

# FACADE CERAMICS

Ceramic tiles for thermal insulation  
composite systems



DEUTSCHE  
STEINZEUG  AGROB BUCHTAL









## Contents

### TICS

Introduction	04 – 05
System design	06 – 07

### Products

ChromaPlural color system	08 – 09
Series: colors and sizes	10 – 13

Reference projects	14 – 19
--------------------	---------

HT coating	20 – 23
------------	---------





Apartment building, Kilchberg, Switzerland / Horizon Architektur + Bau AG, Zurich, Switzerland





## TICS: aesthetic ceramic – outstanding energy efficiency

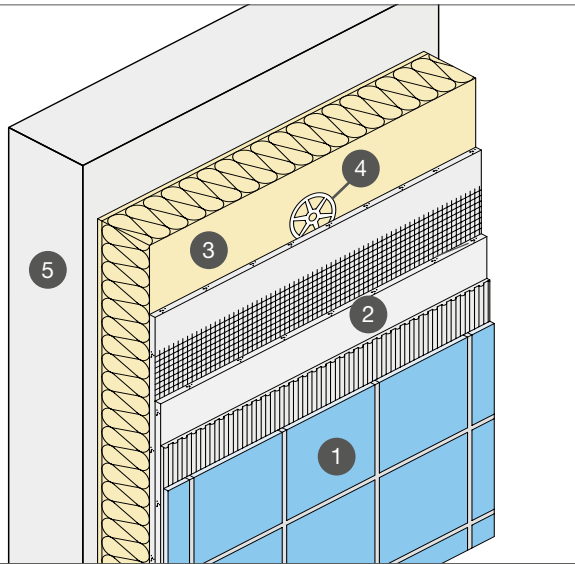
Energy-saving, noise-insulating, weatherproof and attractive over the long term: ceramic thermal insulation composite systems (TICS) fulfil all requirements on a perfect building shell, whereby the ceramic covering not only proves to be durable and color-fast – the large selection of sizes, surfaces and colors also offers extensive possibilities for design. Special customised products – a particular strength of AGROB BUCHTAL – reveal additional levels of freedom as illustrated by the reference projects in this brochure. Thermal insulation composite systems comprising three components (insulating layer, reinforcement and surface covering) save heating costs

while providing thermal protection in the summer. New guidelines governing facade insulation will increase the significance of TICS in the years to come. Nevertheless, only approved system components should be used, e.g. non-flammable insulation systems with mineral wool or rock wool insulating panels with ceramic surface covering for high-rise facades and more stringent fire safety requirements. Considerable advantages are also offered by TICS facades following building refurbishment projects: leasing is facilitated and HT coatings mean that low-maintenance facades generate only minimum maintenance costs.

# TICS: system design

The thermal insulation composite system comprises insulating boards fixed to the wall using plugs and bonding mortar. A ceramic covering is fixed by bonding on an integrated textile glass reinforcement mesh. The joints must occupy a surface of at least 6% per square metre. Installation of this system is

based on the respective general approval provided by the construction supervisory authority. A test certificate is available for the application of ceramics on a thermal insulation composite system.



Schematic diagram

- 1 Ceramic covering material
- 2 Bonding mortar with reinforcement mesh
- 3 Insulating board
- 4 Fixing by plugs
- 5 Wall

## Essential system advantages

- + Multiple applications for new buildings and refurbishments
- + Can be combined with many products in the ChromaPlural system, thereby offering great freedom of design with 58 colors and a wide selection of sizes; sustainability and easy cleaning thanks to the self-washing effect guaranteed by the HT coating
- + Can be realised using the robust and durable Craft, Ferrum, Goldline, Natural Ceramic and Oxyd split tile series – in many natural shades and offering a lively play of colors
- + Covering material is light- and color-fast as well as UV-resistant

