Super-Krete® Products
Sealer Selection Guide

OVERVIEW

In recent years, sealers and top coats have gained increasing acceptance in the commercial, industrial, institution and residential markets. Arizona Polymer Flooring defines two distinct substrates that will receive the sealers and top coats:

1. Placement of impervious sealers or top coats directly on:
   a. Architectural concrete, which is conventional concrete that has been colored with dry-shacks, integral colors or topical stains. It is often stamped or imprinted to simulate brick, stone or tile. Decorative saw-cuts or sandblasting can be used to create a variety of artistic appearances.
   b. Architectural cementitious overlays colored with topical stains with surface texture ranging from smooth, imprinted or stamped.
2. Portland cement concrete slabs on grade require substrate surface preparation (acid etching or abrasion) prior to the installation of a sealer or top coat or coating system.

The first step in these operations is extremely critical. The best materials correctly mixed and applied are doomed to fail unless the substrates are properly prepared. At a minimum, the substrate must be prepared in compliance with minimum standards for the system to be placed per Super-Krete, ACI, ASTM, ICRI, NACE, PCSI and SSPC Standards.

Deleterious surface contaminants must be removed, repaired if necessary and the surface sound and clean. There are many different techniques, methods, and types of equipment, which can be used to effectively prepare concrete.

1. ***General*** – Concrete surfaces to be bonded to, must be clean, sound and abraded, which in all cases requires some form of substrate preparation, while architectural concrete and cementitious surfaces must be clean and sound.
2. ***Surface Evaluation*** – The following methods, tests and standards can be used to evaluate the condition of the concrete substrate and the effectiveness of the surface preparation procedure.
3. ***Strength*** – The direct tensile strength of the substrate should be determined prior to placement of sellers or top coatings or surfacing materials.
4. ***Contaminants*** – The presence of grease, wax, oil or other bond breakers may be detected by dropping a small amount of muriatic acid and a small amount of water onto the surface prior to preparation and after preparation to determine the condition.
5. ***Contaminant Tests*** – There are several easy tests to determine if the substrate is contaminated.
   a. The surface exposed to drops of muriatic acid should react, if there is no reaction it suggests the presence of contaminants.
   b. If the water droplets bead up and the water is not immediately absorbed, it suggests the presence of contaminants.

POLYMER MODIFIED CEMENTS & PORTLAND CEMENT CONCRETE

Polymer modified cements have improved physical properties compared to conventional portland cement concrete and are normally installed as a 1/8 to 1/2 inch decorative overlayment on existing concrete slabs. It may be sprayed, self-leveling or troweled-in-place systems. Like architectural concrete, it can be integrally colored, stamped and stained to create a variety of artistic appearances.

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Unlike plain conventional portland cement concrete, architectural and decorative polymer cement overlayments are almost always sealed with a clear gloss or clear satin sealer or top coat. This is done to protect the decorative work, improve abrasion and chemical resistance and enhance the aesthetic appearance and cleanability. For that purpose, this technical bulletin, the difference between penetrating, film forming and high build sealers or top coats need to be established.

Penetrating sealers are low viscosity materials that fill the pores of the porous concrete and cementitious overlayment substrate, without leaving a film on the surface. A typical penetrating sealer is usually one coat of 15 – 25% solids (water or solvent borne) material applied at 250 square feet (23.2 square meters) to 350 square feet (32.5 square meters) per gallon (3.79 liters). This will leave a wet film thickness of 0.69 mils (0.018 mm) to 1.6 mils (0.04 mm), which will penetrate the porous substrate, leaving the surface free of film.

Film forming sealers and high-build sealers or top coats are applied heavier (thicker) compared to penetrating sealers and are designed to leave a film on the substrate surface. They provide superior abrasion and chemical protection and are easier to clean vs. penetrating sealers. They create a smoother surface, which may require the addition of a skid resistance aggregate to maintain a desired coefficient of friction profile.

1. Film forming sealers usually consist of 10 to 20% solids and leave a dry mil thickness of less than 3.5 mils (0.10 mm) per gallon (3.79 liters).
2. High-build sealers or top coats consist of 35% to 60% water or solvent borne materials to 100% solids materials. The water and solvent based materials are usually placed in 2 coats leaving a dry film thickness of 3.7 mil (0.10 mm) to 9.7 mils (0.25 mm) per gallon (3.79 liters).
3. High-build 100% solids top coats are usually placed at 100 square feet (9.29 square meters) to 200 square feet (18.5 square meters). They are usually placed at one coat unless additional thickness is desired for abrasion or chemical resistance, leaving a dry film thickness of 8 mils (0.2 mm) to 16 mils (0.4 mm).

