

# From stone - age to a great nutrient



The earliest use of ceramics was found in the - stone – age around 7.500 before Christi. The ceramic products made of burned clay were usually provided for the holding of food. Over the amphorae of the Greek and Romans, the way led to artistically modelled vessels and went on to a huge number of exemplary building materials, like for example clinker, brick and firebrick.

Today we use the advantage of ceramics like the dimensional stability, hardness and heat - consistency for innovative methods and specialized surface coatings. The climate coatings Germany have top performance in many applications. The climate coatings are technological high developed composites, which offer a lot of advantages for problematic surfaces comparing to the traditional coatings. Building physics can prove its effects.

## Ceramics heads towards perfection

Because of their special combination out of the unique core material and its high amount of micro ceramic bubbles it achieves thermal and physical effort in the building industry. The ceramic bubbles build a stable heat- and moisture regulating structure on the façade.



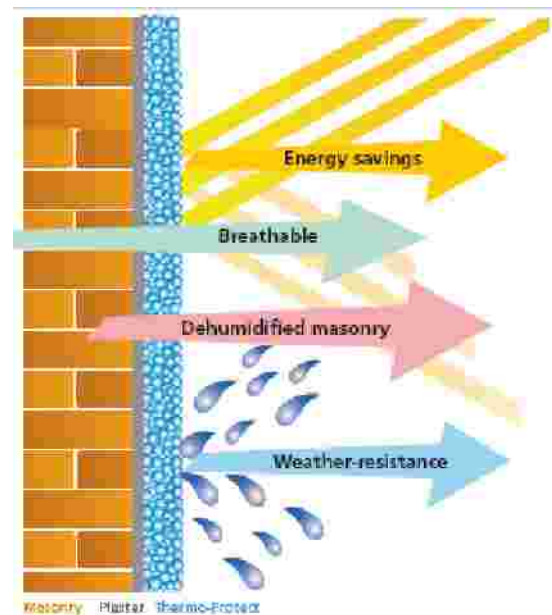
The climate coatings are used very easy, like a traditionally wall paint. The special mode of action optimises the protection- and insulating function at the

same time of practically every kind of building façade.

## One Product – many advantages

The multifunctional coatings operate like a second skin. They protect the basic structure of a building against damaging environmental impacts and allow a continuous diffusion of moisture to the outside, because they are equally:

- Breathable and conduction condensate, ( moisture regulation)
- Water repelling and easy to clean
- Heat regulating
- Crack bridging



## Product overview



Thermo Well makes the room climate very comfortable. Ideal for the inside areas which are exposed to extreme depletion like for example hallways, nursing homes, gastronomy and hotel businesses. Thermo Well fulfils the highest claims regarding long lasting comfort like for example in nurseries and all living- and bedrooms. It handles well extreme moisture in bath and kitchen.



- Feuchtlage Prüfung
- Klimastrukturprüf

### Thermo Well – climate coating for inside

- Interacts heat regulating
- Improves the room climate
- Prevents mould fungus risk
- Helps saving energy costs
- Solvent free
- Diffusion open
- Non burnable (Class A2)
- Wear resistant
- Distinguished covering power (class 2 according to DIN EN 1330)
- Environmentally gentle



Durable lasting protection of the façade, protecting against moisture as well as all environmental- and weather factors. It optimises the insulating performance of thermal insulation of the building especially against heat.

**Suitable undergrounds:** mineral surfaces, plaster, concrete, metal, calcareous sandstone, fibre cement, old coatings, framework, wood, pre-treated zinc surfaces and metal.

### Thermo Ceram Protect – climate coating for outside skin of the house

- permeable to water vapour
- diffusion open
- water repellent and rainproof
- stain resistant
- colour persistent
- 147 % crack bridging
- Hard to enflame
- Extremely UV and weather standing
- Emission resistant
- Excellent adhesion
- Magnificent covering

### Thermo Basic

#### Thermo Basic base surface

Concentrate, ideal for all very smooth surfaces (glue on concrete) and diluted it can be used as sealer on raw surfaces.



# There is a resolution against the four factors of facade ruination!

## Head case 1: UV light



### **The destroying Power of UV-Light**

Short wave sunlight – the so called UV light – destroys in a short time the current synthetics, which are mixed with wall colours to guarantee their elasticity. After five years these synthetics embrittle under the influence of UV light. Fine micro cracks spring up, through these the damaging chemicals and water can get into the walling.

The ceramic components in Thermo Ceram Protect almost reflect totally UV light, which minimises their damaging effect drastically. This effect makes the coated facade look brighter and more colour intensive – a nice esthetical side effect!

