

Technical Datasheet

Pozzolana®400 Series P30 – Version 3.0 – English – Revision: 15.8.2020



Pozzolana® 400 Series P30

MINERAL SILICATE SELF-LEVELING MULTI-PURPOSE PRODUCT FOR INDUSTRIAL FLOORS

Pozzolana® 400 Series P30 is an innovative silicate based, eco-friendly, fast-setting, non-shrink, multi-purpose, professional grade self-leveling product mainly for the purpose of creating industrial floors but also can be used to make decorative floors. Product is designed to meet the requirements of industrial floor standards where chemical resistance is required as well as to suit high traffic environments. At the same time, the product also can be used as a binder when combined with other raw materials such as color pigments, stones, gravels, sands, flakes, recycled glass chips, fibers, shells, recycled beads, etc. by mixing together or sprinkling onto the laid surface using appropriate application methods to provide colorful, anti-slip, decorative surfaces according to the needs of the projects.

Pozzolana® 400 Series P30 is manufactured from inorganic, non-toxic, VOC-free raw materials with outstanding properties to create seamless flooring in various environments with minimal application time, without safety hazards, high product performance and exceptionally durable.

Pozzolana® 400 Series P30 by itself can be applied in thickness of 3mm – 50mm in one single application by self-leveling. Variant products made out from Pozzolana® 400 Series P30 can be applied to even higher thickness in one layer.

Properties

- Advanced silicate-binder technology, environmentally friendly, non-toxic, no allergic potential.
- Inorganic material, no VOC or APEO;
- Low carbon emission (EC1 PLUS).
- High flow ability, fast setting and minimizes waiting time.
- Resistant to chemicals, salt water and freeze-thaw salt.
- Wide range service temperatures; resistant to subzero temperatures, extreme heat and thermal shocks.
- High abrasion resistance.
- Not affected by UV.
- No shrinkage (DIN EN 13454), swelling, natural crazing or cracks.
- Does not create ASR and no efflorescence
- Adhere well to many types of surfaces especially smooth surfaces such as ceramic tiles, stone slabs, glass surfaces, etc.
- Water vapor permeable, no water stagnation in humid weather.
- Any practical thickness is possible in one layer.
- Can be applied onto surface which contains calcium sulfate or magnesium carbonate.
- Comply with anti-static requirements (DIN EN 6134- <1000 MΩ).
- Can withstand water pressure up to 1.5 bar.
- Easy and fast in application, can be applied by machine.

Application design system

- Primer **Pozzolana®120 APM** or equivalent
- Body Coat **Pozzolana® 400 Series P30** (or variant product)
- Protection Sealer **Pozzolana® 140SS** or primer which are recommended for topping layer.
- Topping **Pozzolana® 190PCS** or equivalent to improve chemical resistance, waterproofing abilities as well as stain protection

Technical information

Strength class (DIN EN 13813)	CT-C40-F8
Abrasion resistance (BCA)	AR 0.5
Application temperature	+5°C to +45°C
Workability time @ 20°C	approx. 30 minutes
Application thickness	3mm - 50mm / 1 layer
Load capacity (curing @ 20°C)	
Walkable/ ready for covering	after 4 hours
Light load	after 1 day
Fully loadable (indoor)	after 4 days
Fully loadable (outdoor)	after 7 days
Water mixing ratio	2.92 Liters(14.6%) / bag 20 kgs
Strength (DIN EN 13892)	
Compressive strength	approx. 40.0 N/mm ²
Flexural strength	approx. 8.0 N/mm ²
Elastic modulus	approx. 10.0 N/mm ²
Slip resistance (DIN 51130)	
Original	R10
Adding other materials	R11-R13
Consumption	1.8 kg/m ² /mm.
Density	
Bulk density	approx. 1.2 kg/dm ³
Fresh mortar density	approx. 2.0 kg/dm ³
Original color	grey (~ RAL 9010)
Chemical resistance	pH 4 – 14
Heat resistance	-40°C to 500°C
Fire rating (DIN EN 13813)	A2