## Technical values and properties

- Stoneware tiles to DIN EN 144 11, groups AI<sub>b</sub>, BI<sub>a</sub>, BI<sub>b</sub>, AII<sub>a</sub>
- Split tiles to DIN EN 144 11, AII<sub>a</sub> group
- Weight of 11-25 kg/m<sup>2</sup> (depending on thickness and size)
- Frost-resistant
- Light- and color-fast, UV-resistant
- Resistant to aggressive environmental influences
- Building material classes: usually A1 or B1 depending on type of insulation material (e.g. mineral fibres or polystyrene rigid foam)





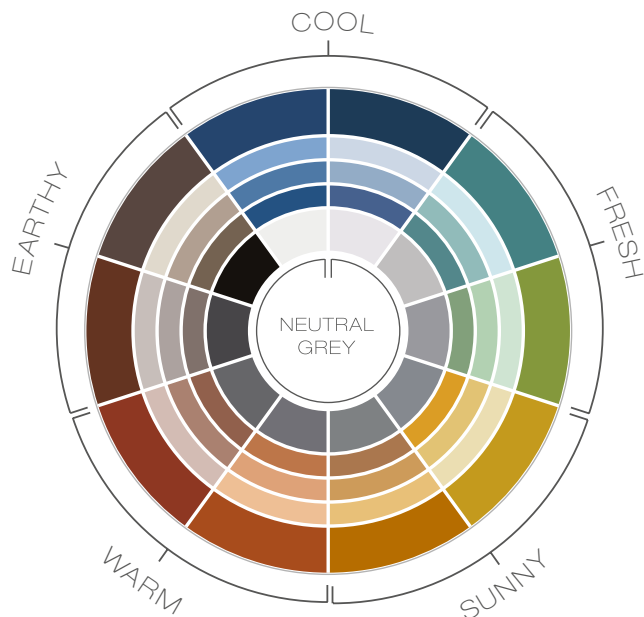
Apartment building, Zurich, Switzerland / Kissling + Roth Architektur, Zurich, Switzerland



Lee Shau Kee Building, Hong Kong, China / Dennis Lau & Ng Chun Man architect & Engineers (H.K.) Ltd.

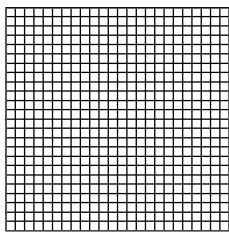
# CHROMAPLURAL

## New colors in architectural ceramics

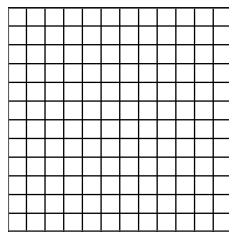


Contemporary colors inspired by nature form five color spheres in graded shades which are supplemented by ten neutral grey tones from black to white. As all colors are co-ordinated, the new color concept creates an ideal combination of freedom and security in color design. Apart from flowing color transitions, ChromaPlural also permits the realisation of monochromatic concepts which are supported by subtle co-ordination of the color ranges. Silky-matt surfaces follow the logic of the canon of colors.

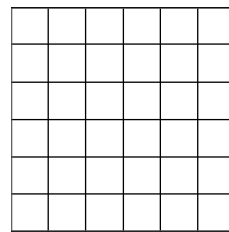
### ChromaPlural sizes



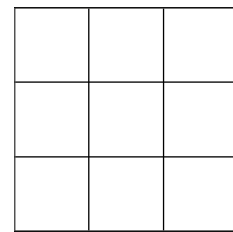
1 x 1 cm\*



2.5 x 2.5 cm\*



5 x 5 cm\*



10 x 10 cm\*



6.2 x 25 cm



10 x 20 cm



10 x 30 cm



12.5 x 12.5 cm



12.5 x 25 cm



15 x 15 cm



20 x 20 cm



25 x 25 cm



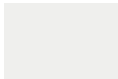
30 x 30 cm

\* For the use of mosaics on the facade, a special production foil-bonded on the face side is necessary.





