KEIM CONCRETAL®

THE BEAUTY OF CONCRETE!

CONCRETE IS THE MOST WIDELY USED BUILDING MATERIAL IN THE WORLD.

CONCRETE – A BUILDING MATERIAL AS VERSATILE AS LIFE.

REVIVAL OF A BUILDING MATERIAL
Cold, grey, dull – for a long time concrete unfortunately had quite negative associations. This mix made of cement, sand and water had a real image problem even though it is the most used building material worldwide. But times have changed and today concrete is once again taking its rightful place as a reputable building material. Planners, designers or builders – they all appreciate the raw and original aesthetics of fair-faced concrete.

COLOUR MEETS CONCRETE
Whether the facade or the interior– the modern possibilities of designing and finishing concrete have an unlimited potential. A colour finish in glazing technique for example with tinted semi-transparent coatings enhances the character of the concrete, underlines its unique texture and mineral beauty.

CONCRETE COSMETICS
Sometimes concrete behaves like a diva and tends to have unexplainable streaks, discolouration or blowholes that affect the surface appearance substantially. At this point the concrete glaze comes into play, a mineral stain which, when diluted in various degrees, helps to conceal visual shortcomings so that the finish looks like original intented. This special kind of cosmetics has already salvaged a number of famous buildings by reviving its concrete surface.

„Concrete is a very demanding material. The beauty of what you create emerges when you respect the building material's nature." Louis J. Kahn

CONCRETE? NATURALLY!

MOTHER NATURE PROVIDES THE INGREDIENTS

The basic recipe for concrete is very simple and nature supplies everything needed: Cement from limestone and clay, sand, gravel and water. Cement is an indispensable element for concrete production and when combined with water, cement paste is produced. In this way the elements bind together forming into hard rock.

THE MIX MAKES THE DIFFERENCE!

Concrete is not always the same. Different kinds of concrete are manufactured with different formulations depending on the feature requested: Load-bearing capacity or safety, thermal protection, moisture protection, fire or sound protection.

Unlimited possibilities in every sense: Design function, indoor climate, fire or sound protection. No other building material is as versatile as concrete!

MINERAL PAINTS FOR A MINERAL BUILDING MATERIAL!

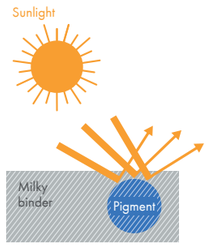
SILICATE PAINTS ON CONCRETE

Silicate paint materials do not form a film on the concrete surface like synthetic resin based coatings. The binding agent is a water-soluble potassium water glass which forms an insoluble bond with the substrate by a chemical reaction, the so-called silicification.

CRYSTALLINE REFLECTION

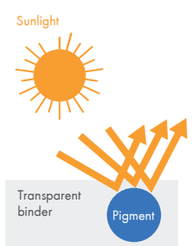
Mineral binders allow light rays to hit the colour pigment directly creating a brilliant reflection bringing the structure to life. The texture is coated but still shines through. This retains and even enhances the material character when concrete parts under the surface show in places a different absorbency resulting in different colour intensities.

COMMON DISPERSION PAINTS



THE PIGMENT IS COATED BY THE MILKY BINDER. LIGHT REFLECTION IS DULL AND FLAT.

KEIM SILICATE PAINTS



THE PIGMENT IS EMBEDDED IN TRANSPARENT WATER GLASS, CREATING DIRECT AND BRILLIANT LIGHT REFLECTION THAT UNDERLINES THE STRUCTURE.

MINERAL NATURE OF THE CONCRETE LOOK

Matt, silicate coatings look much more natural than synthetic coatings. Dispersions lead to dry layer thickness between 0.3 mm and 0.5 mm thus levelling irregularities and cover the material texture of the concrete. Appearance and haptics are distorted, violating the natural beauty of the concrete.

Mineral coatings don't overlay the natural concrete texture, in fact they accentuate. This is especially the case when the application is performed in glazing technique with semi-transparent up to highly translucent coatings. Mineral paints, stains and glazes retain the aesthetic of the material even with a colour design and provide clearly more flexibility than tinted concrete.

