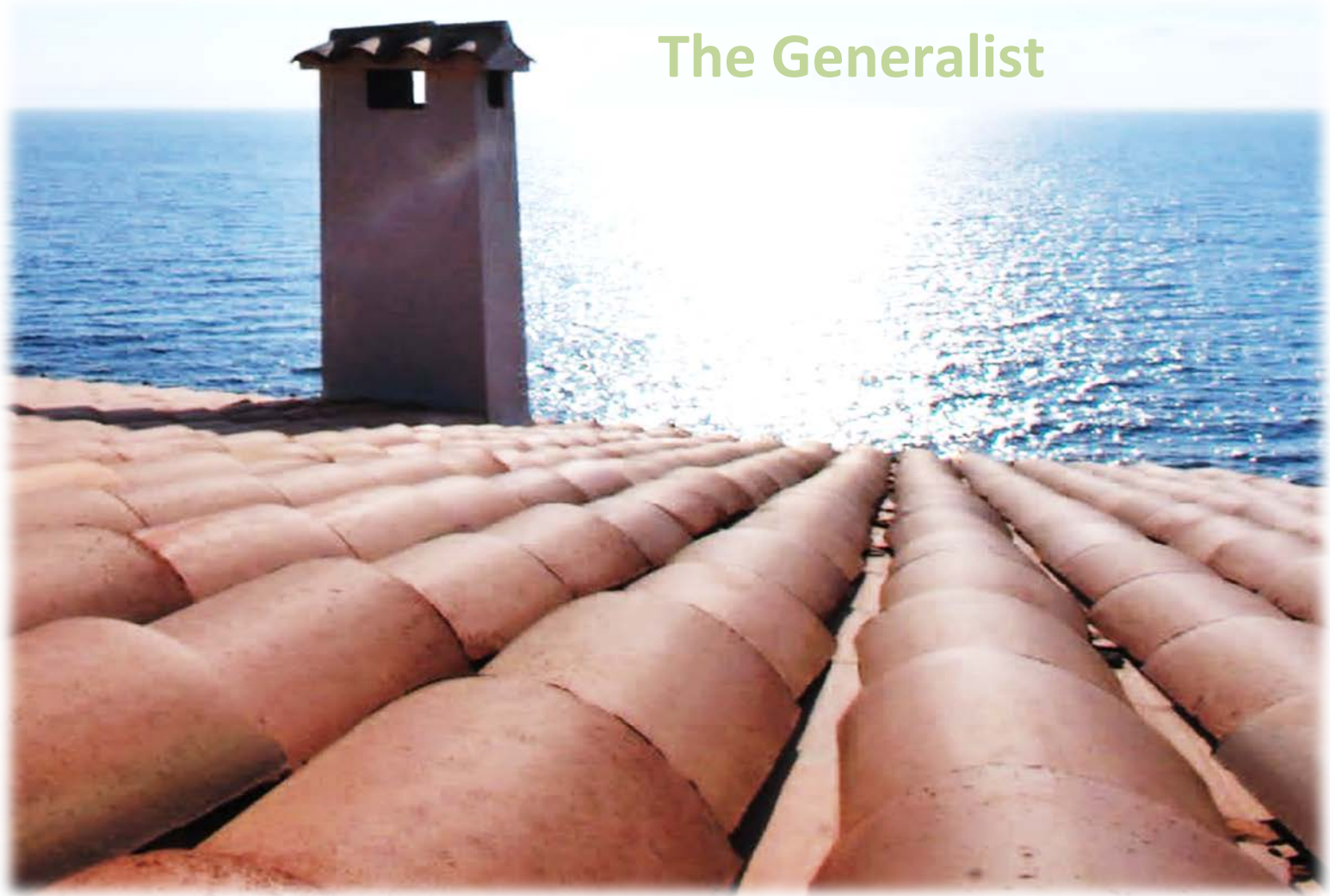


Cool Barrier Grip IPS



The Generalist



Effective Protection through Water-Repellent Treatment

Mineral materials are of the most used and stable building materials. However, even concrete buildings can be brought to their knees. Moisture is always a culprit in damage to concrete. When water freezes and thaws, the damage can be extensive. Water also acts as an undesirable transport medium for aggressive substances, such as the chloride ions present in road salt. Furthermore, it serves as a medium in which reactions can take place and as a reagent in destructive chemical processes, foremost among these being the corrosion of reinforcing steel. The best way to afford permanent and reliable protection for concrete is to use product that prevents water from being absorbed in the first place.



