

Pro Kit International HB S-442 35 Kungälv, Sweden info@prokit.se	Treatment of Concrete Floors and Façade Plasters Surface Treatment	June 17, 2025 Page 1 of 5
---	---	--

Following is valid for mineral substrates that contain OPC and/or lime.

Concrete

Introduction

Concrete is a mixture in which Portland cement (OPC) is the binder, and fillers of coarse aggregate as gravel, and fine aggregate as sand in various fractions are included. Also other additives and admixtures can be included to improve the properties depending on the usage of the concrete.

When water is added the concrete hardens (hydrates) due to a chemical process. Once the water has evaporated from the concrete there is a pore volume of about 18% - it contains 180 dm³ of pores per m³. That is, it can absorb a maximum of 180 litres per m³ under pressure. Consequently, concrete can contain a lot of water.

Water can be absorbed as liquid, or as water vapour in the concrete pores. Moisture that can be transported through the network of pores and channels. Pores that consist of micro (<0.1 µm), capillary (0.1-100 µm) and air pores (>100 µm).

In general the water uptake for untreated mineral surfaces can be 500 g/m²/h^{0.5}.

Floors

Untreated concrete floor will always create dust with even light foot traffic. The dust consists of calcium hydroxide (lime) as when the Portland cement in the concrete mix hydrates, approx. 20% of its mass is converted into calcium hydroxide.

A dust that becomes airborne, falling down as a very thin powder. A harmful dust with a pH of >12, why it damages computerized equipment, machineries, merchandises, tools, and harmful by inhalation.

A harmful dust that all the time is generated when exposed to abrasion as the lime has such a low Absolute Hardness of 5, which is about same hardness as finger nails.

Even if the concrete floor daily should be cleaned, the more dust will be stirred up in the air as new dust will occur with foot traffic.

Measures

To get an untreated concrete floor stop dusting lime is easy, and inexpensive.

Treatment with **Pro Sealers** is a reliable cost-effective solution to get a dust-free concrete floor for at least the next 30 years.

Material cost about EUR 1.30 per m² at coverage 4 m² per litre.

Easy and fast to apply (30-40 m²/h) where the result is a floor with a water absorption of about 200 g/m²/h^{0.5} (to be compared with 500 g).

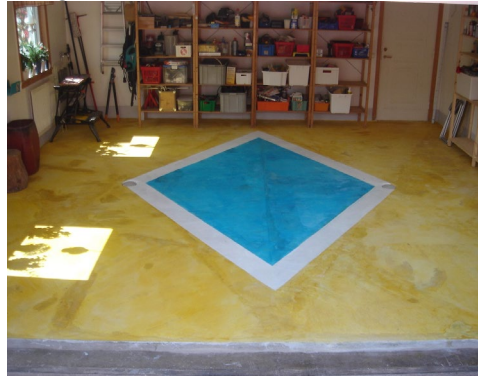
A floor with good resistance against various chemicals. (Detailed information upon request.)

The result is a concrete floor with good water repellent properties and makes spills easier to clean. High resistance against various chemicals and free from dusting lime and cuts down maintenance cost.

Besides a somewhat soft shine, the treatment will not affect the structure or colour of the floor. Should a coloured sealer be wanted, add suitable pigments. All pigments highly resistant against alkaline, weather and UV-light.



Before – Untreated Concrete Floor



After – Coloured Concrete Floor

Additional material cost about EUR 0.80 per m² at 4 m² per litre.
Now totally EUR 2 per m².

The coloured coating must be protected with a sacrifice film-forming sealer. (Similar as a wood floor must be protected with a lacquer against wear.) Material need 100-200 ml per m² depending on structure. Material cost about EUR 1.30 per m².

These treatments cannot flake or blister thanks to very low so called S_d-Value of <0.01 m. That means a very high water vapour diffusion why moisture cannot be accumulated in the concrete as the moisture can evaporate.

Previous Treated Floor

The concrete must not be coated with any sealer or paint as product should be used on bare mineral substrates only for penetration. Modern technology allows previous coatings to be removed by grinding.



Before – Previous Painted with Epoxy Paint



After – Ground, Honed and Impregnated

The result is a concrete floor with exposed aggregates and high gloss that reflects the light. But should only be made by skilled craftsmen and is nothing for DIY.

Placing New Concrete

When placing new concrete there are all reasons to include pigments to get integral coloured nice looking concrete floors. In order to reduce the costs for pigments, it is possible to first place not pigmented concrete. Then on top add a polymer-modified integral coloured concrete with thickness 5-10 mm. Same technology with thin polymer-modified concrete can also be made on existing old concrete floors.

Furthermore, sparkling effects can be achieved by using coloured glass. Where the translucent vibrant colours add a third dimension – depth of colour. Glass has an Absolute Hardness of 60 that is same as steel, and much harder than marble (Absolute Hardness of only 9). Which means floors with coloured glass will get a very high resistance against wear (abrasion).