Note:

(1) High-build materials, such as, a pigmented epoxy may have a finish coat that resists scratching or loss of gloss.

(2) The important issue of slip-resistance is addressed in a Super-Krete companion technical bulletin Measuring Surface Traction and Engineering for Slip-Resistance.

FACTORS TO CONSIDER WHEN SELECTING A SEALER or TOP COAT

Arizona Polymer Flooring believes that the specifiers, specialty contractors, and others need to know how to select the best sealer or top coat to meet the owners' desires.

1. ***Obtaining Successful Substrate Adhesion*** – Different substrate surfaces present different degrees of adhesion challenges. It is generally, concrete surfaces are easy to adhere to because of the porosity of the material. On the other hand, smooth troweled, color hardened concrete and cementitious substrate may be very dense, with little porosity and will limit the choice of sealers that will adhere to the substrate. Adhesion penetration and adhesion capability are critical.
   a. Arizona Polymer Flooring has found that architectural concrete surfaces colored with dry shakes can be especially troublesome if the colorant has not been thoroughly incorporated (mixed) into the substrate surface. If it is not thoroughly incorporated, the colorant can act as a "bond breaker"

and the unincorporated colorant must be removed before the sealer or top coat is applied. A tensile pull-off test will determine if the dry shake colorant is not acting as a "bond breaker".

b. Arizona Polymer Flooring has found that acid staining agents may present adhesion challenges for water-emulsion sealers, because the acid staining agent is not properly neutralized, which can create a pH imbalance at the surface of the substrate that can interfere with the proper adhesion of these materials.

In general, water-emulsion and solvent-based sealers do very well over textured, porous substrates, but are not recommended over dense, unprofiled substrate. Solvent-based sealers, and polyaspartic, polyurea and epoxy top coat materials (with or without a primer) offer the best adhesion to a greater variety of substrates and are the products of choice over more challenging substrates. Epoxy materials are limited to indoor application for a number of reasons. Polyaspartic, polyurea and polyurethane materials can be used both indoors and outdoors. If unsure about the sealers or top coats adhesion over a certain substrate, it is advisable to conduct adhesion testing prior to the final product selection. There are two tests that can be conducted:

a. ***ASTM D 3359*** Standard Test Methods for Measuring Adhesion by Tape Test will give a general idea of adhesion capability and usually exposes glaring adhesion problems.
b. ***ASTM D 7234*** Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers measures the adhesion strength and expresses quantitative results reported in pounds per square inch.

2. ***Protecting the Decorative Substrate*** – Architectural concrete and cementitious surfaces must be protected from abrasion, chemicals, etc. Each surface has its own unique exposure and each sealer or top coat product will provide different degrees of protection.

   Resistance to abrasive foot traffic is very important if the sealer or top coat selection for public areas, such as restaurants, hotels, casinos, etc. that receive high volumes of foot traffic. Each sealer or top coat has a niche, the choice of the wrong product will compromise the substrates performance resulting in damage to the architectural finish underneath. Once this occurs, effective repair of the decorative effect can be difficult.

   How much abrasion resistance that a sealer or top coat provides is a function of the amount of material deposited on the surface (dry film thickness) and specific chemistries inherent resistance to abrasion per ASTM D4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser. In general, single component materials will provide adequate protection in residential and light commercial applications. Two component materials are chemically crosslinked and provide a tougher, more abrasion and chemical resistant properties. Epoxies, polyaspartics, polyureas and polyurethanes are product choices that provide greater thickness, abrasion and chemical resistance.

   High vehicle traffic due to the weight of the vehicle, wheel turning torque and hot tire staining require the toughest sealer or top coat. Resistant to gasoline, brake fluid and vehicle oils (engine, transmission, power steering, etc.) must also be considered. Reagents that may destroy the sealer or top coat will damage the architectural substrate, as well. Two component polyurethane will resist hot tire staining, but if placed to thin they will not last long under high traffic conditions. See the ***Super-Krete Products Chemical Resistance Guide***.

