ZS-CRETE FUNDAMENTALS INSTALLATION

Recently our Engineers were "on site" at several large ZeroStat Crete Monolithic Epoxy ESD Flooring installations. Following is a compilation of useful notes and data from "real world" installations of this product. ZeroStat Crete ESD epoxy is easy to apply. However, different conditions require modification of the basic installation process. Although this product works well on a variety of substrates (including dry wall, VCT and other types of materials and flooring) the vast majority of installations are applied over concrete. Hence, the following notes apply directly to utilization on concrete. For other types of substrates give us a call. Were here to help!

Note: Preparation of the substrate is a critical component and probably the most time consuming portion of using the ZS Crete. Take your time and be thorough!

Prior to full scale usage evaluate the bond strength of the material to the existing slab. Test the slab for it's ability to absorb liquids. Place a few drops of water on the cement and see if it absorbs into the concrete. If the concrete is semi porous, unsealed and contaminated free the water will soak in. If this is the case, more than likely you will not have to pre-wash the substrate with Prepare (our muriatic acid wash). Simply sweep (do not use any type of floor sweep compounds) vacuum (to remove dust from pours and damp mop prior to applying the ZeroStat Crete. Even if your substrate looks perfect it's always best to pre-test. Utilizing one of our small sample ZeroStat Crete containers, apply the material over the section you have prepared (a 6" x 6" area is all that's really needed) and allow to cure for 48 hours. With a razor knife etch a 1" x 1" "tic-tac-toe" pattern on the epoxy. Cover this pattern with standard masking tape, wait 5 minutes and quickly pull masking tape from pattern. Observe the tape. When a good bond is achieved minimal material will be removed with the tape. Remember, the bond strength of this material will continue to improve for about a week. If your test area appears sound and well bonded follow the preparation method used for the test and proceed with full scale application as listed below. **Note:** It's always best to pretest on an area that presents the worst profile for adhesion.

If the above stated bond strength testing fails dramatically, if the concrete does not readily absorb water, is very old, extremely dusty, contaminated or oily (or if the concrete appears extremely slick from the trowelling process) a muriatic acid wash using our "ZS Prepare" is recommended. Prepare is a concentrated liquid containing Hydrochloric (Muriatic) Acid, detergents and surfactants for use in preparing "problem" concrete, terrazzo, unglazed stone or even ceramic tile flooring prior to coating with ZeroStat Crete. When using over concrete, Prepare dissolves contaminates, opens pours and loosens cementious dust. In addition Prepare chemically "abrades" (etches) substrates providing a surface texture similar to a light sand blasting. Careful use of the Prepare is essential. Over application, inconsistent application or leaving the product on the substrate for too long can over etch the concrete. ZeroStat Crete is a thin set epoxy, improper use of the Prepare and the resulting

over etched surface texture can "shadow through" the ZeroStat Crete leaving a blotchy inconsistent look to the finished product. Prior to full scale usage pre-test a small area via the following method. **Note:** It's always best to pretest on an area that presents the worst profile for adhesion.

CAUTION: Prepare is a concentrated product formulated for professional use only! Safety glasses, gloves, and protective footwear should be worn at all times during application. Provide for adequate ventilation of fumes which may be generated during application. Do not mix Prepare with other chemicals.

Dilute Prepare: A minimum of one part product to one part water in a mop bucket. Uniformly dampen the area to be etched with clean water. Apply a uniform amount of the diluted solution to the concrete floor using a synthetic fiber mop. Allow the solution to work for approximately 5 minutes or until white foaming action ceases. NOTE: If no chemical reaction is observed, then there is probably an existing coating on the floor which must be removed if effective results from the use of this product are to be obtained. Completely remove the etching solution, preferably with a wet vacuum. Rinse the floor thoroughly with clean water. Mop or vacuum up the rinse water and allow the floor to dry thoroughly. Thoroughly rinse all application equipment with clean water. Utilizing on of our small sample ZeroStat Crete containers, apply the material over the section you have prepared (a 6" x 6" area is all that's really needed). Allow to cure on the substrate for 48 hours. With a razor knife etch a 1" x 1" "tic-tac-toe" pattern on the epoxy. Cover with standard masking tape, wait 5 minutes and quickly pull masking tape from pattern. Observe the tape. When a good bond is achieved minimal material will be removed with the tape. Remember, the bond strength of this material will continue to improve for about a week. If your test area appears sound and well bonded follow the preparation method used for the test and proceed with full scale application as listed below. **Note:** A light abrasive sandblasting or screen disking may substitute for the application of Prepare but is typically not as cost effective. If an alternative "abrasive" method is chosen pretest prior to full scale application to insure proper shadow free and dust free profile is has been achieved

