PSC Industrial Floor System (Epoxy mortar system)

PSC Industrial Floor System is a 100 % solids high performance floor system designed for substrates subjected to heavy duty industrial traffic, abrasion and spillages of corrosive chemicals.

PSC Industrial Floor System is composed of PSC 2099 Bonding Primer, PSC 2300 Industrial Epoxy base coat, epoxy mortar based on PSC 2300 Industrial Epoxy, and two seal coats.

The seal coats can, depending upon the flooring requirements, be PSC 2300 Industrial Epoxy, PSC 2301 ClearGuard, PSC 2302 Flexible Epoxy or PSC 2304 Exterior Epoxy.

PSC Industrial Floor System is sanitary, seamless, durable and easy to maintain. This flooring system is applicable where a durable, heavy duty industrial floor is desired. It has superior mechanical and chemical resistance, low maintenance and its high density prevents dirt penetration.

Designed with outstanding resistance to a wide variety of harmful chemical spills, PSC Industrial Floor System also possesses excellent resistance to wear of heavy steel wheeled traffic.

Nominal thickness, depending how severely the substrate has eroded, of this flooring system is approximately 3/16" to ¼".

The components of PSC Industrial Floor System are approved by CFIA (Canadian Food Inspection Agency) for use in Registered Establishments handling and processing food stuffs.

Uses

- Interior applications on new or old concrete substrates.
- Manufacturing plants, water treatment plants.
- Meat packing and processing facilities, dairies, canneries etc.
- Industrial, commercial, municipal and warehousing facilities.

Advantages

- Produces a smooth, seamless finish.
- Waterproofs and protects concrete slabs against water ingress.
- Excellent wear resistance.
- Withstands temperature extremes without cracking or peeling.
- Topcoats can be colored by adding color for safety lines, workstation locations etc.
- Fills and hides surface imperfections.
- Reduces maintenance cost associated with unprotected concrete.
- Anti-slip aggregate can be embedded to application providing skid resistant surface.
- Use of PSC 2099 allows for fast and dust free preparation (no shot blasting required).
- Use of PSC 2099 allows for application of epoxy basecoat directly over power trowelled concrete.
- Does not contain any fillers like vegetable oils and recycled rubber.

Examination of Substrate

- The concrete must have cured for 28 days and must have a minimum of 4000 psi compressive strength.
- Damaged areas, cracks, holes etc. must be repaired. Use epoxy mixed at a ratio of 1 part epoxy and 4 parts clean sand by volume. Smaller cracks can be repaired with PSC 2300 Industrial Epoxy mixed with fumed silica (Aerosil 200).
- Surface must be free of ridges and other sharp projections.
- Test for vapor drive according to ASTM D4263. Vapor drive must be less than 4 psi / 1000 sq. ft. / 24 hours (1.8 kg / 90 m² / 24 hours) on slabs against dirt.

PSC Industrial Floor System is a 100 % solids high performance floor system, designed for areas subjected to heavy abrasion and hot spillages up to 66° C (150° F).

System Components

- Primer. PSC 2099 Bonding Primer. PSC 2099 is designed to react with calcium ions in concrete to ensure a tenacious bond between basecoat and concrete substrate.
- Basecoat. PSC 2300 Industrial Epoxy. PSC 2300 industrial Epoxy is a 100 % solids, high performance epoxy coating formulated for demanding industrial applications.
- Epoxy mortar, one part of PSC 2300 by volume mixed with 4 parts of clean sand, mesh size 16 to 30, by volume. Coverage 25 sq. ft. at ¼ inch.
- Topcoat 1 and 2. PSC 2300 Industrial Epoxy or PSC 2301 ClearGuard depending on chemical resistance specified. Refer to Product Information Sheets for the same. For other alternatives refer to section Application and Cure Times / Topcoats.

Surface Preparation

The area to be coated must be clean, sound, dry and above 10° C (50° F) and less than 30° C (86° F) to assure successful application. Remove all old coatings, oil, grease, wax, dirt, curing compound membranes and other surface contaminants. Mechanical methods are recommended for cleaning and preparation of concrete, such as shot blasting, scarification and sanding. Next sweep and vacuum any remaining dirt and dust with wet / dry vacuum.

Contaminants may also be removed by scrubbing with PSC 0100 Cleaner / Degreaser, followed by thoroughly rinsing and scrubbing with clean water.

Repair all damaged areas of the substrate to match adjacent areas. Concrete must be free of ridges and sharp projections and damaged areas and cracks of the substrate must be restored to match adjacent areas. For repairs use epoxy mortar prepared with one part of epoxy by volume mixed with 4 parts of dry sand by volume. For sand use mesh 20 to 30.

For moving joints and cracks use PSC 2302 Flexible Epoxy as described above.

Use of PSC 2099 Bonding Primer

Dense new concrete that does not have a previous coating and is not contaminated with oil or grease can be primed with PSC 2099 Bonding Primer thus eliminating dust creating surface preparation like shot blasting, scarification or grinding.

Consult Product Information Sheets re. PSC 2099 Bonding Primer for more information.