See page 22 for HT coating.



neutral 10  
(active white)



dark azure



medium azure



light azure



active azure



neutral 9  
(white-grey)



dark blue



medium blue



light blue



active blue



neutral 8  
(light-grey)



dark turquoise



medium  
turquoise



light turquoise



active turquoise



neutral 7  
(pebble-grey)



dark green



medium green



light green



active green



neutral 6  
(pearl grey)



dark yellow



medium yellow



light yellow



active yellow



neutral 5  
(basalt-grey)



dark ochre



medium ochre



light ochre



active ochre



neutral 4  
(graphite-black)



dark salmon



medium salmon



light salmon



active salmon



neutral 3  
(asphalt black)



dark oxide red



medium  
oxide red



light oxide red



active oxide red



neutral 2  
(anthracite)



dark stone grey



medium  
stone grey



light stone grey



active stone grey



neutral 1  
(deep black)



dark sand grey



medium  
sand grey



light sand grey



active sand grey

Contrasting colors  
Chroma (glossy)



white

Contrasting colors  
Plural



deep anthracite



black



deep yellow



orange



deep blue



lemon yellow



deep orange



contrasting red



deep green



intense blue



deep red



apple green



violet



## Mixed mosaics

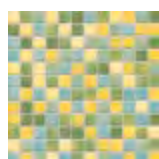
Special highlights: HT-coated mixed mosaics in three sizes permit the realisation of impressive facade designs.



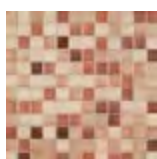
Cool color sphere



Neutral color sphere



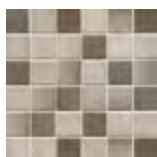
Fresh color sphere



Warm color sphere



Sunny color sphere



Earthy color sphere

## Goldline

Rustic look: warm colors and fine glossy effects ensure a harmonious overall impression.



gold ochre



gold sienna



gold cream



gold brown



gold grey



gold black

## Sizes



8.3 x 25 cm



12.5 x 25 cm



15 x 15 cm

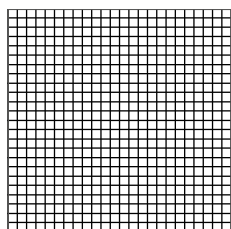


15 x 30 cm

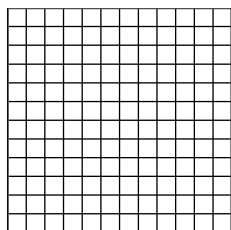


25 x 25 cm

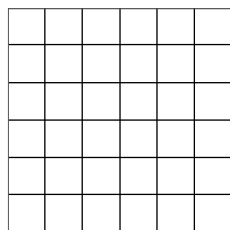
## Sizes



1 x 1 cm\*



2.5 x 2.5 cm\*



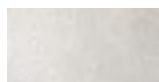
5 x 5 cm\*

\* For the use of mosaics on the facade, a special production foil-bonded on the face side is necessary.



## Oxyd

Unique character: the interplay of material and flaming makes each tile one of a kind. The colors are reminiscent of earth, stone and sand.



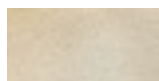
white flamed



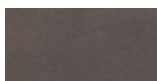
black



anthracite flamed



ochre flamed



taupe flamed

## Sizes



6,2 x 25 cm



8,3 x 25 cm



12,5 x 12,5 cm



12,5 x 25 cm



25 x 25 cm

## Craft

Artisanal character: these products in 11 contemporary colors are distinguished by a high gloss, an intensive glaze and 3-D effects.



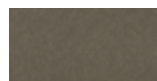
white



blue-green flamed



amber flamed



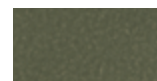
dark grey



medium grey



golden-yellow flamed



olive-green flamed



jade-green



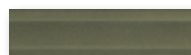
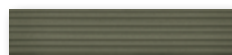
beryl-red



benit-blue



hematite-black

Strip tile  
6.2 x 25 cmStrip tile Skirting  
6.2 x 25 cmStrip tile, wave profile  
6.2 x 25 cmV-pointed profile  
6.2 x 30 cmGrooved profile  
6.2 x 30 cmDouble-tip tile\*  
13.6 x 31 cm