Note: Since this product features a microscopically porous polymeric base it maintains an excellent resistance to high concrete vapor emission levels and does not (typically) require Cal-Chloride vapor emission testing. If your slab emissions have caused flooring failures in the past or you suspect emission levels higher than 7.5 lbs per 1000 sq/ft contact our technical support hotline for recommendations.

Deviations in concrete may be filled utilizing a standard latex modified Portland based patching compound but remember, the variance in surface texture and profile may tend to shadow through the finished epoxy coating. ZeroStat Crete bonds reasonably well to latex based caulks and seam fillers (occasionally used to fill saw cuts and expansion joint). Avoid ZeroStat Crete usage over rubber or silicon based fillers and additives

Standard grounding of a ZeroStat Crete ESD Floor is similar to the grounding of any of our ESD flooring systems. Standard grounding hardware including copper foil grounding tape and specialty grounding plates are supplied at no charge with your order. Start by applying the copper foil grounding tape to the concrete in the "basic" configuration as stated in our instruction sheets (included with your order) or posted at:
http: / /www.gndzero.com / techdocs / Grounding / Flooring / Installation guidelines / How to Ground

a Floor.pdf. More advanced grounding may be achieved by running additional copper foil tape adjacent to and about 3" from the wall and over the basic ground strap. This T type configuration is useful for replacing the "Advanced" configuration (as listed in the above link) and will help hide unsightly "copper foil shadow through" typical with this material when following our "standard" Advanced Method. This T type configuration is NOT recommended for replacing the configuration as listed for "critical." The vast majority of installations will require attachment to ground as listed in the above link HOWEVER check with you Company or Client for any specialty methods or specificational requirements they may have. Example: FAA control tower usage typically requires grounding straps and plates connected to multi-point ground system and not standard AC Electrical ground (for further information see FAA-STD-019C (June 1, 1999) paragraph 3.16.6. Many IBM facilities require attachment to Primary AC Electrical ground. When in doubt, check with your Client, Company or contact our Technical Support Department for clarification.

Prepare the ZeroStat Crete carefully: Catalyzed ZeroStat Crete should be used within six hours of mixing, therefore prepare only the quantity necessary for immediate use. Add the pre-measured catalyst to epoxy base. Stir gently until the catalyst has been thoroughly mixed in (a low RPM power mixer may be used but try to not beat air into the material). Allow the catalyzed mixture to stand 5 minutes. Utilizing a short nap roller or brush, carefully apply a thin uniform coat of catalyzed ZeroStat Crete around perimeter walls, doorways etc (about 6" width and try to not get any on walls ;) After perimeter of room is completed utilize short nap rollers (18" wide with long handle extensions work best) to roll a thin uniform coat through out the remainder of the area. The initial coat will cover approximately 250 to 500 ft^2 per gallon. Allow the initial coat to dry for 5-7 hours or longer and apply a second coat. Second coat coverage is approximately 500-600 ft2 per gallon. Application of second coat is much faster.

NOTE: This product is not recommended for applications that experience reoccurring standing water. Finished floors may be opened to light traffic, under normal curing conditions, after 12 hours. Complete curing with maximum durability and chemical resistance will take 5-7 days.

Testing of ZeroStat Crete's Conductivity is typically accomplished 72 hours (minimum) after final coat has been applied. Typical testing is accomplished via EOS/ESD test method 7.1. The following results are typical when installed on the vast majority of cement substrates, however your conductivity may vary somewhat depending on the conductivity of the existing concrete slab and other conditions encountered in your installation (ambient humidity etc). **Note:** Accurate representations of your floors finished conductivity may be ascertained prior to full scale application by electrically testing sample installed for bond strength test.