Design in glazing technique with different dilution degrees

„Concrete has a rough quality which I like. Architecture should have a vital, earthy charisma and not look smooth and polished.“ Zaha Hadid

KEIM CONCRETAL® – PROTECTION THAT VALUES AESTHETICS

PROTECTION AND AESTHETICS
Possible concrete decay and necessary protection grades on one hand and the implementation of architectural intention on the other hand often seem to be contradictory. But the demand for design and requirements for preservation and protection do not exclude each other. Quite the contrary is true! KEIM protects concrete efficiently and retains at the same time its mineral character.

A PLUS OF OPTIONS
A differentiated diagnosis of the concrete surface that needs treatment opens up an entire row of individual protection and design possibilities. Concrete can be whitewashed, colour washed, painted, glazed or coated with a render material. It can also be treated with a water repellent or CO_2 protection. Any design variant provides a different appearance and impression.

KEIM Concretal is mineral matt protection and pure concrete aesthetics!

BENEFITS
KEIM Concretal is convincing:
- Low diffusion resistance which means fast redrying and excellent moisture protection
- UV-stable and absolutely light-resistant
- Highly weather-resistant
- Unequalled durability
- Natural, matt concrete appearance
- Non-combustible
- Easy to renovate

KEIM CONCRETAL®-LASUR PURE AESTHETICS

Fair-faced concrete – one of the biggest challenges and at the same time an important element in architecture. Contrary to highly synthetic-modified systems the mineral glaze highlights the natural character of concrete in a unique way and provides an additional weathering protection. KEIM Concretal-Lasur offers unlimited design possibilities – from highly transparent to opaque – and is definitely much more flexible and economical than tinting concrete!

KEIM CONCRETAL®-LASUR REFINES THE LOOK OF CONCRETE

FOR HIGHEST DEMANDS
Protection and finishing of fair-faced concrete surfaces is always associated with two aspects: A definition of protection requirements that are suitable for the situation and condition and the preservation of the characteristic look of concrete surfaces.
KEIM Concretal-Lasur combines both demands and represents on the market an exceptional system.

SENSATIONAL DESIGN ELEMENT
Concrete as building material characterises our building environment significantly. It defines the character of individual constructions or entire residential areas and it influences the urban landscape and working environments. The focus of planners and builders is more and more oriented towards the aspects of design. Architects especially appreciate the chance to be able to use the same material for both the construction and the design.

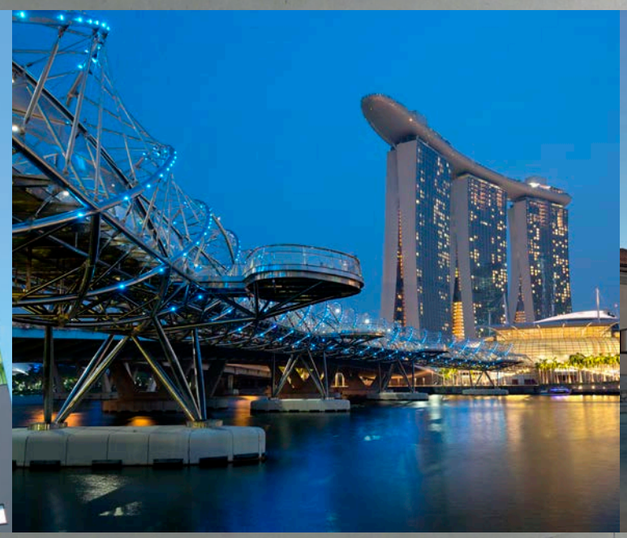
BENEFITS
- Original concrete aesthetics
- Retaining of texture and structure
- UV-stable
- Perfect equalisation of unevenly appearing fair-faced concrete surfaces
- Strengthening action by silicification

KEIM Concretal-Lasur was applied semi-transparent to the concrete surface to enhance the character und to underline the texture, the inner structure and the visual feature.

EVERYTHING GREY IN GREY OR BETTER COLOURFUL? WE CAN DO BOTH!

THE CHOICE IS YOURS!
KEIM Concretal-Lasur-System consists of KEIM Concretal-Lasur, KEIM Concretal-Base and KEIM Concretal-Fixativ. All three system components can be mixed with each other in any desired ratio. This is a maximum of flexibility and enables a natural and visual colour matching of the concrete surface.