Range of usage

- Indoors, outdoors, areas with extreme weather conditions, or difficult application environment, areas require fast application, or require application of different thickness layers on a surface. Use as a coating in areas with high traffic, heavy load and chemical use.
- Can be used to form products with different applications by adding color pigments, aggregates, to create anti-slip, stamped, burnished or polished surfaces as well as precast elements, etc.
- Main areas of application include factories, warehouses, parking lots, airports, seaports, food and beverages processing, pharmaceuticals, traffic works, marines, etc.
- Other areas of application are shopping centers, office complexes, exhibition halls, resorts, hotels, restaurants, housing, hospitals, schools, parks, stadiums, sport centers, etc.

Packaging, shelf life and storage

- 20kg paper bags. The shelf life of 12 months from the date of manufacture is printed on the packing.
- Store in a cool, dry area with stable or controlled temperature (not < 0°C, preferably 10°C - 25°C). Place products on a pallet, at least 300mm above the floor. Seal the opening immediately after taking a portion for use.

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Preparation of substrate

Substrate surface prior to application of Pozzolana® 400 Series P30 should satisfy the following conditions:

- Can be applied to 1-day old new concrete. The concrete must be stable, shall not vibrate or crack and ensure sufficient compression strength of ≥ 25 MPa.
- The substrate surface shall be dry, clean and free of all kinds of impurities.
- Old substrate surface preparation using methods such as shot blasting, scarifying or grinding is recommended.
- Cracks and holes must be filled with. For larger cavities, patch with Pozzolana® 400S P30 mixed with dry quartz sand. Please refer to the technical data sheet of Pozzolana® 115JFC for more information.
- Existing structural cracks must be professionally repaired.
- Do not apply across the expansion joints which shall be kept in the new overlay.
- Saw cut joints shall be sealed with Pozzolana® 115JFC or suitable materials.
- For porous and water-permeable substrate surfaces, apply Pozzolana® 120 APM primer. When applying primer, ensure that the substrate surface is fully sealed to avoid air bubbles being formed in the self-leveling screed and also to prevent water in the Pozzolana® 400 Series P30 layer from penetrating into the substrate, which may affect product flowability and finished surface quality.
- Wait for the primer to dry within 1-2 hours then apply the self-leveling. In case the primer has been dried for more than 6 hours, it is necessary to reapply new primer before starting the coating. Drying time of the primer may vary depending on temperature, humidity and environment conditions. In some special cases, it is necessary to make a sample of at least 1m² to test the adhesion to existing substrate. Please refer to the product technical datasheet of Pozzolana® 120APM for more information.
- When applying it on tiled floors, ensure they are crack-free. Loose tiles and tiles with hollow sound must be removed.
- In case of application on a surface with many contiguous areas made by different materials with different water permeability, an intermediate coating shall be applied to maintain color uniformity. A layer with a minimum thickness of 2mm is recommended. Always apply primer on the surface of intermediate layer before applying the overlay.

Mixing and apply Pozzolana® 400 Series P30

Water mixing ratio

- Pour the required amount of clean water into the mixing container (2.92 liters of clean water for the original 20kg Pozzolana® 400 Series P30 equals to 14.6% by weight). The amount of water may change depending on the application conditions at the site.
- It is not recommended to use less than 14.6% water as it is possible that inadequacy may result in surface cracking due to lack of sufficient hydration.
- It is not recommended to use more than 14.6% water as it may cause surface bleeding which may weaken the finished surface as well as discoloration if mixed with color pigment.

Mixing

Use adjustable high-speed batch mixers, especially those designed specifically for mixing self-leveling screed, blending powder with water. Please refer to the mixers provided by manufacturers such as PORTAMIX, COLLOMIX, etc. For small applications use hand-held mixer of at least 600RPM fitted with Helix paddle or Collomix DLX 152 HF.