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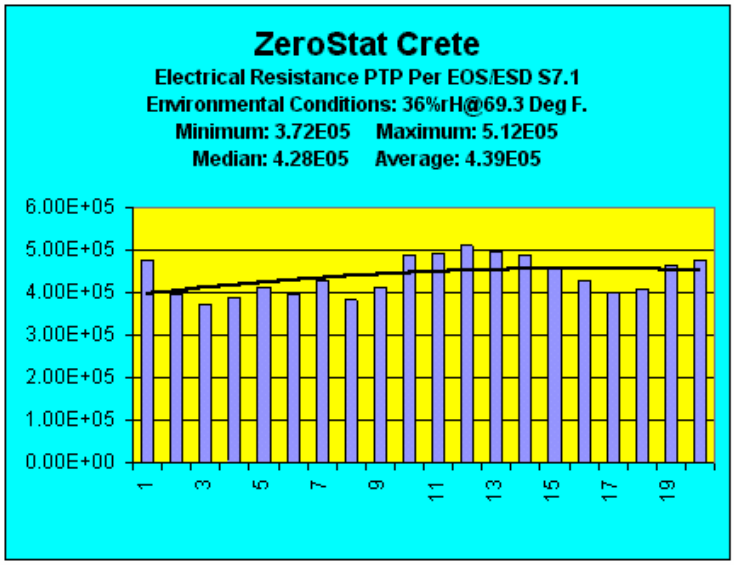
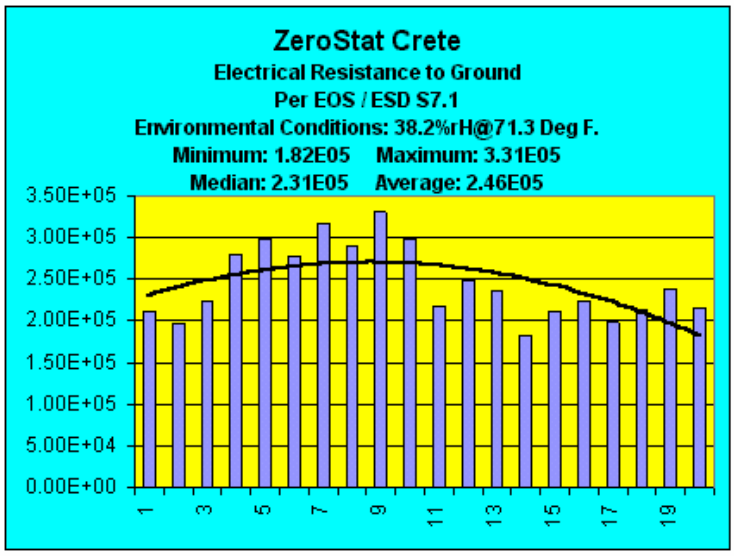


As shown, a properly installed ZeroStat Crete Monolithic Flooring System will post very consistent Point to Point Electrical Resistivity readings allowing the floor to comply with the latest specifications for even the most stringent of static control applications.



Bare, unsealed concrete will post conductivity in both very conductive as well as insulative (hot and cold) ranges. ZeroStat Crete smoothes out these fluctuations and provides an ideal range of conductivity for demanding static control environments. If these ranges of conductivity are too low, resistance levels may be raised into a more "static dissipative" (about 10E07) level by simply applying our ESD floor finish over the finished ZeroStat Crete application (wait at least 72 hours after application ZeroStat Crete prior to application of finish).

Maintenance of our ZeroStat Crete Monolithic ESD Flooring system is a snap! Simply remove abrasives via sweeping and damp mop as needed with water and non film forming detergent. Stubborn scuff marks, oil, stains and fluxes can be removed with high grade aggressive cleaners with little to no adverse reactions to the flooring surface. Ultimate shine and luster may be achieved by coating the ZeroStat Crete surface with ZeroStat Coat (ESD Floor Finish) and polishing with a rotary polisher equipped with fine pad and occasionally sprayed with a 50/50 solution of water to Coat. Keep in mind however that this will increases the low to no maintenance properties of the uncoated ZeroStat Crete and will raise the (insulative) electrical resistance of the floor to more of a dissipative level.

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Additional Notes: ZeroStat Crete Monolithic ESD Epoxy Floor Coating has a lower odor than any other epoxy coating on the market but, adequate ventilation is desirable. If opening bay doors for ventilation be sure to not allow wind blown dust to contaminate the prepared area or the wet epoxy.

This product can be made anti-slip by adding fine Aluminum Oxide sand blast grit to the catalyzed mixture and blending well prior to application

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