

# LIGHT WORKS

HT coating



LIGHT  
WORKS



# HT-coated ceramic for light-active façades.

## Focus on façades

For several years, the commitment towards energy-efficient buildings has led to a range of problems with façades turning green on account of algae and moss. Environmentally-friendly use of natural resources makes sense but must not stand in the way of economic aspects such as maintenance and operating costs across the entire life of the building. Not to mention the use of chemicals which are detrimental to the soil.

## Intelligent solutions

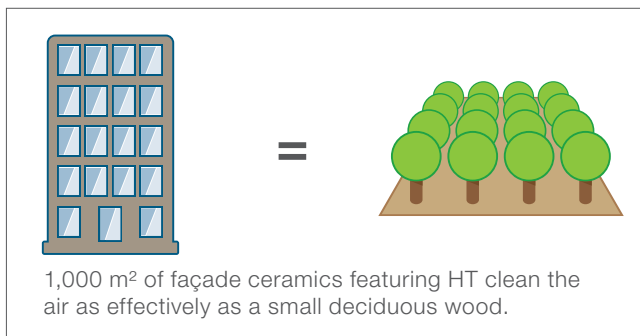
Each building also contributes to the individual micro-climate of its environment, whereby complex interactions are possible between the building and its respective surroundings. Within the context of sustainable building, the use of innovative materials offers entirely new and intelligent solutions for designing extremely positive effects of a building on its environment.

## Sustainable efficiency

One convincing example is represented by façade ceramics featuring the revolutionary HT coating (Hydrophilic Tile). HT-coated ceramic helps to

- **actively break down air pollutants, industrial and car fumes,**
- **decisively impede the growth of moss, algae, mould and other microorganisms,**
- **significantly reduce and facilitate the cleaning effort associated with the façade surface.**

**And all of this simply through the effects of light!**





Senukai Office, Kaunas, Lithuania / Architect:  
Natkevicius ir Patneriai Raguvo 4, Kaunas, Lithuania  
Products: KeraTwin® (K20)



Green lungs now also available in colour



This impressive effect is documented in a film. Simply follow the QR code.  
[www.clean-air-ceramics.com/air](http://www.clean-air-ceramics.com/air)



Ting 1, Örnsköldsvik, Sweden / Architect: Wingårdh Arkitektkontor AB, Göteborg/Stockholm/Malmö  
Products: KeraTwin® (K20), special colours

# HT – breathable air made **clean.**



## Activated by light

HT technology works without any further chemical treatment – and therefore without any detriments to human health. When exposed to light, the titanium dioxide in the surface glaze triggers a simple physical reaction referred to as photocatalysis. This process releases activated oxygen on the surface which can significantly decompose industrial and car fumes such as  $\text{NO}_x^*$  from ambient air.

## Active air cleaning

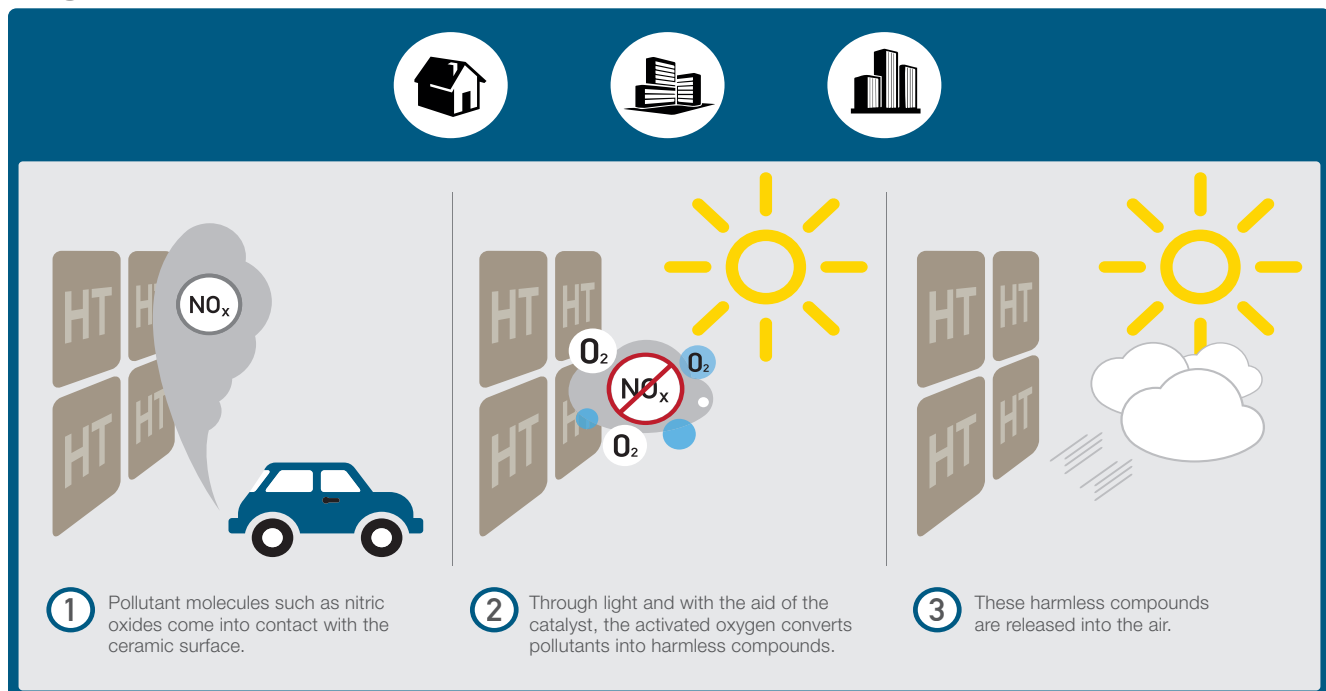
The photocatalytical process acts like an air freshener here: when pollutant molecules come into contact with the façade surface, titanium dioxide as a light-activated catalyst immediately transforms them into mineral salts which are entirely harmless and which are then simply washed away the next time the tiles are cleaned. This significantly improves the air quality in the vicinity of the building.