- Step 1. Turn on the mixer, keep at slow speed, slowly pour the Pozzolana® 400 Series P30 binder into the mixing bucket that has enough water for a period of 30 seconds to 1 minute.
- Step 2. Switch the mixer to high speed (≥ 600 RPM) and keep mixing continuously for 2 minutes. Use a hand shovel or hand trowel to brush off the powder on the mixing drum surface and mixing paddle.
- Step 3. Turn off the mixer and wait for 1-2 minutes. This time will allow the binder to react sufficiently with water and help to release the air from mixture.
- Step 4. Continue mixing at medium speed for 1 minute to ensure the binder and water are completely mixed. With manual processing an aeration time of up to 1 minute is recommended between the end of the mixing and pouring of the material. This minimizes rising air bubbles within the poured material.

Application

- Step 5. Spread mixed material evenly on the floor. It is important to ensure the continuity of the previous and next batch to avoid the case that the previous one has dried up before the next one is applied which may lead to cold joints.
- Step 6. Use the level spreader and self-leveling gauge rake to lay the mixture with the specified thickness on the floor surface. For narrow areas, confined space or edges shall use a notched trowel to spread the mixture to ensure enough thickness.
- Step 7. Use a spike roller to roll evenly over the surface to help break air bubbles and make the surface more even. Always roll in criss-cross directions and avoid rolling too quickly that could slip or cause material splashes to undesired places. Do not roll on areas where the mixture has begun to set.
- Step 8. Use either hand trowel or soft steel straight-edge trowel to smoothen the entire surface to eliminate spike roller marks if required.

Pigmented Mortar

- When using liquid pigment, it is added to the water and mix intensively for 1 minute. Mix as much colored water as possible to be used for large area application to minimize risk of color variations.
- For powder pigment, it is recommended to be blended with the binder using ribbon mixer prior to using.
- Select inorganic pigment which is suitable for use in pH10-pH12 environment.
- By using pigment, the amount of water for mixing may be increased depending on the type and amount of pigment used. The water ratio has to be adjusted accordingly.
- Prior to application of the mortar the coloring and the desired visual appearance shall be checked on a test area for pigment compatibility.

Apply protection layers

- To improve the chemical and wear resistance for the finished surfaces, it is recommended to apply additional layers of Pozzolana® 140SSS material or equivalent.
- To cover the surface, to minimize the possibility of contamination or staining, it is recommended to apply additional coats of protective surface material such as Pozzolana® 190PCS or equivalent product.
- Please refer to the technical datasheet of the above products carefully before use.

Application tools and cleaning

- Adjustable high-speed batch mixer or screed pump, spike shoes, spike roller, smoothing squeegee, hand shovel, hand trowel, level spreader.
- All application machines and tools should be cleaned immediately with clean water after using. Waste water, spilled materials need to be collected and handled properly to ensure safety for the environment and people.

Attention

- Always apply Pozzolana® 120APM primer or equivalent on surfaces which is to receive Pozzolana® silicate mortars including repaired spots or filled joints before starting the next topping.
- Always use spike shoes to walk on poured surface during application.
- The floor surface after application must be protected from drying too quickly (away from wind or high temperatures) for at least 24 hours. Do not cover the finished surface during this time.
- In case of application outdoors, in direct sunlight or in areas with strong winds, it is necessary to cover the application areas against the risk of surface drying too quickly.

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Attention - Cont'd

- In the case of using a pump mixer or a combination of a batch mixer and a screed pump, the instructions for use of these machines shall be carefully read.
- Some minor difference in color that might occur is unavoidable by different production batches. This shall be kept in mind when doing product design and selection. It shall be noted that using products with the same production batch (see product labels) will minimize the potential for color heterogeneity. Using different amounts of water or changing application techniques during application may cause different color appearance on the mortar surface. Please note that this product is an inorganic product. Therefore, product colors are not exactly same as those colors in the RAL Color Charts and the Charts shall therefore be used for reference only.
- Products need to be applied by professional applicators that have been trained and certified by production company or authorized partners. Finish product quality may vary depending on the management skills, experience, technical understanding, workmanship, application equipment and tools of each applicator.

Safety Information

- There is no mandatory hazard labeling required for the Pozzolana® 400 Series P30. Avoid inhalation of dust when opening the bag. Protect skin and eyes during mixing and application.
- Please refer to the Safety Data Sheet for more information on safety during the transportation, storage, lifting and handling of waste. Follow the instructions on the packing and related documents.

