface is clean and free from contaminates.
4. In some jurisdictions, the use and collection of cleaning materials may be regulated. It is the responsibility of the Installer to be aware of any such regulations and to take appropriate steps to collect and dispose of cleaning materials, in accordance with any such regulations.
 - a. In these instances, the Installer must control the cleaning material waste stream.
 - b. To provide means of containment of material and collection of material for proper disposal, according to regulations. Rinse and reclaim equipment should be used and then rinsate should be placed in drums for material collection, neutralizing and disposal.

C. Specific Acid Etching

1. In certain instances, it may be necessary to etch the concrete surface using MicroKleen™ PLC-35 Phosphoric Acid Etch & Clean. This step is necessary if:
 - a. The pH of the concrete is between 8 and 12.
 - b. There is visual evidence of laitance or efflorescence.
 - c. The surface has been steel troweled or honed/polished to an extremely smooth facing.
2. Begin by establishing the pH of the surface. Use standard pH paper, per manufacturer’s instructions. Etching is required if the pH is 8 or greater.
3. If etching is determined to be required, dilute the MicroKleen™ PLC-35, 1 part acid to 6 parts clean water. Always add acid to water, not water to acid. Always use a non-metallic container when mixing water and acid. Always wear respiratory protection, eye goggles and latex gloves. Never add any other chemicals to this solution.
4. Apply this acid solution by either pouring directly onto the surface and evenly “brooming” the solution around or pour the acid solution into a non-metallic sprayer or sprinkler and evenly apply onto the surface. You will notice a moderate fizzing action. This means the acid is working.

5. Allow the acid to set on the surface until the fizzing stops (15 - 20 minutes), then immediately and completely rinse with clean tap water.
6. If no drains are present, or if regulations require, pick up the rinse water and spent acid with a rinse and reclaim equipment. Properly etched concrete should exhibit a surface profile similar to fine sandpaper.

D. Specific Rinsing & Drying

1. Using rinse & reclaim equipment pick up all rinsate. Allow the surface to air dry completely. The use of fans or de-humidifiers can be used to accelerate drying.
2. Full drying of the surface must occur prior to the installation of **MicroGuard®** Inorganic Clear Sealers & Treatments. It is strongly urged to use a standard probe moisture meter to establish the condition of the concrete. A reading of 10% moisture content or less must be achieved before product installation proceeds.

3.04 Mixing and Catalyzing Sealer

A. MicroGuard® Concrete Clear Surface Sealer AD702

1. MicroGuard® AD702 is a three-component material and must be properly mixed for curing to occur. This product is packaged, in kit form, with separate containers for Components **A, B & C**. When mixing MicroGuard® AD702 Sealer it is best to mix and catalyze the material in a larger, clean, white or clear HDPE Bucket.
 - a. Pour the **A** and **B** components into a 5 gallon clean HDPE plastic bucket. (Note: Use white or clear HDPE plastic buckets, only).
 - b. Using the Adsil Product Mixer & Paddle, blend the components together for 20 minutes. Keep bucket covered with a 'V' cut/notched lid during all mixing.
 - c. Pour the **C** component into the admixture of the **A** and **B** components and mix for 15 more minutes. A moderate exothermic heat level will be generated. This is normal.
 - d. Cover the bucket with a full lid and set aside in a protected location. Allow the mixed material to induct ("sweat in") for 30 minutes before use. For best results, apply the mixed material within 4 hours of mixing.
2. In certain installation situations, such as applying the Sealer in hot, dry environments, or when coating very large surface areas where maintaining a longer wet line is desirable, it may be advisable to post add MicroKleen™ Retarder Solvent AD1-103 into the MicroGuard® Concrete Sealer AD702.
 - a. For proper use of the Retarder Solvent AD1-103, allow the mixed Sealer AD702 to induct its full 30 minutes.
 - b. Following the induction period, but prior to installation, add a minimum of 4 ounces of Retarder Solvent AD1-103 into each gallon kit equivalent of properly mixed Sealer AD702. Blend the solvent into the Sealer AD702 until the solvent is uniformly dispersed.

