

Adsil MicroGuard® Advanced Siloxane Technology
Adsil MicroGrip™ Anti-Skid Floor Media
CONCRETE – CLEAR PROTECTIVE TREATMENT SYSTEM SPECIFICATION
DOCUMENT NUMBER AD0500-01
SECTION 09800 – SPECIAL CLEAR ANTI-SKID FLOOR SYSTEM

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 shall be proficient in clear anti-skid floor treatment systems.
1. Installer shall be trained and certified by Adsil, or its appointed agent, using the Specification #AD0500-01 procedure established in accordance with Adsil methods and standards for clear anti-skid floor treatment systems.
 2. Installer shall ensure that all technicians utilized for work in this section –
 - a. are trained and certified journeymen in the Adsil MicroGrip™/MicroGuard® Clear Anti-Skid Flooring 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 Sheet TS-54; MicroKleen™ Phosphoric Acid Etch & Clean PLC-35
 2. Technical Sheet TS-44; MicroKleen™ Industrial Cleaner & Degreaser PLC-1
 3. Technical Sheet TS-43; MicroKleen™ Retarder Solvent AD1-103
 4. Technical Sheet TS-44; MicroKleen™ Spray & Equipment Cleaner AD1-919
 5. Technical Sheet TS-34; MicroGuard® Clear Waterproofing Sealer AD702
 6. Technical Sheet TS-22; MicroGuard® Concrete & Tile Clear Treatment AD703/AD1000
 7. Technical Sheet TS-50; MicroGrip™ Anti-Skid Floor Media AD5-050

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. Apply MicroGuard®/MicroGrip™ anti-skid system under the following prevailing conditions:
1. Air, surface and material temperatures are not below 60° F. or above 95° F.
 2. Prevent wide temperature variations, which might result in condensation forming on the freshly coated surfaces or could affect hydrolyzing or curing of the coating.
 3. Avoid product mixing or installation when rain, heavy dew or fog conditions are imminent or could occur within 8 hours of coating installation (*caution for exterior use*).
 4. Avoid all water contact on the freshly installed treatment system for a minimum of 8 hours following installation.
- B. Mask off and place protective drop cloths over surfaces not to receive these coatings.

PART 2, PRODUCTS

2.01 Manufacturer

- 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
 3. Adsil MicroGrip™ AD5-050 Anti-Skid Floor Media

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. Clear Protective Floor Surface Coatings
 1. Surface Treatments shall be ambient temperature cured inorganic film structures.
 2. Surface Treatments shall adhere to substrate by London Force Bonding methods.
 3. Surface Treatments 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 MicroGuard® Clears, upon specific need, should only be accomplished using MicroKleen™ Retarder Solvent AD1-103.

PART 3, EXECUTION

3.01 Pre-work Inspection

- A. Examine the floor surface to be treated and report any conditions that would adversely affect the general appearance or performance of the anti-skid floor 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 floor surface can be placed into an acceptable condition.

3.02 Equipment Requirements

- A. Spray Equipment
 1. Electric 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
- B. Surface Preparation Equipment
 1. 175 RPM Swing Machine
 2. Assorted pads, brush attachments and sanding screens.
 3. Rinse & Reclaim Equipment (portable or truck mount)
 4. Pressure Washer with Soap Injection capability
- C. Clean, white or clear HDPE plastic buckets (5 gallon) & lids.
- D. Roller Frame, extension handle, solvent resistant, short nap adhesive roller covers.

- E. Assorted tools, extension cords, water hose & nozzle, squeegee, clean buckets, clean rags, etc;
- F. Tarps, drops, plastic sheathing and masking tape.
- G. 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 application procedures.
2. Place drop cloths, tarps, plastic sheathing or other protection over any fixtures, baseboards, wall surfaces, plants, bushes or grass areas that should be protected from the cleaning and protective treatment application.

B. Specific Cleaning

1. Pre-wet the concrete floor area with clean water. Make sure the concrete is uniformly dampened, but no water puddles should exist.
2. Liberally flood the concrete floor area with Adsil MicroKleen™ PLC-1 Industrial Cleaner & Degreaser. 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 solution or a very light spray of tap water to keep the PLC-1 functioning in a moist environment.
3. After the PLC-1 has “worked” on the surface for 5 minutes, mechanically agitate with a swing machine. Pick up cleaner residues with rinse & 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 contaminants. Note: The use of a Swing Machine (mechanical floor scrubber) utilizing scrub brushes or a black pad will improve the cleaning efficiency. Continue the cleaning process, as specified above, until the surface is clean and free from contaminants.
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, neutralize and dispose of cleaning materials, in accordance with any such regulations.
 - a. In these instances, the applicator must control the cleaning material waste stream.
 - b. To provide means of containment, collection and neutralizing of material for proper disposal, according to regulations.