The colouring of crushed glass is easily made by using suitable pigments. An addition of only 0.2% is enough. Furthermore, in contrast to coloured quartz sand, the coloured glass cannot lose its colour due to abrasion. Because the coloured glass is placed **in** the concrete and its colour is seen **through** the glass. Also coloured glass can be used with binders based on acrylics, epoxies and urethanes.

Plaster

See also separate pages **Lime Products – Tadelakt Technique**.

Introduction

Lime plaster is a mixture where calcium hydroxide is the binder, and graded fillers in various fractions. Also other additives and admixtures can be included to improve the properties depending on the usage of the plaster. Prior to use water is added to form a paste. When exposed to the air and added water is reduced, the carbon dioxide in the air causes the plaster to set by transforming the calcium hydroxide into calcium carbonate.

Cement plaster is a mixture of suitable lime, graded fillers and Portland Cement. When water is added the plaster starts to harden.

Once the water has evaporated from the plaster there is a pore volume similar as for concrete and can absorb water under pressure (heavy wind driven rain). So also façade plaster can contain a lot of water. Water can be absorbed as liquid, or as water vapour in the plaster pores. Moisture that can be transported through the network of pores and channels. Pores that consist of micro (<0.1 µm), capillary (0.1-100 µm) and air pores (>100 µm). A similar water absorption as concrete. I.e. about 500 g/m²/h^{0.5}, or even higher.

Facades

Untreated façade walls have a high water absorption why the facade becomes wet at rain. It is well-known that a wet façade has poor insulation properties in comparison with a dry façade. So a dry façade saves energy. Should the water not evaporate there is a risk for frost damages wintertime at temperatures below zero.

Furthermore, airborne organic dirt (pollen, fungi, etc.) will stick to the plaster surface. As well as sail through the air and collected on the window sills.

At precipitation the accumulated particles of dirt follow the rainwater down over the façade why the contaminated water is absorbed **in** the plaster. At dry weather the water evaporates from the plaster, but the water soluble dirt **stays in** the plaster. The result is typical "curtains" especially below the window sills where the dirt is built-up.

In consequence mould or mildew start to grow with ugly spots. Also green algae. A growth of mildew that contributes to retain moisture, and more growth of mildew.

Measures

The reason for the problem is in most cases the moisture why it is essential to reduce the absorption of water.

Treatment with **Pro Sealers** means that the absorption of the water will be reduced from about 500 g to about 200 g/m²/h^{0.5}.

Material cost about EUR 1.30 per m² at coverage 4 m² per litre.

Besides a façade wall with considerable lower risk for growth of mildew.

Should a coloured treatment be wanted, mix suitable pigments with Pro Reactive Sealers. Available in various colours from white to black. All pigments highly resistant against alkaline, weather and UV-light.

Additional material cost about EUR 0.80 per m² at 4 m² per litre.
Now totally EUR 2.10 per m².

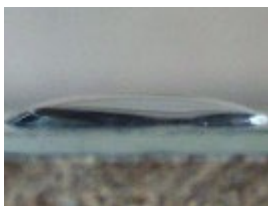
A treatment that cannot flake or blister thanks to the very low so called S_d-Value of < 0.01 m. That means a very high water vapour diffusion why moisture cannot be accumulated in the plaster as the moisture can evaporate.

Treatment with **Pro Sealers** will further reduce the water absorption to about 50 g/m²/h^{0.5}.

Its S_d-Value is 0.04 m why it also has very high water vapour diffusion.

Additional material cost about EUR 1.30 per m² at 8 m² per litre.

A treatment that protects against acid and heavy wind driven rain and keep the façade dry and clean. Where the flow of rain water will rinse off the dirt on the surface as the product has very high water repellent (hydrophobic) properties. So the water **lays on the surface** instead of **penetrating into the plaster**.



Untreated Surface



Treated Surface

The products can also be used on asbestos cement, bricks and concrete tiles.

All our products are waterborne and non-flammable. Not harmless for environment and health.

Pro Kit International HB S-442 35 Kungälv, Sweden info@prokit.se	Treatment of Concrete Floors and Façade Plasters Surface Treatment	June 17, 2025 Page 5 of 5
---	---	--

We are registered in the **Company Register** at **Swedish Chemicals Agency**, S-172 13 Sundbyberg, and follow the directions issued by the Swedish Chemicals Agency (KIFS 2005:17) and EC directives (EG No. 1272/2008).

Material Safety Data Sheets – **MSDS** – available on request.

For technical details see Technical Data Sheets (**TDS**) for actual product. Also available for our clients are complete detailed information about proper Installation.

In order to reduce freight costs, one of our products is supplied as concentrates where the end-users add necessary amount of water. The client pays for the essential product, and not for the water.

Mentioned prices are exclusive freight cost. Because freight cost per kilo is affected of actual quantity. The higher quantity, the lower freight cost calculated per kilo.

- o0o -