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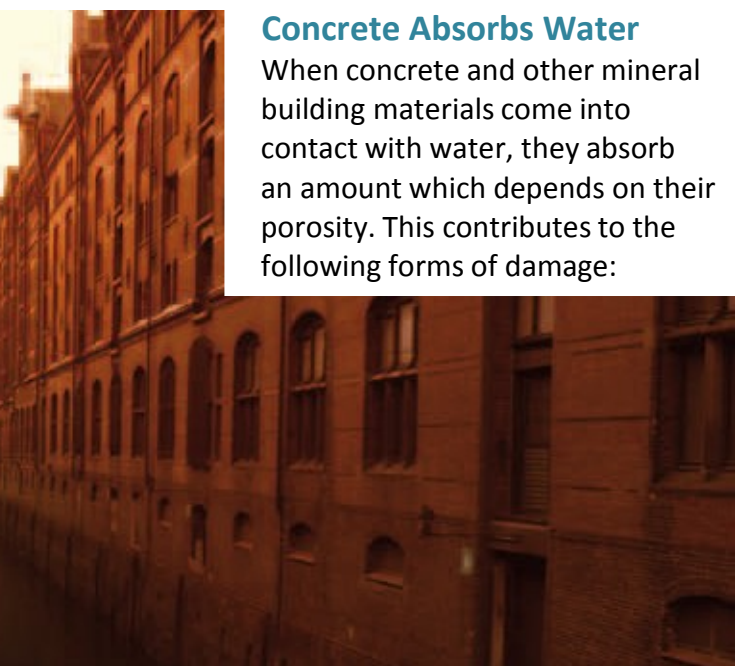
Cool Barrier Grip IPS

Freeze/Thaw Cycles, Road Salts and
Sea Salt Attack Concrete



Concrete damages always involve moisture.

Although water is important in making concrete, it can also be destructive. Furthermore, it carries aggressive substances such as chloride ions from road salts into the concrete. Water is also a reaction medium and partner for destructive chemical processes that particularly attack the reinforcement steel by corrosion.



Concrete Absorbs Water

When concrete and other mineral building materials come into contact with water, they absorb an amount which depends on their porosity. This contributes to the following forms of damage:

Typical Structural Damage

- Concrete destruction by corrosion of the reinforcing steel (chloride induced)
- Chemical corrosion, e.g. binder transformation by acidic gases (SO₂, NO₂, CO₂)
- Cracks by swelling and shrinkage
- Frost damage and freeze/thaw damage by road salts
- Efflorescence and salt damage by hydration and crystallization
- Lime leaching
- Rust stains
- Dirt pick-up and stains
- Fungal, moss, lichen and algal growth
- Impaired thermal insulation

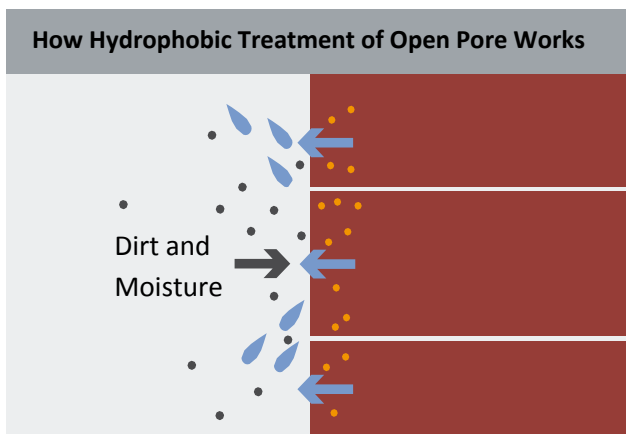
LASTING PROTECTION FOR BUILDING FABRIC – WITH COOL BARRIER MASONRY PROTECTION AGENTS

Cool Barrier Grip IPS is a solvent-diluted silicone hydrophobic agent, based on silanes and siloxanes. It is a ready to use product and serves as high-quality general-purpose water repellent for impregnating and priming mineral and highly alkaline substrates.

The mechanisms of water uptake by building materials are as varied as the possible forms of damage to the building

When mineral building materials come into contact with water, they absorb an amount which depends on their porosity. The result is various forms of damage. Many of these forms of damage can be prevented, or at least reduced or kept at bay for longer, by means of impregnation. Creation of a water-repellent zone considerably reduces the uptake of water and aggressive substances; the masonry remains dryer, and is consequently less prone to the kinds of damage referred to above.

However, this is only true of capillary water uptake, which is the “natural” water uptake by building materials when they come into contact with water – when a facade is exposed to rain, for example. There are various mechanisms of water absorption other than capillary water uptake, and these include condensation, capillary condensation, and hygroscopic water uptake.