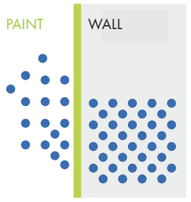
REPRESENTATION OF DIFFERENT DILUTION LEVELS
From opaque (left) to very transparent (right)



DEFINITELY DRY WITH KEIM CONCRETAL®-W

OPTIMAL WATER PROTECTION
KEIM offers a complete range of concrete protecting paints. Depending on the concrete quality and external influences they comply with demands on aesthetics, protection and safety. KEIM Concretal-W with a low water vapour resistance and water absorption coefficient protects concrete optimally from weathering influences and penetrating water which prevents the corrosion of the concrete steel. A filled variant, KEIM Concretal-W-Grob, is used as priming coat on difficult and repaired concrete surfaces: It closes hairline cracks and levels texture irregularities.

KEIM CONCRETAL®-W ALLOWS THE MOISTURE TO ESCAPE



MOISTURE IN MASONRY CAN DIFFUSE UNHINDERED. THE MASONRY REMAINS DRY AND THE PAINT IS NOT AFFECTED.

KEIM CONCRETAL®-W KEY FEATURES
- Extremely low sd-value < 0.01 m
- Elevated protection from weathering by surface consolidation
- Absolutely light-resistant thanks to pure mineral pigments (highest colour stability class „A1“)
- Minimal soiling
- Preservation of the original concrete aesthetics by the mineral matt surface
- Easy to renovate
- Tested according to DIN 1504-2

MINERAL MATT SURFACE
Pure mineral colour pigments guarantee absolute light fastness (highest colour stability class „A1“) and ensure brilliant colours for years! Plus, the original concrete aesthetics remains preserved.

KEIM CONCRETAL®-BLACK

THE DEEPEST BLACK KNOWN TO CONCRETE!

BLACK – STRONG, TIMELESS, ELEGANT
Black facades are a statement of our time. Setting individual and powerful accents in five shades of Black.
KEIM Concretal-Black opens up new dimensions in designing concrete. KEIM Concretal-Black is absolutely light-resistent, UV-stable and highlights the natural beauty of concrete.

BENEFITS
- Intense black
- Absolutely UV-stable: Black stays black!
- Mineral matt aesthetic appearance

FIVE CLASSY COLOUR NUANCES FOR DIFFERENT COLOUR EFFECTS:

PURITY

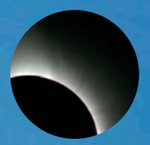
Pure black is pitch-dark, somewhat dramatic and has a graphic effect that is hard to resist.
KEIM Concretal-Black Purity - the pure power of black!

AURORA

A black night glows with the harmonic red of the rising sun.
KEIM Concretal-Black Aurora – like the warm mood of a splendid sunrise.

FOREST

Deep black with a touch of mystic green.
Inspired by the fir trees of the mystical Black Forest.
KEIM Concretal-Black Forest – the mysterious black.



ECLIPSE

Pure black accentuated by a light yellow tone.
KEIM Concretal-Black Eclipse – unique like the natural spectacle of a solar eclipse.

PEARL

Elegant black with a deep blue nuance. Inspired by the dark pearls from the depths of the ocean.
KEIM Concretal-Black Pearl – precious like a South Sea pearl.

Company building at Crolles by Paul&Seguin Architectes, Grenoble
Photo: © Paul&Seguin Architectes

WHAT CAUSES CONCRETE DECAY?

External influences, manufacturing faults or defects in workmanship, constructive shortcomings or combinations thereof may result in serious concrete decay.

FOR ETERNITY
Concrete is used wherever protection and safety are requested. Foundations, bridges, tunnels or skyscrapers have to withstand strongest environmental influences. Even concrete, formerly promoted as being »forever«, is not spared from decay.

CONSTRUCTIVE DEFICIENCIES DURING THE BUILDING BOOM
The use of concrete has been increased since the middle of the 20th century. But at that time quality requirements and technologies were not at today's level. So, you may come across older concrete buildings with ageing phenomena and decay such as spalling and corrosion. The causes are manifold, entailing a considerable need for renovation.

HAZARDS
In the course of time concrete is attacked by weathering and thus allows water and pollutants to enter. Moss and algae growth lead to visual shortcomings and increase the damaging effect. A high water absorption in combination with frost will destroy the structure of the concrete causing rust on the reinforcement and leads to considerable damages.