C. Specific Acid Etching

1. In certain instances, it may be necessary to etch bare concrete floor surfaces using MicroKleen™ PLC-35 Phosphoric Acid Etch & Clean. This step is necessary if:
 - a. The pH of the bare concrete or grout is between 9 and 12.
 - b. There is evidence of laitance or efflorescence.
 - c. The concrete floor surface has been steel troweled or polished to an extremely smooth facing.
2. Begin by establishing the pH of the surface. Use standard litmus (pH) paper or a pH pencil, per manufacturer’s instructions. Etching is required if the pH is 9 or greater or if laitance or efflorescent dusting is present.
3. If etching is determined to be required, dilute MicroKleen™ PLC-35 Phosphoric Acid Etch & Clean, 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 respirator protection, eye goggles and rubber gloves. Never add any other chemicals to this solution.
4. Apply by pouring this acid solution 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 pick up with rinse & reclaim equipment.
 - a. If unspent acid remains on the surface, neutralize with a 5% ammonia solution, then pick up residue with rinse & reclaim equipment.
 6. Properly etched concrete should exhibit a surface profile similar to fine sandpaper.
- D. Specific Drying
1. Full drying of the surface must occur prior to the installation of MicroGuard® Inorganic Clear Sealers & Treatments. It is strongly urged to use a moisture meter to establish the condition of the concrete floor. 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 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 will be more efficient to mix and catalyze the material in a larger, clean, HDPE plastic bucket.
 - a. Pour the **A** and **B** components into a clean 5 gallon HDPE plastic bucket. (Note: Use white or clear HDPE plastic buckets, only).
 - b. Using the **Adsil** Product Mixer & Paddle with Timer, blend the components together for **20** minutes. No exothermic heat will be generated. Always keep the bucket covered with a 'V' cut/notched lid during mixing.
 - c. Next, 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.
 - d. Cover the bucket with a full lid and set aside in a protected location. Allow the mixed material to chemically induct ("sweat in") for **30** minutes before use. For best results, apply the mixed material within 4 hours of mixing.
 2. In certain application 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 chemically induct its full 30 minutes.
 - b. Following the induction period, but prior to application, add up to 10% of MicroKleen™ Retarder Solvent AD1-103 into each gallon of properly mixed MicroGuard® AD702. Stir until the solvent is uniformly dispersed.

3.05 Installation of MicroGuard® 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 shall be applied using specialized Adsil conventional spray equipment.
1. Spray Application – Utilize an air compressor that can deliver a minimum of 3 CFM @ 90 PSI.
 2. Pour properly catalyzed Sealer into an Adsil dual regulated pressure pot. Attach all hoses of the special **Adsil** Spray Gun/Wand housing a #5 cone tip mounted in a 45° connector.
 3. Set the fluid (pot) pressure at 80 to 85 PSI. Apply a thin, but full wet coat of AD702 Sealer using the special Spray Gun/Wand housing. Overlap each spray pass by 50%. Maintain a working wet line.

4. If bird-baths or puddles of sealer occur, back roll material into more starved, open areas using a short nap roller mounted on an extension handle.
 - a. MicroGuard® Sealer AD702 will yield between 600 to 650 ft² per gallon on smooth concrete surfaces and between 400 to 550 ft² per gallon on brushed or porous surfaces.
 - b. For porous concrete a second coat of sealer may be needed. Allow 4 hours dry time to elapse between coats.

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 before use. 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 specified Adsil Product Mixer, blend the **A & B** components for **15** minutes. You will notice a moderate exothermic heat reaction during mixing. This is normal. Always keep the bucket covered with a 'V' cut/notched lid during mixing.
 - b. Next, add the **C** component into the mixture of the **A & B** components. Blend for **15** additional minutes.
 - c. Cover the bucket with a full lid or pour back into the original Component **A** container and set aside in a protected area. For best results, allow the mixed material to chemically induct ("sweat in") for **12** hours before use. This is best accomplished by mixing the material the evening before application.
 - d. The usable pot life of mixed material is up to **72** hours.
 2. In certain application situations, such as applying AD703/AD1000 in hot, dry environments, or when treating 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 chemically induct its full 12 hours.
 - b. Following the induction period, but prior to application, add up to 10% of Retarder Solvent AD1-103 into each gallon of properly mixed AD703/AD1000. Stir until the solvent is uniformly dispersed.

3.07 Installation of MicroGuard® AD703/AD1000 & MicroGrip™ AD5-050

- 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. Care should be exercised when walking and dragging hoses over the imbedded anti-skid media additive so as not to scuff or dislodge the particles.
- C. Materials shall be applied in an even & full continuous film, free from skips, holidays or pinholes.
- D. MicroGuard® AD703/AD1000 MicroGrip™ AD5-050 Media is best applied using the specified Adsil conventional spray equipment onto the MicroGuard® AD702 Sealer.
 1. Conventional Spray – Utilize an air compressor that can deliver 3 CFM @ 90 PSI, minimum.
 2. Using an Adsil dual regulated pressure pot with a special wand/gun housing a #5 cone tip seated into a 45° connector, set the fluid (pot) pressure gauge at 80 to 85 PSI. A special Adsil Anti-Skid Media Application Gun (NMS-1) will be attached by hose to the air regulator and will be used to broadcast the anti-skid media additive into the wet AD703/AD1000 Clear Treatment.
 3. With fluid (pot) pressure only, apply a thin mist coat. Always make sure the masking, drops and tape remain secure so that base boards and other adjacent surfaces are protected from possible over spray.
 4. Immediately, while the AD703/AD1000 is still wet, broadcast the MicroGrip™ Anti-Skid Media allowing the media particles to rain down and imbed onto the AD703/AD1000.