Residential and commercial building,  
Baden, Switzerland / Schoop Architekten AG,  
Baden, Switzerland

\*Developed in collaboration with Meier Hug Architekten

## Sizes



6.2 x 25 cm



6.2 x 30 cm



13.6 x 31 cm



## Ferrum

Authentic natural product: fine veining and a wide range of colors from grey white to stone grey ensure harmonious facade design.



grey white



light beige, grained



brown range



stone grey



grey beige

## Natural ceramic

Archaic look: these products are characterised by a classic look and fine traces of craftsmanship.



autumn foliage



natural red



portofino



Steps, Ferrum series

## Sizes



12.5 x 25 cm

## Sizes



12.5 x 25 cm



25 x 25 cm

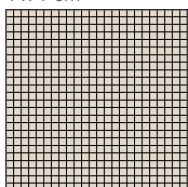
# MOSAICS

## Small sizes, large effects

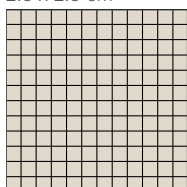
With their variety of colors and sizes, ceramic mosaics extend the range of individual facade design. Specific use of various sizes ranging from mini 1 x 1 cm mosaics through 2.5 x 2.5 and 5 x 5 to 10 x 10 cm enables patterns which liven up expansive areas. One successful example is represented by the facade of the Brooklyn Children's Museum (below) which has a smooth and conclusive effect when seen from afar but

reveals its fine texture when examined up close. Even rounded shapes can be realised using mosaics. Multiple design options are also offered by the wide range of harmoniously co-ordinated colors – plain or as mixed mosaics representing six individual color spheres. All mosaics are HT-coated. To ensure perfect adhesion to the substrate, the mosaic mats are foil-bonded on the face side (special production).

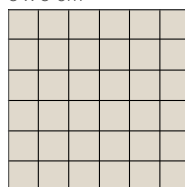
1 x 1 cm\*



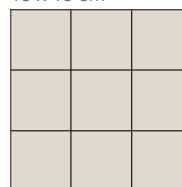
2.5 x 2.5 cm\*



5 x 5 cm\*



10 x 10 cm\*



\*For the use of mosaics on the facade, a special production with foil-bonding on the face side is necessary.

Brooklyn Children's Museum, New York, USA / Rafael Viñoly Architects





# INTERNATIONAL REFERENCES



Sonnenhof Retirement Centre, Wil, Switzerland / Meier Hug Architekten

## Soft, fine-veined texture

The distinctive stoneware facade of the retirement home in Wil, Switzerland is characterised by a type of double wave with peaked borders, a concave intermediate area and slightly angular edges. The design developed in collaboration with AGROB BUCHTAL ensures a differentiated and exciting