OVERVIEW OF HAZARDS
- Weather
- Water
- Shallow depth of cover
- De-icing salts
- Constructive deficiencies

PROTECTIVE OPTIONS FOR CONCRETE

Good concrete, very low carbonation

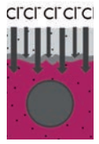
WEATHERING PROTECTION
Silicate coatings can protect concrete surfaces long-term from weathering thanks to their strengthening action (silicification). An extra treatment of the substrate with a hydrophobing agent even increases the weathering protection.

Carbonation zone is very close to the reinforcement

CO_2 PROTECTION
The concrete surface must be sealed in such a way that CO_2 cannot penetrate. For a functioning CO_2 protection the pores and blowholes have to be always closed by filling (full-cover filling) before coating. Just a coating alone would be insufficient in this case.

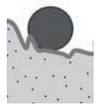
Reinforcement is already located in the carbonated area

WATER PROTECTION
Water accumulation in the concrete is prevented by a high water-repellency of the outside surface and extreme water vapour permeability from inside to the outside (rust protection by keeping the concrete dry).



High chloride load

CHLORIDE PROTECTION
Chloride salts are transported into the concrete by water. Chloride protection also means water protection. In this way the penetration of chloride-loaded water is prevented and dry concrete guaranteed. Chlorides that are already present in the concrete cannot become active.



Large areas of the reinforcement are close or right at the concrete surface

ADDITIONAL COVERING
Additional cover with a concrete replacement material is required for lasting protection. By spray application of an extra layer thickness from 1 to 3 cm is the material strongly compacted in order to avoid carbonation. A subsequent coating of the surface is performed for visual reasons and as weathering protection.

Carbonated concrete
Non-carbonated concrete

Carbonation end
Steel reinforcement

KEIM CONCRETAL®-C FOR ADDITIONAL CO_2 PROTECTION

KEIM Concretal-C – the most colour-stable CO_2 concrete protection coating! KEIM Concretal-C, formulated with purely mineral pigments, excels by its convincing, long-lasting colour stability.

MOST COLOUR-STABLE CONCRETE PROTECTING PAINT
KEIM Concretal-C is used when an extra CO_2 protection is needed for the protection of concrete surfaces. The CO_2 tightness of this system plays a key role for certain application cases. Despite a marginal synthetic content which guarantees the CO_2 tightness, KEIM Concretal-C allows beautiful, colour intensive surfaces by adding absolutely mineral pigments.

CO_2, WATER AND CHLORIDE PROTECTION
The special formulation of selected raw materials enables a CO_2 tightness with fast redrying. The water absorption coefficient ensures fast drying and protects in this way the building material from steel corrosion, frost damages, chloride corrosion as well as from a progressing carbonation.

STANDARD REQUIREMENTS
KEIM Concretal-C complies with European standard DIN EN 1504-2 for repair principles 1.3, 2.2, 8.2 and German standard DIN V 18026 for a surface protection system OS4.

KEIM CONCRETAL-C KEY FEATURES
- Long-term colour stability thanks to pure, mineral pigments
- Protection from steel corrosion, frost damages and chloride corrosion
- Very fast redrying of the concrete
- Protection from progressing carbonation by a very good CO_2 tightness

KEIM CONCRETAL® CONCRETE REPAIR

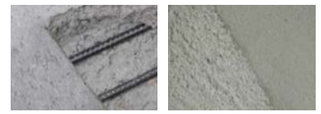
TWO SYSTEMS
Two tried and tested systems are available for the repair of defective places. All products are slightly modified, cement bound building materials (PCC) that are mixed with water only.

CONCRETE REPAIR ACCORDING TO HIGHEST STANDARDS
Tested according to all cases of application of the ZTV-ING* and with a general building authority test certificate this system can be used for the industrial as well as for the building construction.

The system comprises the following components:
- KEIM Concretal-MKH (corrosion protection and bonding bridge)
- KEIM Concretal-MR 2.0 (concrete replacement mortar)
- KEIM Concretal-FSP 0.2 (fine filler for levelling)

ZTV-ING* TESTED SYSTEM STRUCTURE

COMPLETE REPAIR WITH JUST ONE MATERIAL
Simple, fast and safe concrete repair in definite terms: Performance with one product only!
The material serves as corrosion protection because of its very good adhesion property and makes a bonding bridge unnecessary. The high content of fine particles provides a stucco-like smoothing of the surface. Classic application fields include structural engineering but also constructions made from lightweight concrete.
KEIM Concretal-UM 0.5. One for all.