3.05 Installation - MicroGuard® Concrete Clear Sealer AD702

- A. Strictly follow Adsil's recommendations and instructions regarding product material and mixing, so as to provide the best quality work.
- B. All materials shall be applied under adequate illumination, evenly distributed and properly applied.
- C. All materials shall be applied in an even and full continuous film, free from skips, holidays or pinholes.
- D. MicroGuard® Concrete Clear Sealer AD702 can be applied by two preferred methods; installation by short nap roller or by conventional spray.
 1. Roller Installation – For roller installation, use a short nap lambs wool or mohair cover with a solvent resistant core mounted on a frame with extension handle. Place a roller screen in the HDPE bucket, which contains the properly catalyzed (mixed) sealer. Pick up the sealer into the roller cover. Remove excess sealer by gently rolling the cover over the screen. Using a uniform and gentle pressure, apply the sealer using a series of slow roller strokes. Overlap each roller pass by approximately ¼" to ½". Avoid over rolling the material and avoid working back into partially "set" sealer. Always maintain a good working wet line and roll to natural breaks.

- a. If specified or required due to concrete porosity, a second coat of AD702 Sealer may be installed after 4 hours dry time. Make sure the concrete surface has been uniformly sealed before proceeding to the finishing treatment installation.
2. **Spray Installation** – Use an air compressor that can deliver a minimum of 3 CFM @ 90 PSI. Use an Adsil dual regulated pressure pot and special wand/gun housing a #5 or #10 cone tip seated into a 45° connector. Set the fluid (pot) pressure gauge at 80 to 85 PSI and the air pressure gauge at 0 PSI. No air hose to the wand/gun is needed, only fluid hose. With fluid (pot) pressure only, spray by overlapping each spray pass by 50%. Always spray in a thin and uniform film deposit. If necessary, make sure you have masked other adjacent surfaces to protect from over spray. Configure your spray installation so that a working wet line is maintained. Work to natural breaks whenever possible.
 - a. During installation, if “bird bath” areas occur, due to absorption differences of the concrete floor back roll these areas, distributing excess sealer into the adjacent surface areas. The objective with sealer application is to provide a uniformly sealed surface for the finishing MicroGuard® AD703/AD1000 installation. Some concrete surfaces exhibit a tremendous porosity difference, which impacts sealer absorption. You will visually notice this condition by seeing glossy areas and flat areas over the surface of the slab. It is best to view this condition at an angle. If this condition is present, it may be advisable to apply a second coat of sealer.
 - b. If specified or required, a second coat of MicroGuard® Sealer AD702 may be applied after 4 hours dry time. The MicroGuard® Concrete Clear Gloss Treatment AD703/AD1000 may be applied over the MicroGuard® Concrete Clear Sealer AD702 after 4 hours dry time.
3. MicroGuard® Sealer AD702 will yield between 600 to 650 ft² per gallon on smooth trowel surfaces and between 400 to 550 ft² per gallon on brushed or pitted surfaces.

3.06 Mixing and Catalyzing Finishing Treatment

- A. MicroGuard® Concrete Clear Gloss Treatment AD703/AD1000
 1. MicroGuard® AD703/AD1000 is also a three-component material and must be properly mixed for curing to occur. This product is packaged, in kit form, with separate containers for Components **A**, **B** & **C**. To properly mix:
 - a. Pour the **A** & **B** components into a clean, white or clear HDPE plastic bucket, only. Using the **Adsil** Product Mixer with Timer, blend the **A** & **B** components for **15** minutes. You will notice a moderate exothermic heat reaction during mixing. This is normal. Keep bucket covered with a ‘V’ cut/notched lid during mixing.
 - b. Next, add the **C** component into the admixture of the **A** & **B** components. Blend for **15** additional minutes.
 - c. Cover the bucket with a lid or pour back into the original Component **A** container(s) and set aside in a protected area. For best results, allow the mixed material to induct (“sweat in”) for **12** hours before use.
 - d. The usable pot life of mixed material is up to **72** hours.
 2. In certain installation situations, such as applying the treatment in hot, dry environments, or when coating very large surface areas where maintaining a longer wet line is desirable, it may be advisable to post add **MicroKleen™** Retarder Solvent AD1-103 into the **MicroGuard®** AD703/AD1000.
 - a. For proper use of the Retarder Solvent AD1-103, allow the mixed AD703/AD1000 to induct its full 12 hours.
 - b. Following the induction period, but prior to installation, add a minimum of 10% Retarder Solvent AD1-103 into the properly mixed AD703/AD1000. Blend until the solvent is uniformly dispersed.