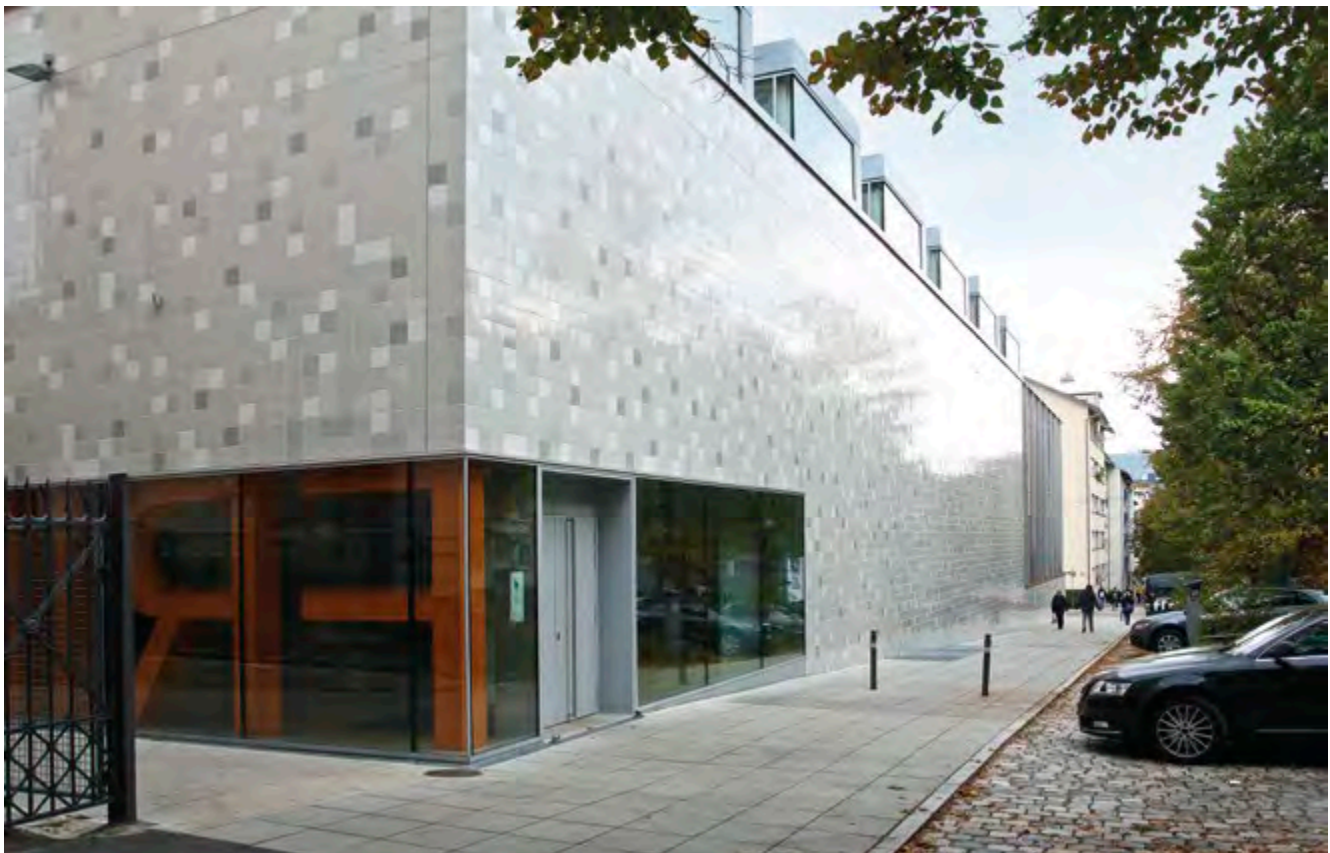
interplay by light and shade while lending the facade a soft and delicate texture. Julia Kirsten Eisenhuth from Meier Hug Architekten: "The glossy glaze reflects the surroundings and underlines the lively appearance."







Stiftung Vivendra, Dielsdorf, Switzerland / Architect: L3P Architekten ETH FH SIA, AG, Regensberg, Switzerland



Friedrich Eugens Gymnasium, Stuttgart, Germany / Architect: Tiemann-Petri und Partner, Stuttgart, Germany



## Ceramic origami work of art

Inspired by origami, the Asian art of paper folding, complex structures evolved here from basic design processes. Sarah Morris' Project Manager Adrian Schiesser availed of the competence of the AGROB BUCHTAL in-house planning department for the precision work demanded by this project.

Accordingly, each tile measuring 30 x 30 cm was attributed its correct position and color. The actual glaze and additional painted joints were completed meticulously by hand, achieving a homogeneous overall result across the entire area.



"Hornet Origami", Düsseldorf, Germany / Design: Artist and film maker Sarah Morris



## Back to nature

For the building plinth of the “Flor” complex completed in late 2014 in Uster, Switzerland, the architects sought a robust, durable and easy-clean facade solution which was also to be more space-saving, reasonable and sensual than prefabricated exposed concrete elements, for example. A thermal

insulation composite system (TICS) was chosen featuring dark grey glossy ceramic tiles from the Craft series. The tiles display a lively and irregular surface texture which ensures a subtle mixture of extravagance and standard when combined with the uniform ribbon format (62 x 250 mm) and regular joints.