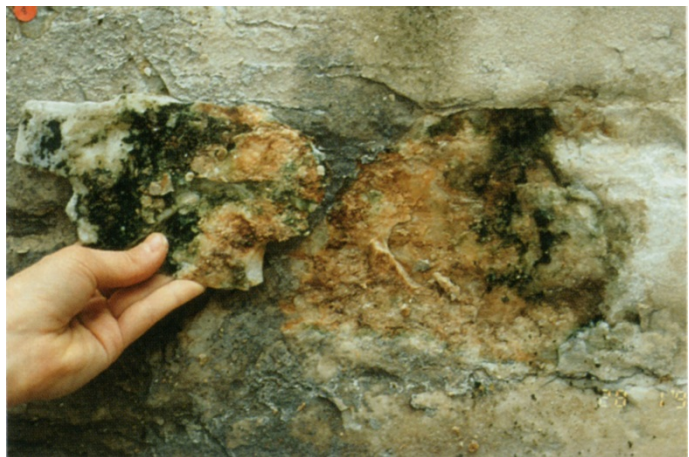


Cool Barrier Grip IPS protects against water, salts and grime. Water vapor can escape despite the water-repellent hydrophobic impregnating agent.

After application, Cool Barrier Grip IPS reacts with the atmospheric moisture or pore water in the substrate, thereby generating the active ingredient while liberating alcohol. The active ingredient greatly lowers the water absorbency of the substrate. Since neither pores nor capillaries are clogged, the substrate retains a very high degree of water vapour permeability.



Stone fabric damaged by the effects of salt and moisture.



Algal growth on exposed construction elements with a high moisture content.



Stone dirt pick up by the effects of atmospheric pollution.

AND **RESOURCES** ARE NOT INEXHAUSTIBLE

Energy efficiency is on the world's agenda. Bricks and other heavy clay ceramics need to be fired at high temperatures to reduce the amount of water they take up, and render them frost-resistant.

Methods for manufacturing bricks at a lower firing temperature to save energy result in a more open-pored structure. This causes greater water absorption, which can be offset with **COOL BARRIER GRIP IPS**.

Make Water Simply Roll Off

Water Simply Rolls Off Hydrophobic impregnation with COOL BARRIER GRIP IPS causes construction materials to repel water yet remain open to diffusion, thereby allowing them to breathe. The result is that water simply rolls off the surface, and water vapor escapes unhindered. This allows any existing damp areas to dry out, which also enhances the material's ability to insulate.

✓ Long-Lasting Roof Tiles

Hydrophobic roof tiles with Cool Barrier Grip IPS effectively prevent salt efflorescence and prolong the life-time of tiles.

✓ Attractive Facades

Facing bricks treated with Cool Barrier Grip IPS stay clean for a long time. Cool Barrier Grip IPS allows mortar residue to be easily removed and prevents salt efflorescence. Furthermore, it slows algal growth as well as dirt pickup.

✓ Clean Floor Tiles

Both internal and external salts can easily effloresce from unsintered, unglazed floor tiles and flowerpots. Water repellent hydrophobic impregnation with Cool Barrier Grip IPS stops this process for good and makes cleaning easier.

Furthermore, thermal insulation, an issue closely associated with energy efficiency, can only be satisfactorily achieved by applying a water-repellent, impregnating agent. After all, optimum thermal insulation requires dry masonry. **Five percent moisture content is enough to reduce the insulating ability by as much as 60 percent.**



Advantages of Hydrophobic Treatment:

- Durability
- Attractive appearance
- Thermal insulation
- Energy efficiency

Cool Barrier Grip IPS

MASONRY WATER REPELLENT

Table 1 shows, the Abolin's agent reduced the water vapor permeability by less than 20 %.

Table 1				
Mortar slabs (water/cement ratio)	Dilution	Abolin's agent absorption [g/m ²]	Weight loss [g/d]	Water-vapor permeability [g/m ² d]
Untreated	-	-	0.70	110.6
Cool Barrier Grip IPS	No	455	0.61	95.9

The Effectiveness of Cool barrier Grip IPS

Table 2, below shows test results for water uptake, beading and penetration depth of Cool barrier Grip IPS applied to different substrates. Normal tap water was used as diluent for the aqueous products. All substrates were impregnated by means of immersion (immersion times: 1 minute for mortar and concrete, 5 minutes for all other substrates). Water absorption was determined 14 days after impregnation, again by way of immersion (specimens were covered with 5 cm of water, in accordance with EN 12859). To determine the penetration depth, a specimen of each product was broken 14 days after Impregnation and dyed water was dripped onto the fracture surface.