3. ***Achieving the Desired Appearance*** – Two-component water-based sealers, solvent-based sealers and high to 100% solids materials, such as, epoxy, polyaspartic and polyurea will deepen and enhance substrate colors. This "popping of the color" is often considered desirable. If the surface is on the exterior is exposed to water and water-borne chlorides they may migrate through pinholes or areas worn thin or micro-cracks or joint areas and can permanently darken the substrate. The darkening moisture typically leaves as the surface dries, but the residual phenomenon may still be considered objectionable to some customers.

   The level of gloss may be an important factor in the sealer or top coat selection. In general, the crosslinked epoxies, polyaspartics, polyureas and polyurethanes materials are inherently glossier, especially after wear, than single-component materials. Polyaspartics, polyureas and polyurethanes retain their gloss under foot traffic better than epoxies and are unsurpassed for long exterior gloss retention.

   Sometimes high gloss is not desired. Flattening agents can be used to reduce the gloss of these materials, including low gloss acrylics and clear satin polyurethanes.

4. ***Maintenance Considerations*** – Cleanability, abrasion, chemical and stain resistance and recoating intervals are also important factors in selecting a sealer or top coat. Solvent-based acrylic sealers have been popular for years, because they offer reasonable cleanability and stain resistance and are easy to recoat. However, in demanding areas, recoat intervals tend to be short.

   Once again, two component polyaspartics, polyureas and polyurethane have proven to be the superior materials for cleanability, abrasion, chemical and stain resistance. They will also keep their gloss for an extended period of time under heavy foot traffic or vehicular traffic.

   Many architectural concrete and cementitious overlayment contractors have taken the approach of initially using an inexpensive sealer or top coat systems and recommending a waxing maintenance program for the end user. Another option would be to apply high performance polyaspartic, polyurea and polyurethane top coats initially and periodically recoat with a fast drying, non-sacrificial water-based polyurethane. This relieves the customers from the expensive burden of the waxing-stripping-re-waxing cycle. Please refer to the ***Super-Krete Products Cleaning & Maintenance Guide***.

SUPER-KRETE MATERIALS

Super-Krete Products has been involved with the application, formulation and manufacturing of sealers and top coats for portland cement concrete and cementitious overlayments for 30 years. Super-Krete Products are based on leading edge acrylic, cementitious, epoxy, polyaspartic, polyurea, polyaspartic and sodium silicate technologies. The following is a brief description of the materials that Arizona Polymer Flooring offers for sealer and top coat applications over architectural and decorative polymer cementitious systems from the Super-Krete Products line:

1. ***Low VOC Acrylic S-8350 Supra-Seal™ VOC*** is based on a hard acrylic polymer that produces coatings that give good gloss, stain-resistance and cleanability. Adhesion to properly prepared

cementitious surfaces is excellent, and the material is a completely non-yellowing sealer. It conforms to VOC requirements in all major government agencies in the USA and Canada.

Application – Two coats with third coat option. It can be applied on interior or exterior surfaces. Product applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. Gloss and cleanability are improved by a third coat.

Performance Expectations – Material is easy to apply and dries quickly for recoating. It penetrates and adheres well to properly prepared concrete, architectural concrete and cementitious surfaces. The product provides good overall performance for residential and light commercial applications. Use in heavy foot traffic areas requires regular maintenance coating. Recoating with a material other than itself requires thorough mechanical abrading or the use of SK-P250 Clear Gloss tie coat to insure intercoat adhesion. It enhances colors and darkens the host surface.

Recommended Uses – Used as a sealer over integral colored and stain concrete and cementitious overlays for foot and vehicular traffic.

2. ***Solvenated Acrylic S-8400 Supra-Seal™ PLUS*** is a clear, solvent-based acrylic designed for sealing conventional concrete, and a variety of architectural concrete surfaces. It is based on a hard acrylic polymer that produces sealer that provides a good gloss and a stain-resistant sealer.

   Application – Two coats with third coat option. It can be applied on interior or exterior surfaces. Product applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. Gloss and cleanability are improved by a third coat.

   Performance Expectations – Material is easy to apply and dries quickly for recoating. It penetrates and adheres well to properly prepared concrete, architectural concrete and cementitious surfaces. The product provides good overall performance for residential and light commercial applications. Use in heavy foot traffic areas requires regular maintenance coating. Recoating with a material other than itself requires thorough mechanical abrading or the use of SK-P250 Clear Gloss tie coat to insure intercoat adhesion. It enhances colors and darkens the host surface.