## Naturally effective

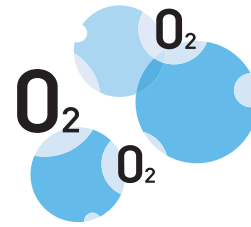
This unique characteristic makes HT-coated façades an ideal choice for planners and architects when it comes to designing new buildings or modernising the façades of existing ones – particularly in urban environments. An innovative decision of long-term significance for the environment!

\*  $\text{NO}_x$  is an irritant gas which penetrates far into the lungs and can cause damage to the mucous membranes. It is transferred with HT into a water-soluble form which is then washed out of the air by humidity and rain.

## Degradation of pollutants:



Renowned test institutes confirm these effects.  
See page 11.



# HT – **light-active** against mould, moss and algae.

## No greening

The activated oxygen on the surface of the HT-coated façade released by the photocatalytical process effectively breaks down moss, bacteria, fungi, algae and mould. At the same time, the formation of new microorganisms on the surface of the façade is effectively impeded. This effect is scientifically confirmed by tests conducted by independent research facilities.

## Active against microorganisms

HT activates oxygen in the air in a photocatalytical process which decomposes microorganisms such as algae and moss. At the same time, new growth is effectively impeded, whereby HT is entirely non-toxic and free of irritants.

## Constantly effective

The effect of reducing microorganisms is continuously renewed as soon as the HT-coated façade is exposed to light. And this continues across the entire life of the building. With the result that the façade is permanently protected from greening without using any harmful biocides. And the effort associated with cleaning measures is significantly reduced.



**Renowned test institutes  
confirm these effects.  
See page 11.**



Baarcity, Baar, Switzerland / Architect: Theo Holz  
Partner AG, Zurich / Products: KerAion® Quadro



Ensuring that white stays white



The film demonstrates the antibacterial effect. Simply follow the QR code.  
[www.clean-air-ceramics.com/antibac](http://www.clean-air-ceramics.com/antibac)



Bouwhuis, Zoetermeer, Netherlands /  
Architect: Klunder Architecten, Rotterdam  
Products: KeraTwin® (K1)



3rd effect

A clean-cut affair



Just how HT-coated ceramic ensures clean façades is shown in a film. Simply follow the QR code. [www.clean-air-ceramics.com/clean](http://www.clean-air-ceramics.com/clean)



Orchard Hotel, Nottingham, Great Britain / Architect: RHWL Architects, London / Products: KeraTwin® (K20), special colours, clamp fastening





# HT – **light-active** to combat soiled façades.

## The weather is always on your side.

Sunlight permits particularly intensive photocatalysis. The antibacterial effect breaks down algae, fungi and moss. When it rains, the following happens: water does not form droplets or balls (“lotus effect”) which ineffectively pearl off or dry leaving unattractive marks but rather a wafer-thin film is formed. This self-washing effect rinses off dirt and soiling.