“Flor” residential and commercial complex, Uster, Switzerland / Architect: Burckhardt+Partner AG, Zurich, Switzerland



"Flor" residential and commercial complex, Uster, Switzerland / Architect: Burckhardt+Partner AG, Zurich, Switzerland



Apartment building, Einsiedeln, Switzerland / Architect: Fensi + Partner AG, Pfäffikon, Switzerland





# LIGHT WORKS

New ideas – new buildings – with HT.

LIGHT  
WORKS

# Light-active facades made of ceramic. Sustainable building with HT.

## Building within large contexts

Around one-third of energy consumed around the world is accounted for by building and operating buildings. When it comes to issues such as healthy building or the ecological and economic effects of a building, property developers, planners and builders alike are faced with new challenges.

Each building in a city contributes to its individual micro-climate. Just like each building product has an influence on the success of sustainable building planning and utilisation.

## Green lungs now also available in color

Sustainable building is one of the most pressing tasks of our time and one to which AGROB BUCHTAL is greatly committed. That's why our ceramic tiles are HT-coated in order to achieve essential economic and ecological advantages – without taking away from the classic advantages of facade ceramics.







# LIGHT-ACTIVE FACADES

And the weather is always  
on your side.



## Light activates

Titanium dioxide ( $\text{TiO}_2$ ) is burned insolubly and permanently into the ceramic surface at a high temperature. As a permanent catalyst, it triggers a practically life-long reaction activated by light (photocatalysis) with oxygen and humidity. This gives rise to activated oxygen and a hydrophilic, water-friendly ceramic surface. The activated oxygen assumes two decisive tasks:

1. On the immediate surface of the ceramic, it decomposes microorganisms such as mould, algae, moss or bacteria and impedes their growth. This prevents the growth of algae and moss on facades while avoiding complex and expensive cleaning which in turn saves considerable maintenance costs over the building's life cycle.
2. Pollutants in the air such as nitric oxides from industrial or car fumes are significantly reduced. HT improves the air around the building – over the long term.

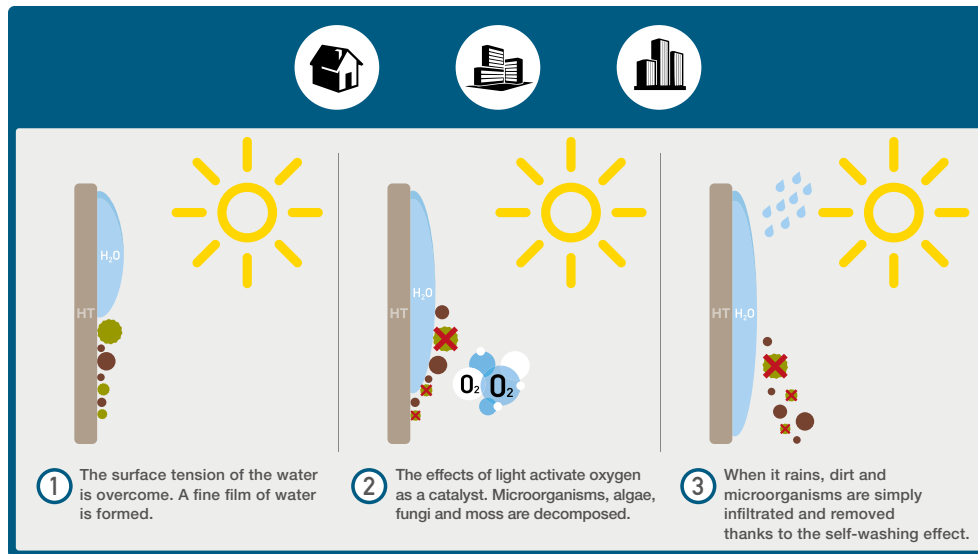
## Cleaned by the rain

The hydrophilic ceramic surface ensures that when it rains, water does not form droplets or balls which ineffectively pearl off but rather a wafer-thin film is formed which infiltrates the dirt. This gives rise to an effective self-washing effect which prevents dirt from gaining a foothold. This also avoids costs in the areas of cleaning and premature replacement.