   Recommended Uses – Used as a sealer over integral colored and stain concrete and cementitious overlays for foot and vehicular traffic.

3. ***Urethane/Acrylic S-8500 Clear Seal*** (Low Gloss) is a VOC compliant, penetrating acrylic/urethane sealer formulated to create an impervious protective and stain and chemical resistant shield on concrete and cementitious overlayments top coat, foot traffic only. It conforms to VOC requirements in all major government agencies in the USA and Canada.

   Application – Two coats with third coat option. It can be applied on interior or exterior surfaces. The product is applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. Gloss and cleanability are improved by a third coat.

Performance Expectations – Material is easy to apply and dries quickly for recoating. It penetrates and adheres well to properly prepared concrete, architectural concrete and cementitious surfaces. The product provides good overall performance for residential and light commercial applications. Use in heavy foot traffic areas requires regular maintenance coating. Recoating with a material other than itself requires thorough mechanical abrading or the use of SK-P250 Clear Gloss tie coat to insure intercoat adhesion. Enhances colors and darkens the host surface.

Recommended Uses – Used as a sealer over integral colored and stain concrete and cementitious overlays for light to medium foot traffic.

4. ***High Solids Acrylic S-8600 Clear Seal Plus*** (Semi-Gloss) is a high-solids, VOC compliant, breathable, water based, acrylic copolymer emulsion top coat, foot traffic only. It conforms to VOC requirements in all major government agencies in the USA and Canada.

   Application – Two coats with third coat option. It can be applied on interior or exterior surfaces. Product applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. Gloss and cleanability are improved by a third coat.

   Performance Expectations – Material is easy to apply and dries quickly for recoating. It penetrates and adheres well to properly prepared concrete, architectural concrete and cementitious surfaces. The product provides good overall performance for residential and light commercial applications. Use in heavy foot traffic areas requires regular maintenance coating. Recoating with a material other than itself requires thorough mechanical abrading or the use of SK-P250 Clear Gloss tie coat to insure intercoat adhesion. It enhances colors and darkens the host surface.

   Recommended Uses – Used as a sealer over integral colored and stain concrete and cementitious overlays for heavy foot traffic.

5. ***Epoxy SK-E400*** (Clear or Pigmented) is a two component, low viscosity, 100% solids material used as a primer and high-build intermediate coating and finished top coat for interior applications. SK-E400 Clear can be reduced 10 – 15% with acetone when used as a primer. SK-E400 Clear intensifies colors in decorative substrates. It conforms to VOC requirements in all major government agencies in the USA and Canada.

   Application – Two coats. It can be applied on interior surfaces.
   a. Over Architectural Concrete or Cementitious clean surfaces, the product is directly applied at the rate of 150 square feet (13.9 meters) to 200 square feet (18.6 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
   b. Over Concrete apply SK-E400 Clear can be diluted 10 – 15% with acetone as a primer at a rate of 200 square feet (18.6 meters) to 250 square feet (23.2 meters) per gallon (3.79 liters). Apply SK-E400 Clear or Pigmented at a rate of 150 square feet (13.9 square meters) to 200 square feet (18.6 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.

Performance Expectations – Use diluted SK-E400 Clear as the primer to provide excellent adhesion. SK-E400 Clear or Pigmented provides excellent adhesion and higher film build. SK-E400 Clear will darken stained surfaces more than other sealers or top coats. When used over green acid stains, the clear epoxy will give the stain a blueish look. To enhance the gloss retention of the epoxy coating top coat with a polyaspartic or polyurea or polyurethane.

Recommended Uses – SK-E400 (Clear or Pigmented) is a high performance, extremely low odor top coat for interior applications only. Use SK-P5100 polyurea as a top coat when gloss and abrasion resistance and low odor during installation is required.

6. ***Polyurethane SK-P100*** (Clear Gloss or Clear Stain or Pigmented or VOC Clear Gloss or VOC Clear Stain or VOC Pigmented) is a two component, aliphatic polyester urethane top coat with an ultra violet stabilizer. SK-P100 "VOC" designated products conforms to VOC requirements in all major government agencies in the USA and Canada.