### **The facade as a complimentary air condition**

There has been made a laboratory test for Thermo Ceram and it has proved that the reflection grade of Thermo Ceram is very high. A big part of the sunlight on the coated facade is being reflected. This is why the outside walls of the buildings are being heated very well and on the other side the inner walls are much cooler. With Thermo Ceram you will save money for energy – an air conditioning in the facade for free.



## Head case 2: erosion

### **Wind and water interplay**

Wind, water and environment pollution are attacking building surfaces every day. This is a process which is unfortunately not only shown on old buildings like castles. As soon as the protection of the paint is resolved, the plaster is being attacked and moisture comes in.

Because they are hard and imperishable, ceramic coatings are good against decadence of the basic structure of a building. Furthermore the dirt and smoke particles don't stick so strong on the surfaces. Instead of having another expensive paintjob, you only have to wash the facade with water

### Head case 3: Variations in temperature



#### In the stress field of heat and coldness

Facades have to sustain very drastically fluctuations in between day and night temperatures in various climate zones. The problem appears through tightening and expanding of different building materials when it comes to temperature changes. The traditional mineral coatings crack on the surface in this case, in a very short time. This restricts the protection function of the coating.

Silicone based synthetic coatings can hold this tension much longer, but they are being destroyed through the UV lightning.

The microscopic bubbles of Thermo Ceram Protect transmit the temperature to each other. This pacifies the façade tension. Our ceramic coating is based on an acrylate with a small amount of synthetics part, which still has an elasticity of 150% and a stability of bridging cracks.

### Head case 4: Moisture Some basics about the influence of moisture

Every façade absorbs moisture from the environment. In spring and autumn this gets very clear. Warm winters and wet summers bring much moisture into the façade. In winter the cold water makes the façade and the finery crack. This not only makes the buildings look plain and dirty, moisture also

causes damages. Algae, mould and other rottenly traces destroy finally the façade.

Usual diffusion open wall paints allow only the upper layer to dry. Only a long period of solar radiation dries the plaster or even deeper parts of the wall. But on the Northern side of the building the facades almost never get dry. The insulating capacity of the building body decreases drastically.

Already at 4% of building moisture the brickwork only insulates 50% of a dry brick. Dehumidification is a very important thing to improve the energy balance of a building. With a dehumidification of around 1% you can reach a growth of insulation effectivity of 10%.

Thermo Ceram Protect is diffusion open and helps moisture permanently leave the building. Ceramics absorbs water quickly and gives this water away as well. Only a constant amount of water is being absorbed, closing the pores, spaces of the ceramic bubbles. However,, they are still keeping their capillary effect for the moisture transportation to the outside. Problems caused through algae and mould don't appear.

An independent institute test resulted that coatings with ceramics on a brick wall only absorb 3,1% water – this is 47% less then other façade paint. The absorbed water is not being transported to the inside. Because of the constantly membrane flow the water cannot move inside.



# Approved



- Freizügige Prüfung
- Emissionsgeprüft



Independent testing institutes have approved that Thermo Ceram Protect has the best resolutions in case of resistance against any influences of nature and weather. Further on tension cracks are avoided and reduced, hair cracks over-bridged.

The colour stays optimised. ThermoCeram Protect shows an excellent reflective capacity. The brickwork stores less heat, keeping the rooms cool even if it's very hot.

## General properties:

Proving subject	de cl aration	DIN	as sessment
Dry layer strength	200 qm	EN ISO 2808	middle strength
Brightness	89,6 Y (100Y ideal white)	53778-3	high radiance power
degree of chalk	0	EN ISO 4628-6	due to strong binding of acrylate and ceramics
PH value	10,8	ISO 976	moderate alkaline
condensate penetration to outside	diffusion open		proved membrane for the condensate
Water absorbance	2,3% TC + gypsum 3,1% TC + brick	difference to other façade paints	47,2% resp. 23,2% protects

**It is very demonstrative to see the proven resistance against water absorption at the same time confirmed membrane action by the condensate transport to the outside.**

## Processing:

Testing subject	de cl aration	DIN	as sessment
Covering capacity		EN ISO 6504	very good covering power by at least 2 coatings
Density	0,923 p (g/mL)	EN ISO 2811	density like water, because ceramic bubbles are much more lighter.
Drying grade	0,5 h drying grade 1 + 48 h drying grade 4 at dry-layer strength 140-150qm	53150	after 30 min workable, dry in 2 days

The big number of successful tests document the extraordinary quality of the façade protection of Thermo Ceram Protect. Only this way you can fight effectively against the cases of destruction of the façade.

