

**KEIM**



# KEIM AQUAROYAL®

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FACADE PROTECTION IN HARMONY WITH NATURE



INTELLIGENT SYSTEM  
TECHNOLOGY  
FOR SUSTAINABLE  
FACADE PROTECTION



# KEIM AQUAROYAL® – BECAUSE THE FUTURE NEEDS RESPONSIBILITY



## CLEAN FACADES

The principle of sustainability has underpinned the whole of KEIM's approach to business for more than 140 years. It is an integral part of the design of our portfolio of both products and systems. This means, on the one hand, that our products are manufactured in an environmentally friendly way and, on the other hand, that they contribute to the protection of natural resources because of their extremely long durability.

## CLEAN ENVIRONMENT

Thanks to the safe combination of products without any added solvents or preservatives, harmful emissions and polluting waste, which can put our ecosystem at risk, have never been an issue with paints from KEIM. This also excludes the use of biocides to combat the growth of algae and fungi, which is standard practice in the industry, especially on thermally insulated facades.

## BUILDING PHYSICS INSTEAD OF BIOCIDES

With KEIM AquaROYAL, we were the first company to successfully develop a system that is not based on „killing“ any growing infestation of algae and fungi, but instead uses the laws of building physics and so minimises the conditions for microbial infestation as far as possible. Prevention rather than cure – preventing moisture instead of applying biocides. This is totally in line with protecting the environment and our health and follows the guiding principles of our company's founder of looking carefully to the future and later generations.



RenewablePLUS - KEIM products are manufactured 100% with green power: Our contribution to a better future!

# PREVENTING ALGAE WITH NATURAL MINERALS

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## THE DEW TRAP

Moisture encourages algae to grow. The longer it remains on the surface of the facade, the faster the microbial organisms will grow. Heat-insulated facades are more affected by this, because they are colder on the surface and therefore damp for longer. The moisture load caused by condensation on facades is much more critical than how much rain hits a surface. The periods of time in which condensation can form due to weather conditions are many times longer than periods of rain.

The product systems must therefore be designed so that

- no condensation occurs,
- periods below the dew point will be reduced,
- surfaces remain clean to prevent the formation of nutrients for algae and fungi.

## PREVENTION WITH A SYSTEM

KEIM AquaROYAL - a sealed render and paint system optimised in terms of building physics, which is characterised by the precisely coordinated hygro-thermal behaviour of the individual layers, meets these requirements with outstanding performance.

**Intelligent system technology:  
Prevention rather than cure –  
building physics instead of  
biocides!**



# SYSTEM TECHNOLOGY FOR SUSTAINABLE FACADE PROTECTION

## HYDROACTIVE

KEIM AquaROYAL system uses capillary forces of mineral building materials to control the moisture balance of the system structure via controlled water absorption and to prevent the formation of drops of dew on the surface of the facade. Moisture is absorbed directly by the hydrophilic silicate coating, leaving the surface virtually drip-free.

## DIFFUSIBLE

Moisture is temporarily stored in the paint and finishing render. The capillary-active moisture transport inside the finishing coat and the high permeability of the paint ensure unrivalled fast re-drying.

## THICK LAYERS

The thick-layer system structure ensures an increased heat storage capacity, which delays the point at the dew point temperature is reached. The silicate coating also reduces the tendency to become dirty.

## SYSTEMATIC

The strict allocation of the individual components guarantees that the system works properly and keeps the risk of microorganisms growth to a minimum. Base coat render, top coat render and the paint finish are clearly defined and, unlike in other systems, cannot be combined at will or used in different thicknesses. The way the layers interact to maintain moisture balance is also known as hydroactivity.

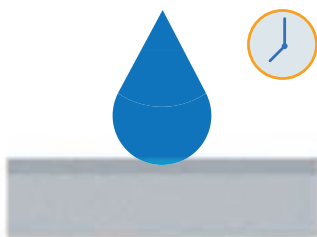


Photo: Ingo E. Fischer / Köln

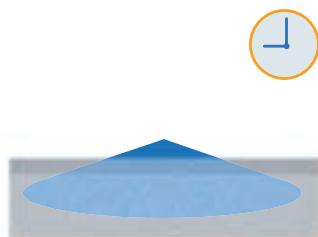
**KEIM AQUAROYAL**  
hydroactive – mineral – thick  
layer – without any biocides!



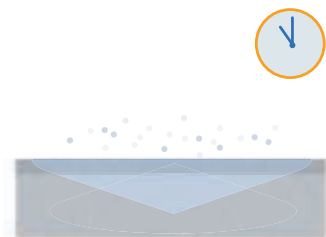
## THE HYDROACTIVE EFFECT MECHANISM



Absorption of the dew moisture due to the hydrophilic coating layer.



Moisture is buffered in the top coat render.