   Application – Two coats. It can be applied on interior or exterior surfaces.
   a. Over Architectural Concrete or Cementitious clean surfaces, the product is directly applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
   b. Over Concrete apply SK-P250 Clear Gloss as a primer at a rate of 250 square feet (23.2 meters) to 300 square feet (29.7 meters) per gallon (3.79 liters). Apply SK-P100 at a rate of 250 square feet (23.2 meters) to 300 square feet (29.7 meters) per gallon (3.79 liters) per coat.

   Performance Expectations – SK-P250 primer adheres tenaciously to a wide variety of surfaces and may be applied on interior or exterior surfaces. SK-P100 product is designed for high pedestrian traffic and light vehicular traffic without hot tire transfer.

   Recommended Uses – SK-P100 (Clear Gloss or Clear Satin) is used as a top coat over integral colored and stained concrete and cementitious overlays for foot traffic and light vehicular traffic. SK-P100 (Clear Gloss or Clear Satin or Pigmented) is used over concrete substrates and as a top coat over SK-P400.

7. ***Polyurethane SK-P250*** (Clear Gloss or Clear Stain or VOC Clear Gloss or VOC Clear Stain). It is a two component, low viscosity, acrylic urethane top coat. SK-P250 "VOC" designated products conforms to VOC requirements in all major government agencies in the USA and Canada.

   Application – Two coats. It can be applied on interior or exterior surfaces.
   a. Over Architectural Concrete or Cementitious clean surfaces, the product is directly applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
   b. Over Concrete apply SK-P250 Clear Gloss as a primer at a rate of 250 square feet (23.2 meters) to 300 square feet (29.7 meters) per gallon (3.79 liters). Apply SK-P250 at a rate of 200 square feet (18.6 square meters) to 300 square feet (27.9 meters) per gallon (3.79

liters) per coat depending upon the porosity of the substrate. May be recoated after 1 to 2 hours depending upon the substrate temperature.

Performance Expectations – SK-P250 is a solvent-based polyurethane used in place of acrylics when a general performance upgrade is desired, but a high build top coat product is not required. Compared to acrylics, it has better initial gloss and gloss retention, improved abrasion and stain resistance and better performance is vehicle areas.

Recommended Uses – Used as a clear gloss or clear satin top coat over architectural concrete and cementitious overlayments, integral colored and stain concrete and cementitious overlays for foot traffic, vehicular traffic and aircraft hangars without hot tire transfer. SK-P250 (Clear Gloss or Clear Satin) is used over concrete substrates and as a top coat over SK-P400.

8. ***Polyurethane SK-P501*** (Clear Gloss or Clear Stain or Pigmented) is a two component, water-base, aliphatic urethane top coat.

   Application – Two coats. It can be applied on interior or exterior surfaces.
   a. Over Architectural Concrete or Cementitious clean surfaces SK-P501 Clear Gloss is directly applied at the rate of 150 square feet (13.9 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
   b. Over Concrete apply SK-P250 Clear Gloss as a primer at a rate of 250 square feet (23.2 meters) to 300 square feet (29.7 meters) per gallon (3.79 liters). Apply SK-P501 Clear Gloss, Clear Satin or Pigmented at a rate of 200 square feet (18.6 square meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. May be recoated after 1 to 2 hours depending upon the substrate and ambient temperature.

   Performance Expectations – This water-based polyurethane is used in place of acrylics when a general performance upgrade is desired, but a high build topcoat product is not required. Compared to acrylics, it has better initial gloss and gloss retention, improved abrasion and stain resistance and better performance is vehicle areas.

   Recommended Uses – Used as a clear gloss or clear satin top coat over concrete, integral colored and stained concrete, cementitious overlays, or the concrete can be coated with a pigmented version when a solid color is desired for foot traffic and light vehicular traffic without hot tire transfer.

9. ***Polyurea SK-P5000*** (Clear Gloss) is a two component, ultrahigh solids, abrasion and chemical resistance, aliphatic polyurea/polyaspartic hybrid top coat. SK-P5000 conforms to VOC requirements in all major government agencies in the USA and Canada.