Then, apply another thin, full coat (wet-on-wet) of AD703/AD1000 over the Anti-Skid Media in order to encapsulate the particle.

5. Broadcasting of the media is best accomplished using the special Media Application Gun (NMS-1). Fill the gun hopper $\frac{3}{4}$ full with **MicroGrip™** Anti-Skid Media AD5-050. Always be careful to not let the media additive pour out of the three breather holes located on top of the gun hopper. Set the air pressure regulator on the pot to 20 PSI. Connect one end of the hose to the media gun regulator (at the handle) and the other end to the air pressure regulator on the pot. Set the media gun regulator at 7 to 10 PSI, depending on the desired distance for broadcasting the media particles. In a safe area, hold the media gun horizontally and squeeze the trigger to start air-flow. Slowly open the “flow valve” until the desired amount of media is being broadcast from the gun nozzle. Hold the media gun horizontally to and approximately 3 feet above the floor. Spray media into the wet AD703/AD1000 topcoat in sections approximately 3 to 4 feet deep and progress across the floor. Spray the media using a side-to-side sweeping motion and allow the media to lightly “rain” down into the wet AD703/AD1000 mist coat.
 6. NOTE: Never point the NMS-1 gun nozzle directly at the floor while broadcasting the media. It is best to work in a 2 person team; 1 person should apply the AD703/AD1000 and 1 person should immediately broadcast the Anti-Skid Media into the mist coat of AD703/AD1000 and also move the paint pot & hoses, as needed.
 7. Now the spray person should re-install a full coat of AD703/AD1000, wet-on-wet, to encapsulate the anti-skid media particles. For best results, apply the MicroGrip™ Anti-Skid Media AD5-050 at about 1,000 ft² per pound, depending on the desired amount of concentration.
 - a. MicroGuard® AD703/AD1000 will yield 450 to 600 ft² on sealed, smooth trowel concrete surfaces and 350 to 450 ft² on sealed, brushed concrete surfaces. Actual field installation & surface conditions will determine the final product yield.
- 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 treated, per man-hour.
- F. Dry/Cure Times – MicroGuard® AD703/AD1000 will dry to touch in about 1 to 2 hours. Allow at least 8 to 12 hours cure time before opening the treated surface to light foot traffic and at least 24 hours before heavy traffic. MicroGuard® AD703/AD1000 will reach full cure and durability after 5 days.
 1. Note: After 4 hours dry time, the installer may 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 Equipment & Site Clean Up

- A. Thorough cleaning of the spray equipment is essential to ensure its continued operational efficiency.
 1. Purge all remaining MicroGuard® AD702 Sealer or AD703/AD1000 Treatment 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.
 3. Flush one more pint of fresh MicroKleen™ 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™ 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 Treatment, can be cleaned using a cotton cloth saturated with MicroKleen™ 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 Final Inspection

- A. Inspect and repair all work that is not acceptable to the Specifier and request the final acceptance.
- B. Following acceptance, prepare two “benchmark” proof paper/pencil rub verification standards for evaluating the degree of erosion of the MicroGrip™ Anti-Skid System, over time.
 - 1. Using a light stock, white paper and a #1 graphite pencil, prepare 2 rubbings of a representative area of the floor surface. Preferably, these rubbings should be taken from a known traffic pattern area. At least 1 square foot should be validated and archived.
 - 2. These rubbings establish the concentration of anti-skid material, per square foot, imbedded and encapsulated within the Adsil clear protective treatment system.
 - 3. Complete the Adsil Field Application Data Form.
 - 4. One copy of the Adsil Field Application Data Form and one of the pencil rub validation sheets should then be given to the particular Specifier. A second copy set should be kept on file by the Installer.

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 bare concrete surfaces.
 - b. Apply Adsil MicroGuard® Concrete Clear Gloss Treatment AD703/AD1000 onto properly installed MicroGuard® Concrete Clear Sealer AD702 and imbed Adsil MicroGrip™ Anti-Skid Media Additive AD5-050 in to the wet-on-wet MicroGuard® AD703/AD1000, per this specification.

3.11 Post Cleaning Maintenance Care

- A. General Purpose Cleaning – Pour 1 part of MicroKleen™ PLC-1 into 20 parts of clean water. Wet mop the surface with this diluted cleaning solution. Follow by mopping with clean water. Change out water frequently as it becomes dirty.
- B. Heavy Duty Cleaning – Pour 1 part of MicroKleen™ PLC-1 into 10 parts of clean, hot water. Wet mop this diluted cleaning solution onto the surface. Using commercial Rinse & Reclaim Equipment, pick up the cleaning solution.

END OF SECTION – 09880

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