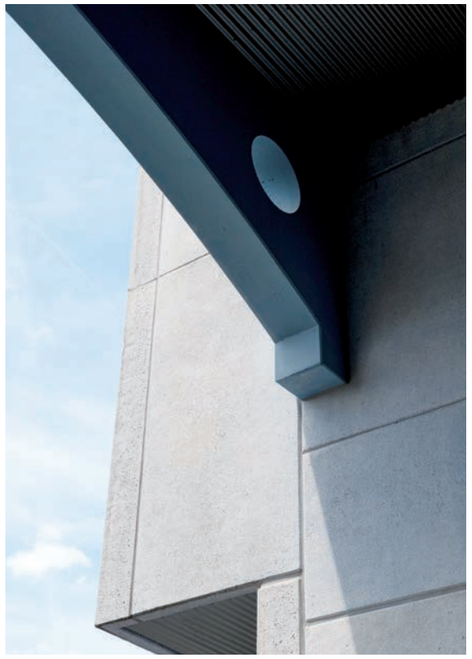
DIN 1504-3 TESTED SYSTEM STRUCTURE

* Additional technical terms of contract and guidelines for civil engineering works

EFFICIENT MOISTURE PROTECTION FOR CONCRETE

SURFACES MUST NOT ONLY MEET AESTHETICAL DEMANDS ...
Besides visual demands surfaces must also fulfil requirements for the inside climate and the associated comforts in a home. A crucial contribution comes from the outer shell in protecting the inside from the weather.

... BUT ALSO PROVIDE PROTECTION FROM UNCONTROLLED MOISTURE.
Particularly uncontrolled moisture influences from outside can seriously interfere the durability and also the indoor climate of a building. Water-repellent treatments and impregnations from KEIM provide a decisive factor that exceeds clearly aesthetical demands.



KEIM CONCRETAL® CONCRETE SYSTEMS – OVERVIEW

KEY FEATURES
- Low diffusion resistance which means fast redrying and excellent moisture protection
- UV-stable and absolutely light-resistant
- Highly weather-resistant
- Unequalled durability
- Natural, matt concrete appearance
- Non-combustible
- Easy to renovate

APPLICATIONS			
CLEANING	REPAIR	WATER-REPELLENCY/ CONSOLIDATION	COATING SYSTEMS
KEIM Concretal-Cleaner KEIM Dispersionsentferner KEIM Algicid-Plus	KEIM Concretal-MKH KEIM Concretal-MR 2.0 KEIM Concretal-FSP 0.2 KEIM Concretal-SD KEIM Concretal-UM 0.5	KEIM Silan-Primer*1 KEIM Silan-100 KEIM Concretal-Fixativ	KEIM Concretal-Lasur KEIM Concretal-Fixativ (Dilution) KEIM Concretal-Base (Dilution) KEIM Concretal-W KEIM Concretal-C

PROTECTION GRADES				
WATER PROTECTION	CO_2PROTECTION	CHLORIDE PROTECTION	WEATHER PROTECTION	ADDITIONAL COVERING
KEIM Silan-Primer*1 KEIM Silan-100*2 KEIM Concretal-W KEIM Concretal-C	KEIM Concretal-C*3	KEIM Silan-100 KEIM Concretal-W KEIM Concretal-C	KEIM Concretal-Fixativ KEIM Concretal-Base KEIM Concretal-Lasur KEIM Concretal-W KEIM Concretal-C	KEIM Concretal-MR 2.0

*1 Only in combination with a subsequent coating
*2 Also possible in combination with Concretal-Lasur
*3 Only in combination with blowhole filling

For more information:

KEIM takes responsibility for society and for the environment. The certificate Cradle to Cradle Certified® confirms our commitment and the use of environmentally friendly, healthy and recyclable materials, a climate-friendly and responsible production process and the use of renewable energies.

KEIMFARBEN GMBH

KEIM. COLOURS FOR EVER.

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