Quick re-drying due to the hydroactivity of the individual layers.

# ALWAYS THE RIGHT SYSTEM: KEIM AQUAROYAL® AT A GLANCE

WITH YOUR INSULATION MATERIAL	SECURELY GLUED	SAFELY REINFORCED	SECURE AGAINST GROWTH
<p><b>Multipor-Mineralschaumplatte</b> mineral foam panel non-combustible, best environmental properties, high heat storage <math>\lambda = 0.045 \text{ W/mK}</math></p>	<p><b>KEIM XPor-Leichtmörtel</b> mineral lightweight render mortar to glue the insulation panels</p>	<p><b>KEIM XPor-Leichtmörtel</b> mineral lightweight render mortar, ideal coordinated for Multipor insulation panels for embedding the KEIM Glass fibre mesh 4x4</p>	<p><b>KEIM AquaROYAL-Mineralputz</b> hydroactive, mineral quality render in rough and grooved structure with 2mm and 3mm, as well as with a smooth texture (on MW, EPS and HFD)</p> <p><b>KEIM AquaROYAL-Color</b> silica sol-silicate paint with hydrophilic surface and hydroactive properties</p>
<p><b>Mineral wool</b> not flammable, can be used universally <math>\lambda = 0.035 \text{ W/mK}</math></p>	<p><b>KEIM Pulverkleber-90</b> mineral adhesive to glue the insulation panels</p> <p><b>KEIM Klebespachtel</b> organic adhesive compound for wooden substrates</p>	<p><b>KEIM AquaROYAL-Reinforcement mortar</b> hydroactive mineral reinforcing mortar for embedding the KEIM Glasfaser-Gittermatte (fibreglass mesh) 6x6</p>	
<p><b>EPS-insulation panels or stone wool insulation panels</b> flame-resistant <math>\lambda = 0.032 \text{ W/mK}</math></p>			
<p><b>Wood fibre insulation panels</b> renewable raw material, ecological insulation</p>			

## TESTED

The functionality of the hydroactive KEIM AquaROYAL system has been thoroughly investigated by the Fraunhofer Institute for Building Physics both under laboratory conditions and in the field. In laboratory tests, the system showed almost no exposure to surface moisture, which was also confirmed in field tests over the course of the year, corresponding test areas confirmed the considerably lower condensation volumes compared to a standard organic external thermal insulation composite system.

## PRACTICAL TRIALS

Many years of practical experience and countless examples show that ETICS with KEIM AquaROYAL are effective and significantly reduce the growth of microorganisms. The use of mineral renders and paints does not lead to any age-related changes in the properties

of the material. This ensures that the building physics effects are active and sustainable for many years after the system has been applied.

## PRIZE-WINNING

The „Blue Angel“ award is also proof that the system meets the highest standards of environmental, health and usage properties.



[www.blauer-engel.de/uz140](http://www.blauer-engel.de/uz140)

# HYDROACTIVE TECHNOLOGY MEETS CREATIVE DESIGN

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Material, texture and colour of the facade determine the character of a building. The design possibilities that KEIM AquaROYAL systems offer are almost inexhaustible. The colour depth of KEIM AquaROYAL-Color ticks every box. From powerful to delicate, everything is possible. Even colour-intensive and dark tones can be achieved perfectly with the KEIM AquaROYAL system.

Creative techniques enable a wide variety of surface effects and it is precisely the combination of different materials that creates striking looks that are ideal for outlining building shapes, structuring facades or differentiating facade elements. Smooth, rough, glossy and matt surfaces in different structures and colours create exciting combinations and contrasts on the facade and allow maximum creative freedom for an unmistakable appearance of your facade.

Let us inspire you!







# KEIM AQUAROYAL®: ADDED VALUE FOR HUMAN BEINGS, THE ENVIRONMENT AND THE FACADE



## THE ADVANTAGES AT A GLANCE:

- Algae and fungus prevention without biocides, without the addition of preservatives and solvents
- No damage from moisture - permanently dry masonry
- Maximum resistance to weathering
- Low tendency to become dirty
- Unmatched colour stability - long life span
- Reduced frequency of needing to be renewed
- Safety due to non-flammable building materials
- Almost unlimited design possibilities
- A healthy indoor climate all year round - warm in winter, cool in summer

**KEIM AquaROYAL combines the advantages of mineral building products with an innovative system technology – sustainable and saving resources.**





**KEIMFARBEN GMBH**

Keimstraße 16 / 86420 Diedorf / Tel. +49 (0)821 4802-0 / Fax +49 (0)821 4802-210  
Frederik-Ipsen-Straße 6 / 15926 Luckau / Tel. +49 (0)35456 676-0 / Fax +49 (0)35456 676-38  
[www.keim.com](http://www.keim.com) / [info@keimfarben.de](mailto:info@keimfarben.de)

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