   Application – One coat is normally recommended. Two coats recommended when used in high abrasive or high chemical resistance environments. It can be applied on interior or exterior surfaces.

a. Over Architectural Concrete or Cementitious clean surfaces, the product is directly applied at the rate of 100 square feet (9.29 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
b. Over Concrete apply SK-P250 Clear Gloss as a primer at a rate of 250 square feet (23.2 meters) to 300 square feet (29.7 meters) per gallon (3.79 liters). Apply SK-P5000 at a rate of 100 square feet (9.29 square meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. May be recoated after 1 to 2 hours depending upon the substrate temperature.

Performance Expectations – This product is used in place of acrylics when a general performance upgrade is desired, but a high build sealer product is not required. Compared to acrylics, it has better initial gloss and gloss retention, improved abrasion and stain resistance and better performance is vehicle areas.

Recommended Uses – Used as a top coat over concrete, integral colored and stain concrete and cementitious overlays for foot traffic, light vehicular traffic and aircraft hangar, without hot tire transfer.

10. ***Polyurea SK-P5100*** (Clear Gloss) is a two component, solvent-free, high solids, abrasion and chemical resistance, aliphatic polyurea/polyaspartic hybrid top coat. SK-P5100 is a low temperature or rapid cure material. It can be applied and cured at 20^{0}F (-6.7^{0}C) and is dry to the touch at 77^{0}F (25^{0}C) in 2 hours. SK-P5100 conforms to VOC requirements in all major government agencies in the USA and Canada.

    Application – One coat is normally recommended. Two coats recommended when used in high abrasive or high chemical resistant environments. It can be applied on interior or exterior surfaces.
    a. Over Architectural Concrete or Cementitious clean surfaces, the product is directly applied at the rate of 100 square feet (9.29 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
    b. Over Concrete apply SK-P5100 at a rate of 100 square feet (9.29 square meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. May be recoated after 1 to 2 hours depending upon the substrate temperature.

    Performance Expectations – This product is used in place of acrylics when a general performance upgrade is desired, but a high build sealer product is not required. Compared to acrylics, it has better initial gloss and gloss retention, improved abrasion and stain resistance and better performance is vehicle areas.

    Recommended Uses – Used as a top coat over concrete, integral colored and stain concrete and cementitious overlays for foot traffic, light vehicular traffic and aircraft hangar without hot tire transfer.

11. ***Polyaspartic SK-P7500*** (Clear Gloss) is a two component, high solids, VOC compliant, low viscosity, chemical and abrasion resistant, high-build, ultra violet light stable aliphatic polyaspartic top coat.

Application – One coat is normally recommended. Two coats recommended when used in high abrasive or high chemical resistant environments. It can be applied on interior or exterior surfaces.

a. Over Architectural Concrete or Cementitious clean surfaces the product directly applied at the rate of 100 square feet (9.29 meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate.
b. Over Concrete apply SK-P7500 at a rate of 100 square feet (9.29 square meters) to 300 square feet (27.9 meters) per gallon (3.79 liters) per coat depending upon the porosity of the substrate. May be recoated after 1 to 2 hours depending upon the substrate temperature.

Performance Expectations – This product is used in place of acrylics when a general performance upgrade is desired, but a high build sealer product is not required. Compared to acrylics, it has better initial gloss and gloss retention, improved abrasion and stain resistance and better performance is vehicle areas.

Recommended Uses – Used as a top coat over concrete, integral colored and stain concrete and cementitious overlays for foot traffic, light vehicular traffic and aircraft hangar without hot tire transfer.

SURFACE PREPARATION

As with all specialty sealer and coating applications, proper surface preparation is a critical element of success. Surfaces to be sealed or top coated or acid stained must be clean, durable and free of unsound material or contaminates that will prevent the proper adhesion from occurring.

Polymer cementitious systems after placement normally do not require mechanical abrasion or chemical profiling of the substrate for architectural surfaces because these methods can negatively alter the surface coloration or render an acid stain or topical stain ineffective. Scrubbing the surface with a floor machine using an aggressive nylogrit brush is the best surface preparation. Use a good commercial cleaner such as Super-Krete cleaning agent S-12000 Heavy Duty Degreaser™ (do not dilute) or APF Orange Clean (reduce up to 8 – 1 with clean water). Do not let the cleaning solution dry on the surface. Rinse thoroughly to remove any possibility of detergent residue harming the adhesive bond. Rinsing with a pressure washer is ideal, avoid cutting the surface coating or acid stain.