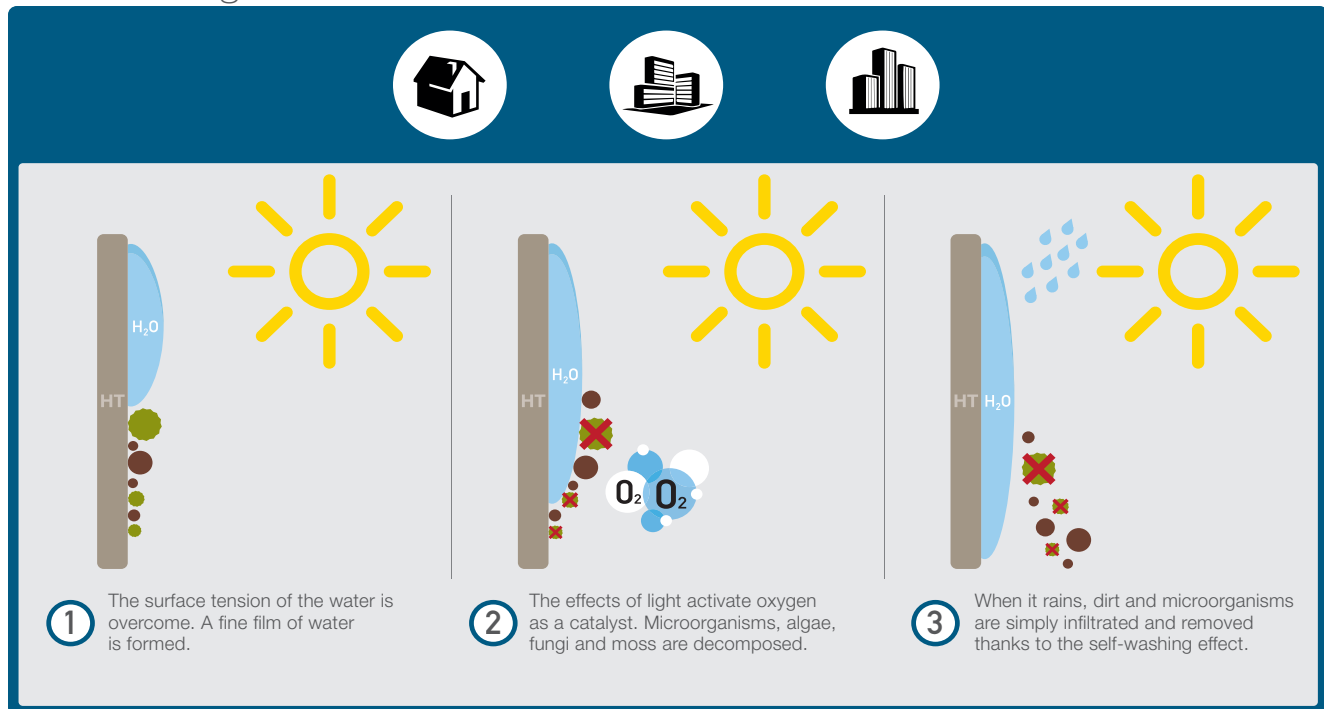
## Effectively inexpensive

The distinctive self-washing effect means that HT effectively reduces the costs of cleaning across the entire service life of coated façades. This surface makes HT-coated façades an ideal coating for any building exterior.

## Active against dirt

This water film ensures that even the tiniest particles of dirt and stubborn residue which is difficult to remove under normal conditions are thoroughly infiltrated, detaching them from the surface. The result is a clean surface.

## Self-washing effect:



➔ Renowned test institutes confirm these effects.  
See page 11.

# HT ceramic: **safe, long-lasting - efficient.**

## Product guarantee by Deutsche Steinzeug

During the production process, the HT coating is bonded permanently at a high temperature with the façade surface – making it practically indestructible. This is even covered by our unique long-term guarantee!