3.07 Installation – MicroGuard® Concrete Clear Gloss Treatment AD703/AD1000

- A. Strictly follow Adsil's recommendations and instructions regarding product material and mixing, so as to provide the best quality work.
- B. All materials shall be applied under adequate illumination, evenly distributed and properly applied.
- C. Materials shall be applied in an even & full continuous film, free from skips, holidays or pinholes.
- D. MicroGuard® AD703/AD1000 is best applied by conventional spray method onto the previously installed MicroGuard® Clear Concrete Sealer AD702.
 1. Conventional Spray – Use an air compressor that is rated for 3 CFM @ 90 PSI, minimum. Use an Ad sil dual regulated pressure pot with a special wand/gun housing a #5 or #10 cone tip seated into a 45° connector.
 2. Set the fluid (pot) pressure gauge at 80 to 85 PSI and the air pressure gauge at 0 PSI. No air hose to the gun is needed, only fluid hose.
 3. With the fluid (pot) pressure only, spray by overlapping each spray pass by 50%. Always spray in a thin and uniform film deposit. Always make sure the masking, drops and tape remain secure so that other adjacent surfaces are protected from possible over spray. Configure your spray application so that a working wet line is maintained. Spray to natural breaks, wherever possible.
 - a. MicroGuard® AD703/AD1000 will yield 500 to 650 ft² on sealed, smooth to wet concrete surfaces and 400 to 450 ft² on sealed, brushed or pitted concrete surfaces. Actual field & surface conditions will determine the final product yield.
 - b. It should not be necessary to back roll this finishing treatment, as this spray installation method will provide a uniform film deposit.
- E. Optional Spray Tip – Adsil also offers a #10 cone tip that can be used on the special wand/gun instead of the #5 cone tip. When using this tip, always set the fluid (pot) pressure gauge at 85 PSI. The advantages of the larger cone tip include faster material delivery so more ft² of surface area can be top coated, per man-hour.
- F. Dry/Cure Times – MicroGuard® AD703/AD1000 will dry to touch in about 2 hours. Allow at least 8 to 12 hours cure time before opening the coated surface to light foot traffic and at least 24 hours before forklift traffic. MicroGuard® AD703/AD1000 will reach full cure and durability after 5 to 7 days, depending on ambient temperature and relative humidity.
 - a. Note: After 4 hours dry time (average), the Installer can walk gently on the treated surface in order to remove masking and tape. Just be very careful not to twist on the soles of your shoes or shuffle your feet over the “still green” treatment. Placing walk off mats at entryways (always) and non-rubber backed runners in foot traffic wear areas for 2 days is very advisable.

3.08 Clean Up

- A. Thorough cleaning of the spray equipment is essential to ensure its continued operational efficiency.
 1. Purge all remaining MicroGuard® from the pressure pot and fluid hose. Pour at least one pint of MicroKleen™ Spray & Equipment Cleaner AD1-919 into the pot reservoir. Make sure that all interior surfaces of the pot reservoir have been cleaned free from the treatment residue.
 2. Next, pressurize the pot reservoir to about 10 PSI and flush the Equipment Cleaner through the gun, wand and nozzle, until the entire pint of Equipment Cleaner has been evacuated into a collecting bucket.
 3. Spray one more pint of fresh MicroKleen™ Spray & Equipment Cleaner AD1-919 through the gun, wand and nozzle. This will remove any latent residues from the fluid hose and gun assembly.
 4. Remove the nozzle/tip from the gun/wand assembly and immerse into the MicroKleen™ Spray & Equipment Cleaner AD1-919. Clean the nozzle thoroughly to prevent future clogging. Dispose of the cleaning material according to current local standards.

- B. Any drips, spills or over spray, of the Protective Treatments, can be cleaned using a cotton cloth saturated with MicroKleen™ Spray & Equipment Cleaner AD1-919. Remove drips, spills or over spray before the Protective Treatment dries to touch.
- C. Remove any masking and other debris from job site and leave storage area clean.

3.09 Inspection

- A. Inspect and/or repair all work that is not acceptable to the Specifier and request the final acceptance.

3.10 Protective Surface Coatings Schedule

- A. As indicated on schedules
 - 1. Concrete Flooring
 - a. Apply one or two coats of Adsil Micro Guard® Concrete Clear Sealer AD702 onto cleaned and properly prepared surfaces.
 - b. Apply one coat of Adsil MicroGuard® Concrete Clear Gloss Treatment AD703/AD1000 onto the properly installed MicroGuard® Concrete Clear Sealer AD702.

END OF SECTION – 09880

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