Mixing Epoxy and Aggregate

- Wear protective gloves and goggles to avoid injury from splashes.
- PSC 100 % solids epoxies have limited pot life. Complete all surface preparations before mixing Part A with Part B.
- Accuracy in measuring and mixing the components is essential for 100 % solids PSC epoxy coatings.
- Pour the components of epoxy slowly into mixing container to avoid introducing air bubbles. Mix for two to three minutes before mixing with aggregate.
- A steel trowel is generally adequate to mix small amounts of blended epoxy and aggregate. Larger amounts are preferably mixed in a portable cement mixer.
- Mix the blended parts A and B immediately with aggregate. Ensure that aggregate particles are entirely coated with a film of epoxy.
- Apply by pouring a bead of wet aggregate in a form of a wide ribbon on the surface to be coated.
- Do not leave the material in the container for too long because it will set faster thus reducing the pot life.

Troweling Techniques

Using a steel trowel loosely spread the epoxy / aggregate mixture by applying downward pressure on the trowel. Use forward, backward and sideways motions.
Create uniform surface gloss by applying wide sweeps with a clean trowel and a little bit downward pressure.

Application and Cure Times

The floor area should be maintained at a temperature range of +10°C (+50°F) or less than +30°C (+86°F) during application and curing.

Crack Filler. PSC 100 % solids epoxies mixed with fumed silica (Aerosil 200) or epoxy mortar.

Primer. PSC 2099 Bonding Primer.
Apply PSC 2099 Bonding Primer at 600 to 800 sq. ft. / USG to provide bond for epoxy basecoat (binder). Prepare PSC 2099 by mixing 20 parts by volume of Part A into one part of Part B, stir and let sit for 5 minutes. Pot life is long, approx. 8 hours @ 20°C so fairly large batches can be mixed at a time. Follow application instructions as per Product information Sheets of PSC 2099. PSC 2099 is not a film forming product, it does not add to application thickness. Allow to cure @ 20° C for 20 minutes.

Basecoat. PSC 2300 Industrial Epoxy.
Apply PSC 2300 Industrial Epoxy at a rate of 270 sq. ft. / USG (6 mils) by pouring a bead in the form of a ribbon on the surface to be coated. Extend basecoat over repaired cracks and treated control joints. Follow mixing and application instructions as lined out above and on Product information Sheets. Allow to cure for 6 to 10 hours.

Epoxy mortar. Mixing ratios for aggregate vary, depending on the mesh size selected, for mesh 16 to 30 aggregate the mixing ratio is by volume 4 to 1 (4 parts aggregate and 1 part mixed PSC 100 % solids epoxies) and by weight 6 to 1 (6 parts aggregate and 1 part PSC 100 % solids epoxies). As a rule of thumb, the finer the silica, the more epoxy is required, the coarser the silica, the less epoxy.

Mix the blended parts A and B of PSC 2300 immediately with aggregate. Apply by pouring a bead of epoxy mixed with aggregate in the form of a wide ribbon on the surface to be coated. Pay attention to application thickness. Do not leave the mixed material in the container for too long because it will set fast (pay attention to pot life) after mixing. Spread the poured material with a trowel as evenly as possible with a slow steady motion. Pay attention to pot life.

Topcoat. Depending on the requirements for chemical and abrasion resistance, refer to Product information Sheets re. PSC 2300 Industrial Epoxy, 2301 ClearGuard, PSC 2302 Flexible Epoxy or PSC 2304 Exterior Epoxy (UV resistant), all available in clear or 14 standard colors.

Allow to cure for 48 hours after applying topcoat before allowing foot traffic and 7 days before allowing heavy traffic (trucks, fork lifts). High humidity will extend cure times.

For environments subjected to extremely harsh chemical spillages and heavy industrial traffic, we recommend two topcoats.

Chemical resistance data
Refer to Product Information Sheets of each product.

Cured resin performance
Refer to Product Information Sheets of each product.

Maximum temperature limits for PSC 100 % solids epoxies

Dry heat	+110 C (+230 F)
Spills	+66 C (+150 F)
Immersion	+66 C (+150 F)
Cold	- 40 C

Do not allow heavy traffic on coated surfaces until completely cured for 7 days at +20 C (+68 F). Allow to cure 24 hours before at +20 C (+68 F) before allowing foot traffic.

Cleaning
Remove all debris resulting from completion of application operation from the site.

Maintenance
PSC Maintenance Products are specifically formulated to protect and maintain the surface of PSC Coatings.

To clean the surface, use periodically PSC 0150 Cleaner-Rejuvenator. To protect the surface, use regularly PSC 0200 DuraWax-Gloss or PSC 0210 DuraWax-Satin.

Warranty
Refer to Product Information Sheet of each product.

For orders or inquiries from Canada, US and Mexico, call toll free 1-866-793-3503 or fax your orders to PSC's customer service at 403-287-2766.
Polymer Science Corporation develops and manufactures specialty chemicals, industrial and architectural coatings of highest quality. Ask the people who use them.