## The positive tile properties are retained.

Tiles are:

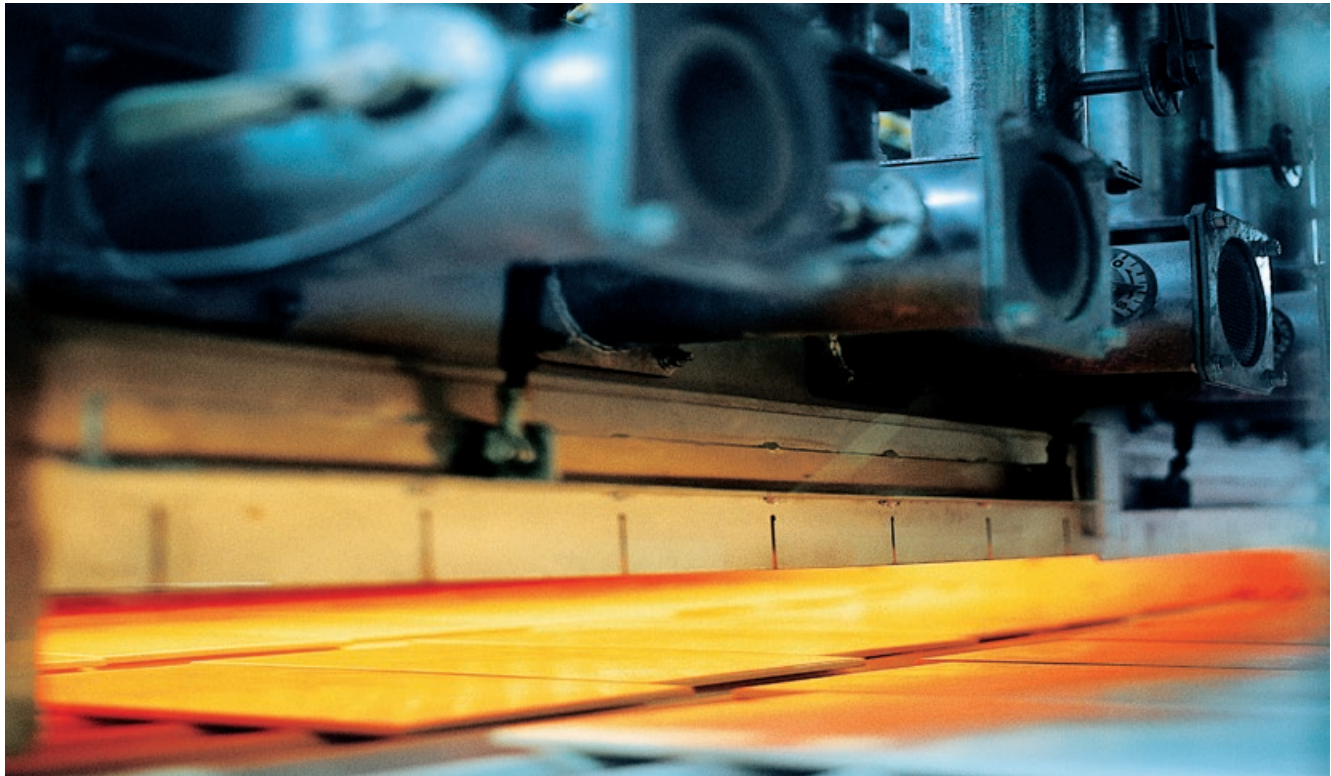
- colour- and light-fast
- incombustible
- free of emissions and solvents
- resistant to chemicals
- antistatic
- thermally conductive

## Optimised ceramic

Façade ceramics for use on buildings have long been materials displaying outstanding product characteristics. They are light-fast over the long term, entirely impervious to wind and weather and therefore practically wear-free. In the case of the HT coating, the outstanding properties displayed by ceramic are decisively optimised.

## Naturally safe

As a natural substance, titanium dioxide is harmless and can be found in toothpaste, food or medication, for example. In the factory, it is permanently burned into the glaze at a high temperature thereby bonding firmly with the surface.



HT is permanently burned into the surface.



# HT technology: **convincing.**



Apartment building, Kilchberg, Switzerland  
Architect: Horizon Architektur + Bau AG, Zurich, Switzerland  
Products: Chroma II, special colour

## Test certificates

Deutsche Steinzeug collaborates with renowned test institutes which confirm the effects of HT. Simply follow the QR code for the full test reports:



[www.clean-air-ceramics.com/testreports](http://www.clean-air-ceramics.com/testreports)

### **Antibacterial effect:**

- Fraunhofer Institute Schmallenberg (ISO 27447)
- Dr. Ralph Derra, ISEGA – Forschungs- und Untersuchungs-Gesellschaft mbH Aschaffenburg

### **Decomposition of pollutants/odours:**

- Fraunhofer Institute Braunschweig (ISO 22197-1)
- Fraunhofer Institute Holzkirchen
- Prof. Dr. Horst Kisch, Friedrich-Alexander University of Erlangen/Nuremberg

### **Easy cleaning:**

- Fraunhofer Institute Braunschweig (ISO 10678:2010)

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