Active support in any weather – sunshine and rain handle effective, inexpensive and environmentally-friendly cleaning! HT keeps facades clean.

# HT-coated ceramic: How it works

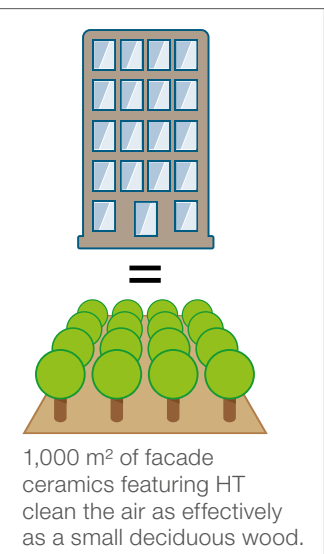
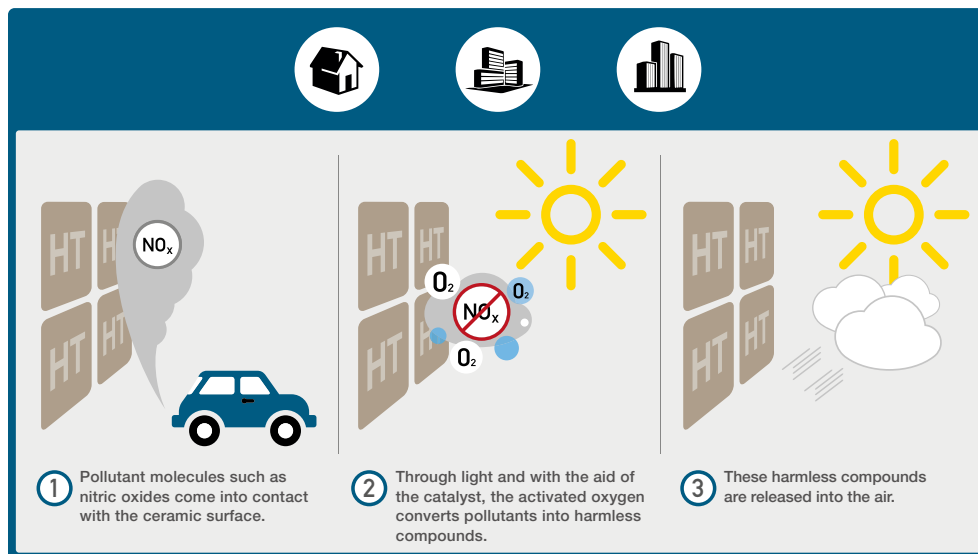
## Self-washing effect



## Effortlessly clean

Graffiti can be easily removed from glazed facade ceramics. Impervious to effective cleaning agents, soiled areas can be easily returned to their original state. And then the HT effect is reactivated by daylight.

## Decomposition of pollutants



Renowned test institutes confirm the effects of HT.



Further information:  
[www.agrob-buchtal.de](http://www.agrob-buchtal.de)  
 → HT coating



AGROB BUCHTAL GmbH

Buchtal 1, D-92521 Schwarzenfeld

Telephone: +49 (0) 94 35-391-0

Fax: +49 (0) 94 35-391-34 52

Servaisstraße, D-53347 Alfter-Witterschlick

Telephone: +49 (0) 228-391-0

Fax: +49 (0) 228-391-1273

agrob-buchtal@deutsche-steinzeug.de

www.agrob-buchtal.de

www.assenmacher.net

11/2016, subject to change without prior notice



In collaboration with  
the Industrieverband  
Keramische Fliesen +  
Platten e.V., we support  
the EPD range of Institut  
Bauen und Umwelt e.V.  
for the purpose of  
sustainable building.



DEUTSCHE  
STEINZEUG  AGROB BUCHTAL

The publisher does not accept any responsibility for printing errors.  
Color deviations from the original products can arise for technical printing reasons.