Table 2					
Substrate	Dilution	Impregnating-agent absorption [g/cm ²]	Penetration depth [mm]	Beading effect	Water absorption [%] 24h
Sand-lime brick					
Untreated	-	-	-	5	12.9
Cool barrier Grip IPS	-	560	1-3	1	0.8
Brick					
Untreated	-	-	-	5	18.2
Cool barrier Grip IPS	-	2372	>50	1	0.16
Clinker-brick					
Untreated	-	-	-	5	2.6
Cool barrier Grip IPS	-	125	5-10	1	0.09
St. Margaret limestone					
Untreated	-	-	-	5	12.4
Cool barrier Grip IPS	-	1002	>20	1	1.1
Ettring tuff					
Untreated	-	-	-	5	17.8
Cool barrier Grip IPS	-	873	8-14	1	1.1
Burgpreppach sandstone					
Untreated	-	-	-	5	5.8
Cool barrier Grip IPS	-	370	2-6	1	0.3
Mortar slabs (water/cement ratio 0.5)					
Untreated	-	-	-	5	6.9
Cool barrier Grip IPS	-	183	1-3	1	1.2

Product description

Cool Barrier Grip IPS is a silicone agent that is based on silane / siloxane and is dilutable with organic solvents. The product serves as high-quality general-purpose water repellent, for impregnating and priming mineral and highly alkaline substrates. Cool Barrier Grip IPS can be combined with silicone based paints for substrate consolidation.

Properties

Cool Barrier Grip IPS after application, reacts with the atmospheric moisture or pore water in the substrate, thereby generating the active ingredient while liberating alcohol. The active ingredient greatly lowers the water absorbency of the substrate. Since neither pores nor capillaries are clogged, the substrate retains a very high degree of water vapour permeability.

Special features

- Good depth of penetration
- High alkaline resistance
- Tack-free drying
- Effective even on damp substrates
- Water repellency develops fast

Application

Cool Barrier Grip IPS is suitable for imparting water repellency to absorbent, porous, mineral construction materials, e. g.:

- Brickwork
- Mineral-based natural and artificial stone
- Aerated concrete
- Sand-lime brickwork
- Cement fiberboards
- Mineral paints
- All kinds of concrete
- Mineral plasters

Cool Barrier Grip IPS is also suitable as primer for exterior paints.

Cool Barrier Grip IPS is not suitable for rendering gypsum water repellent.

Processing

Flooding, preferably not under pressure, is the best technique for applying **Cool Barrier Grip IPS**, which is ready to use after dilution. Apply several coats, wet on wet, until the substrate is saturated. Generally, at least two applications suffice for all substrates. Do not leave long breaks between coats. Apply the next when the substrate has absorbed the previous one and is no longer-shiny (wet-on-wet working). The substrate must not have damp spots, i. e., it should look dry. The requisite quantity of **Cool Barrier Grip IPS** depends on the adsorbency of the substrate.

Before applying **Cool Barrier Grip IPS**, be sure to cover windows and other non-absorbent surfaces properly because the product cures so quickly that it will be extremely difficult, if not impossible, to remove after a few hours. Wipe off any splashes on window panes immediately, using a solvent if necessary.

Storage

Cool Barrier Grip IPS has a shelf life of at least 12 months when stored between 0 °C and 30 °C in the tightly closed original container. The containers must be protected against direct sunlight. The 'Best use before end' date of each batch appears on the product label. Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

Safety information

Detailed safety information is contained in each material data safety sheet, which can be obtained from our sales offices.

Product data*

Appearance: Clear to milky		
Active substance content, approx.	[wt %]	10
Density at 25 °C, approx.	[g/cm ³]	0.95
Viscosity, dynamic at 25 approx.	[°C]	10 mPa s

*These figures are intended as a guide and should not be used in preparing specifications.

Applications	Cool barrier Grip IPS
Sandstone	□□□
Sand-lime brick	□□□
Porous limestone	□□
Marble	□
Granite	□□
Brick	□□□
Mineral plaster	□□□
Concrete	□□
Reinforced Concrete	□□
□ Suitable □□ Highly Suitable □□□ Very Highly Suitable	

The figure quoted below is intended as an application guide only:

Material	Cool Barrier Grip IPS lit/m ²
Concrete	[l/m ²] 0.25 – 0.50
Plaster	[l/m ²] 0.20 – 0,30
Sand-lime brick	[l/m ²] 0.25 – 0.50
Brickwork	[l/m ²] 0.40 – 1.00
Aerated concrete	[l/m ²] 0.30 – 1.00
Cement fiberboard	[l/m ²] 0.10 – 0.30
Natural stone	[l/m ²] 0.05 – 2.00

NOTE:

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments.

The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used.

The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the products for a particular purpose.