KEIM ECOSIL®-ME

HIGH TECHNICAL PERFORMANCE CAPACITY FOR HEAVILY FREQUENTED INTERIOR AREAS

„Quick-change artist" photocatalysis – what it is and what it does ....

Photocatalysis describes a reaction activity. "Catalysis" defines the acceleration in the chemical reaction of material (=catalyst) which is not consumed in this process.

The „catalyst" itself induces a chemical reaction and does not change, it remains principally stable. A common example is a catalytic converter in the car. In this application it decomposes and splits toxic gases into harmless substances. During this reaction the catalyst „regenerates" itself and thus remains functional for a very long life.

And, „photo" signifies that a material acting as catalyst (or „accelerator") is activated by light.

In brief:
During photocatalysis a substance (=„catalyst") is activated by light (=„photo") to induce or accelerate a chemical reaction, without consuming itself. The catalyst regains its original state after the reaction.

A commonly known example of a photocatalysis is the photosynthesis of plants: The green of the leaves (=chlorophyll) acts as catalyst being activated by daylight to „produce" oxygen and dextrose from water and carbon dioxide.

Photosynthesis and a catalytic converter in the car - nature and technics using the principle of photocatalysis

Photocatalysis in paint formulations

Our Industry has now adopted the principle of photocatalysis for paint formulations. Here, a particularly fine (on a scale of nano values) pigment serving as catalyst has the property to induce the photocatalytic processes.
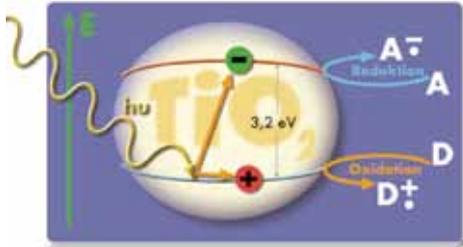
Principle of the photocatalysis in paints:
A special pigment is used as photo catalyst. An electron hole pair is generated by absorbing a photon. After the electron has been released through (D) the pigment waits again in its original state and is ready for a new catalysis cycle.
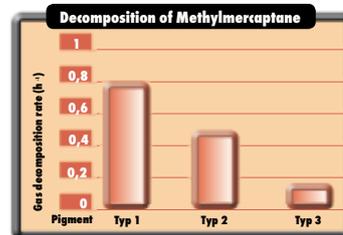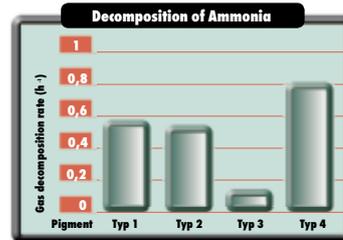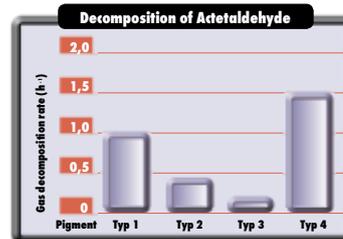

This type of a pigment is now blended into paint formulas which use the chemical reaction that now is accelerated by photocatalysis.

A photocatalytically active pigment (=catalyst) can principally decompose organic pollutants and odours. This process transforms these materials through a corresponding reaction into small, harmless components. This requires light as „trigger" and also oxygen from the air.

Decomposition rates depend on the time of exposure to light and its intensity as well as the organic substance itself.

In principle: With higher light intensity and longer exposure to light, - the better the effect. But light is not always light. The photocatalytic pigment needs normal UV-light. But UV-light is partly absorbed by window panes. However, for some pigment types normal light from interior halogen lamps is sufficient to induce photocatalytic effects.

Summary:
Photocatalytic paints improve the quality of the air!

The following noxious gases or pollutants are decomposed:
- ***Noxious gases when using interior areas, for example furniture or carpet degassing or cigarette smoke: formaldehyde/acetaldehyde***
- ***Industrial pollution or motor traffic, which means primarily nitrogen oxides***
- ***Fatty-like soilings such as stearates***
- ***Even bacteria and mould spores can be significantly reduced by using photocatalysis.***

Photocatalytic special pigments

Measuring conditions:

Gas volume:	3.000 ml
Light source:	40 Watts black light
UV-intensity:	1.0 m W/cm²
Exposure surface:	50 cm²
Measuring method:	gas detector

Coating conditions:

Substrate:	Metal sheet
P/B:	1.0
Binder:	Si-type
Layer thickness:	10 μm (dry)
Drying:	120°C - 60 min.

Photocatalytic paints reduce pollutants and odours – a plus for health and environment

KEIM Ecosil®-ME – photocatalytic and highly abrasion-resistant

KEIM Ecosil-ME is a highly specialised silicate based interior paint with a photo-calalytic effect that is distinguished by its technical performance profile. In this sensational way KEIM Ecosil-ME connects a maximum of mechanical stability with an excellent health profile and the so called MiNOx®-effect. KEIM Ecosil-ME is the only silicate paint for interior use which actively optimises the air in the room by the photocatalysis principle. Photocatalytically active pigments in combination with the silicate binder reduce noxious gases and odours and transform these into uncritical substances. This occurs very simply with the influence of daylight.

KEIM Ecosil-ME is highly resistant to abrasion and cleaning (wet abrasion resistance, class 1 as per DIN EN 13 300) and stands up to elevated requirements for mechanical stability. Therefore, KEIM Ecosil-ME is the ideal solution for coating heavily stressed walls.

KEIM Ecosil-ME is especially suited for areas with a high requirement regarding air quality in high traffic areas such as, entrance halls or staircases, in hotels or restaurants, in hospitals or schools.
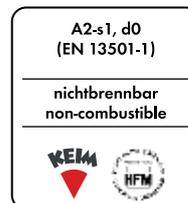
Wet abrasion resistance, class 1

Advantages of silicate paints

Of course, KEIM Ecosil-ME offers also all the other advantages of a real KEIM silicate based interior paint:

- High diffusion openness for dry walls and healthy room climate
- Non-combustible to avoid toxic gases in case of fire
- No solvents or plasticisers added, therefore no pollutant emissions and no coating-related fogging effect ("black walls")
- Proven suitability (certificate) for people with allergies
- Hinders mould due to natural alkalinity
- Fungi-resistant (certificate)
- Excellent ecological profile
- Mineral matt surface appearance
- Sustainable, listed in the database of DGNB
- Non-combustible
- Disinfectant resistance

IUG
Prüf-Nr. 2459
Allergiker-geeignet

DGNB
NAVIGATOR

Registrierungs-Code
9PKFUN
www.dgnb-navigator.de

KEIM Ecosil-ME

**A2-s1, d0
(EN 13501-1)**

nichtbrennbar
non-combustible

KEIM   HFM

**DIN EN ISO
4628-1**

Beständig gegen
Desinfektionsmittel
disinfectant resistance

KEIM   TÜV
zertifiziert

KEIM. COLOURS FOR EVER.