Surfaces that have been acid stained must be properly neutralized with a strong base solution such as ammonia or APF Super Base Neutralizer and rinsed well. Water-based, solvent based and 100% solids sealers and top coats applied to improperly neutralized stained surfaces are subject to premature failure. Freshly placed uncontaminated cementitious and polymer systems require no surface preparation.

MOISTURE VAPOR TRANSMISSION & ALKALINITY

All interior and exterior concrete slabs on grade must be poured over an effective moisture vapor barrier must meet ASTM E1754 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs in compliance with ACI 302.2R Concrete Slabs that Receive Moisture Sensitive Flooring Materials.

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If a positive side (below the concrete) moisture vapor barrier is not placed per ASTM E1754 in compliance with ACI 302.2R, the designer or specialty contractor should place a negative (on top the concrete) Super-Krete moisture mitigation barrier. Review the Super-Krete VaporSolve product offering to select the best moisture mitigation negative side (on top of concrete) barrier.

Failure to address the possibility of moisture vapor transmission (MVT) induced vapor problems under an impervious (non-breathing) sealer or top coat, because overtime it can cause a failure. The failure mode usually starts with moisture condensation cloudiness, followed by blistering filled with water and eventually delamination of the impervious sealer or top coat.

Excessive vapor transmission occurs when moisture migrates to the surface below an impervious sealer or top coat. It occurs when the source of moisture beneath the concrete slab is greater than the moisture above the concrete slab. The driver of the moisture migration is the disequilibrium between to the moisture below and the moisture above. The source of the moisture comes from excessive water of conveyance during placement of the concrete, seasonal rains, high water table, broken water pipes, landscape irrigation, etc.

Overly permeable concrete results when water from the water/cement ratio is to high. The excessive water evaporates from the concrete slab after placement during the curing process creating excessive capillaries (pores) that serve as pathways for water vapor to be drawn up through the concrete slab. The vapor carries with it, water soluble alkaline minerals and salts that accumulate at the interface of the concrete and the sealers or top coats, causing loss of substrate integrity and the loss of bond of the sealers or top coats.

There are a number of tests available to provide qualitative and quantitative numbers that are required before placement of a sealer or top coat. Unfortunately, the test methods available for determining the acceptable or excessive moisture in the concrete before placement of an impervious sealer or coating are only valid for the time period that the test is done. Meaning that the test numbers are subjected to change a week later, a month later, a year later, etc. Over the years there have been numerous acceptable moisture tests, today Super-Krete accepts only the following tests, provided they are current:

1. ASTM F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride. Super-Krete limits the results to 3 pounds or less. Moisture in excess of 3.0 lbs/1000 ft^2/per 24 hr. require a Super-Krete VaporSolve solution.
2. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. Super-Krete limits the relative humidity test results reading should be 79% relative humidity or less. Relative humidity in excess of 79% relative humidity require a Super-Krete VaporSolve solution.

To recap, placement of an effective moisture vapor barrier directly below the concrete and in direct contact with the concrete slab on grade is required. If the barrier is not placed a Super-Krete negative side barrier is recommended. Minimizing the water/cement ratio is strongly recommended. Eliminate sources of excessive moisture below the concrete, such as, broken pipes, irrigation water, seasonal rain, etc.

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Super-Krete Systems using the sealers and top coats listed above:

Acid Stain 25 System	Color Stain 5000 System
Acid Stain 100 System	Color Stain 5100 System
Acid Stain 250 System	Color Stain 7500 System
Cem-Dye 25 System	Granitex 1 Day System
Cem-Dye 100 System	Granitex 2 Day System
Cem-Dye 250 System	Granitex High Build System
Cem-Dye 501 System	Granitex Light Broadcast System
ColorChrome FC System	PC-Kote 100 System
ColorChrome System	PC-Kote 150 System
Color Stain Clear Seal System	PC-Kote 400 System
Color Stain Clear Plus Seal System	Tough-Seal 100 System
Color Stain Supra-Seal System	Tough-Seal 250 System
Color Stain 100 System	Tough-Seal 400 System
Color Stain 250 System	Tough-Seal 501 System
Color Stain 501 System	

VaporSolve Products and Systems available:

VaporSolve Basic System
VaporSolve Fresh System
VaporSolve Ultra System
VaporSolve Joint Filler
VaporSolve Tie Coat

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Questions: Contact Arizona Polymer Flooring