Variant products

Below is a list of variants derive from Pozzolana®400 Series P30 used as a binder combined with colors and aggregates using different application methods to create various desired finishing:

- **Pozzolana® 401 SLU – Self-leveling Underlayment Without Colors**
Self-leveling underlayment with natural color or use as repair mortar. Thickness from 2mm or more for self-leveling layer and 1mm or more when used for repair works.
- **Pozzolana® 402 SLC – Self-leveling Topping With Colors**
Self-leveling floor mixed with colors. Sand or aggregate can also be mixed to increase thickness. Typical thickness from 2mm - 50mm / 1 layer.
- **Pozzolana® 403 FQS – Flake, Quartz, Sand Sprinkle**
Sprinkle floor with quartz, flakes or other materials to create surface of different textures. Typical thickness from 3mm or more.
- **Pozzolana® 405 PSS – Polished or Burnished Surface**
Surface can be burnished to create sheen or ground and polished to expose aggregates. Typical thickness from 5mm or more. **Pozzolana® 404 MTZ – Micro Terrazzo**
Terrazzo floor using aggregates with size smaller than 4mm. Typical thickness from 4mm or more.
- **Pozzolana® 408 LTZ – Medium to Large Terrazzo**
Terrazzo floor using medium to large aggregates with size from 4mm to 35mm. Typical thickness from 8mm to 35mm.
- **Pozzolana® 410 ETZ – Extreme Large Terrazzo (Palladiana)**
Terrazzo floor using large stones or pieces with size larger than 35mm. Typical thickness from 10mm or more.
- **Pozzolana® 415 WCS – Wall and Ceiling Skim-coat**
Render layer for walls and ceilings. Typical thickness from 1mm - 5mm or more.

• **Pozzolana 420 RLS – Resurface or Surface Leveler**

Floors are constructed in the form of mortar or dry mortar specifically used in elevation repair or creating new floor surfaces. It is possible to mix with large aggregates, fibers, etc to enhance other properties of the floor. Thickness more than 20 mm.

• **Pozzolana® 425 SFT – Stamped, Formed, Textured Surface**

Shaped, molded, or patterned floor using small aggregates or colors. Typical thickness from 5mm or more.

• **Pozzolana® 429 SRT – Slip Resistant, Anti-slip**

Anti-slip floor using roughing aggregates to build anti-slip surfaces. Typical thickness from 2mm to 9mm or more.

• **Pozzolana® 435 EAS – Exposed Aggregates w/o Grinding**

Floor with exposed large aggregates having anti-slip characteristic (like pebble wash) with/ without surface grinding. Typical thickness from 5mm or more.

• **Pozzolana® 445 TSA – Tiles, Stones Adhesive**

Used as an adhesive layer for tile, stone slabs installation. Typical thickness from 5mm or more.

• **Pozzolana® 455 OMP – Object Molding or Precast**

Shaped or precast products can be produced in a variety of ways, including by mixing or casting with materials such as fibers, mesh, etc.

Note

Always carefully read the application instructions for the above products before applying. Before adding any additional material shall always test and do trials before applying on site. As materials in different locations often have different properties that can make a difference on the quality of the final product. There are additional products available to be used with Pozzolana® 400 Series to improve waterproofing, tensile strength or workability time. Other applications not covered by this document may be supplemented or made available upon request.

Disclaimer

The content of this technical datasheet corresponds to the latest developments and our experiences. All information is based on ideal conditions and therefore may not be completely accurate in actual construction. Due to different types of materials, surfaces and actual construction conditions, guarantees are not given for applications. We are not liable for this information or any verbal statements. The only exception is when we can be blamed for willful negligence in liability. In that case, the customer must prove that he has fully and promptly transmitted all necessary information to us for examination and resolution. Any other details relating to the construction of our products must be confirmed in writing by us. The customer must check the suitability of the product for the intended application and purpose. We reserve the right to change the specifications of products due to ongoing development. In addition, our general terms and conditions are valid. This product documentation supersedes all previous technical data on this product.



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