# Vitality which comes from inside

## A feel good climate with Thermo Well



### Zest for life which comes from inside! Feel good climate thanks to Thermo Well!

Also in the inside of your house you can profit from this unique technology. With Thermo Well coated walls the warmth is being spread equally over the whole coated surface. The ceramic bubbles are keeping the air moisture optimised, so that the mould fungus risk gets minimized. A special titan-dioxide neutralises the bad odours. Through the minimised static charge dust, dirt and nicotine cannot find any attacking area.

Through the optimal reflection of the heat radiation the ceramic coating loses drastically the differences between the heated and the opposite wall. The phenomenon of the temperature cylinder is no longer operative. Radiation temperature rays to every body in the room. Under these circumstances the room air is comfortable with less energy input. If the surface and air temperature is the same, even 18°C are sensed to be comfortable for the majority. If the surface temperature is only 15 degrees Celsius, you need 22 degrees Celsius air temperature for the same effect! This example shows us that you need much less energy with Thermo Well to achieve a comfortable room climate.

### Test results fire protection class

Declaration	DIN	assessment
A2 – fire behaviour	EN 13501-1	very strong against fire
S1 – smoke development experiment after fire		No smoke
d0 – burning falling parts	EN IS= 1176	No falling parts

Thermo Well helps you to save energy costs for both heating and air conditioning well detected in public buildings and in industrial buildings.

**Service:** We would like to offer you a calculation of the energy input of your project from a neutral agency. This is a way to calculate the energy costs for your investment.

### Thermally optimised even in extreme areas

All products are classified as nutrient A2. The coatings are not flammable, because all flammable ingredients are being neutralised through the high ceramic rate.

Smoke development and burning parts that are falling off are causing further problems in case of fire. Thermo Well achieves the best class (S1) that shows it causes no smoke. In all tests there have not been registered any burning parts that are falling off (d0).

Beside the excellent optical and climatic properties, Thermo Well also offers you a great fire protection in the inside.

# The advantages are seen on the Wall!

## **1 | Weather protection guaranteed**

Coated facades with Thermo Ceram give every building a protection against rain, weather, and wetness. At the same time it gives the building a breathable water steam conducting weather protection.

## **2 | Crack prevention**

The high ceramic rate regulates the temperature: Heat radiation is being reflected, the façade heats up less then before. Different temperature zones are being balanced and the crack creation is being prevented.

## **3 | Optimised crack bridging**

Facades can be renovated very easily with Thermo Ceram, because hair cracks are being bridged permanently.

## **4 | Mould fungus seizure is being prevented**

Thermo Ceram enhances the wall ground level temperature inside and makes sure that the temperature is equal. This prevents condensate on the wall. The danger of wet wallpapers or walls and fungus growth are being prevented. Even facades on the outside stay clear of algae, fungi and moss.

## **5 | UV light resistant**

The damaging effect of UV light is being extremely minimised through the high rate of ceramics, UV light is being reflected almost 100%. Nice side effect: Thermo Ceram makes the facades lighter and brighter.

## **6 | Dirt repelling**

Dirt, smoke and fumes stick less then before and you can wash them off with clear water (outside) or just wipe off with a wet cloth (inside).

## **7 | Living quality with feel good climate**

The ceramics of the coating dispenses warmth through the whole room in winter, different temperature zones are being balanced.

This has a great comfortable effect on the climate inside the house. In the winter it stays warm and in summer nicely cool, whenever shade is provided..

## **8 | Energy saving**

Heating energy is expensive as well as cooling energy. Thermo Ceram is a very good investment with great effect, especially in the time when energy costs are getting bigger and bigger. If you coated with Thermo Ceram you will notice the difference.

## **9 | Attractive colour design**

You can paint old and new constructions in colour on request, which means that Thermo Ceram provides every kind of colour for both inside and outside coating.

## **10 | Enhancement in Value**

Thermo Ceram is protecting the building basic structure! Every older building gets an enhancement in value this way. New buildings keep their value for a long time.

## **11 | Experience**

Thermo Ceram climate coatings have got a high standard, that's why they are being recommended by experts.

## **12 | Contribution to environmental protection**

With Thermo Ceram you will help keep the environment clean. By use of Thermo Ceram you will save cooling and heating energy and help the environment stay clean.

## **13 | Safety / fire protection**

The climate coating for inside is a cheap and effective fire protection and according to DIN 4102-1 in A2-S1-d0 classified. This is an extraordinary feature for a coating