THERMO CERAM
Coatings have proven to be of outstanding quality

The reason for highest performance is found in the well known features of ceramic bubbles mixed with a selection of high-quality raw materials for the production of the acrylate.

The result is THERMO CERAM Coatings last for a whole generation. This generation enjoys even some more benefits.

These are some of the outstanding features of THERMO CERAM Coatings.

THERMO CERAM ceramic coatings have been tested from independent institutes in Germany and Austria to provide firm data for its extraordinary performance. These institutes of building physics signed that THERMO CERAM produces a coating of best quality.

Extraordinary heat reflection of the outside protection coating,

Special fire protection

A cozy warm thermal atmosphere for the inside

THERMO CERAM coatings are very resistant against Erosion

It is proven that THERMO CERAM coatings can stand erosion perfectly. With a sand falling test high winds and dust were simulated according to ASTM D 968. 25 times sand was poured on the surface to show if parts of the coating are worn away.

Although THERMO CERAM PROTECT provides a flexible and porous surface abrasion cannot be found. It stays firm. Dust and sand are easily blown off the surface.

It has been tried 200 times with a manual abrasion to take off some of the surface.
Only very little came off (5,9µm).
THERMO CERAM PROTECT has reach class 2 (5-10µm). (see illustration)

„Thermo Ceram can be cleaned wet!"
(Result of materialtest institut 2007)

Method of testing:
200 rubbing cycles,
Than measuring of coating thickness

Result:	**Class 2**
PROTECT	5,9 µm
WELL	10,5 µm!

Classifications:

Klasse 1	<	5 µm	with 200 cycles
Klasse 2	**>**	**5 µm**	**and < 20 µm with 200 cycles**
Klasse 3	>	20 µm	and < 70 µm with 200cycles
Klasse 4	<	70 µm	with 40 cycles
Klasse 5	>	70 µm	with 40 cycles

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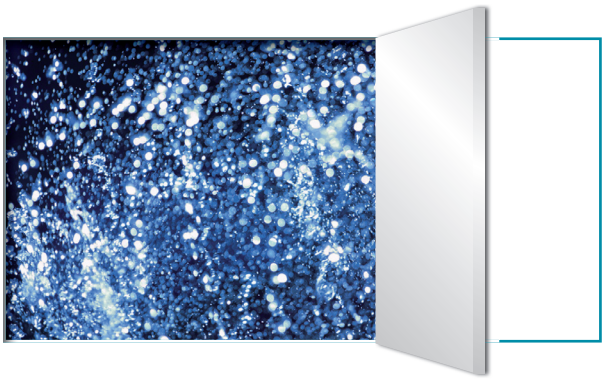
With a vapor steam test the surface is been tried to be destroyed. With 90 bar pressure a high pressure cleaner shoots water against the wall. At first it is tried with 25°C temperature and it is used to cut an x in order to lift the coating. After this was not successful they increased the temperature to 60°C. Even warm water directly shot against the coating could not do any harm to it. This extreme attempt shows even bad weather conditions cannot destroy the coating.



Adjustment to changing temperature

Another major problem for any façade is quickly changing temperature zones. Desert climates and even the spring and autumn months in the Northern Hemisphere show that a façade has to withstand temperature differences of approximately 80°C and even more between sun radiant temperature and frost in the night.

It was neutrally investigated that ThermoCeram Protect has the capacity to expand and to shrink again 147 % of its masses. That means that most cracks are bridged. However, through the ceramic bubbles the temperature differences on the facade is been balanced out.

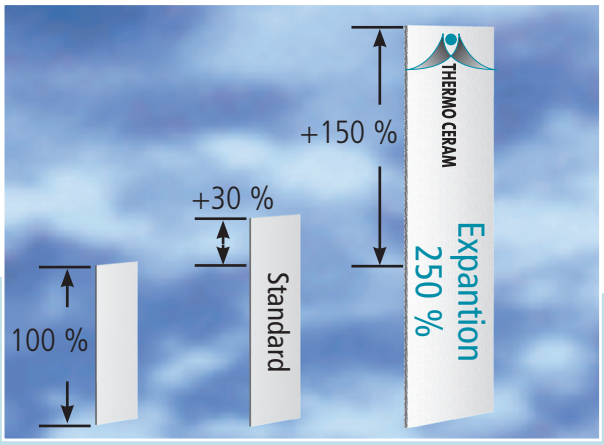
For this reason cracks are avoided permanently.

The greatest effect is always seen when wooden structures are coated with ThermoCeram. As it is diffusion open it allows the wood to breath and move well through the coatings dynamic movement. It has proven to be the most reliable coating of wood.

Tensile strength 0,7 ± 0,0 (MPa)

Elongation at break 147,6 ± 9,7 (%)
with 200 µm thickness

(Result of testing institute, 2007)



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UV Light resistant

A very important aspect of the ceramic coating of THERMO CERAM is seen in the full reflection of UV-Light. For 1000 hours the coating of THERMO CERAM has undergone intensive UV-Light radiation (ISO 4628 UV –light 6174 colour metrics) interrupted by water pouring in order to create micro cracks of the coating surface. But no reaction could be seen. THERMO CERAM has been proven to be fully resistant against the destructive power of UV-Light. Ceramic and the extraordinary acrylate with a minimum content of plastic provide this strong skin.

„Thermo Ceram endures the maximum of UV-Light!"

(result of testing institute ILF Magdeburg, 2007)

Method of test:for 1000 h. = appr. 6 years in reality with UV-Light and water

Result:
No visible change:
Brilliance and Pigments (visual + colour-metric).
No spots, bubbles, cracks, chalking

Membrane and Water resistant

A long term success in coating a façade of plaster and stone is the fact that it can provide a membrane like the human skin. Condensate in form of steam is being brought out but water is not allowed to go in. This guarantees the constant dry building structure, a pillar of a healthy house in the Northern Hemisphere. Even for other climates it is mandatory to allow condensate to move out of the building substance in order to prevent mold and other problems. On the other hand it is vital for the façade that it will not be wet from the outside. No water is allowed to penetrate behind the coating.

The results are extraordinary; the coating is able to take a little water but does not allow any to penetrate into the plaster.

Result	THERMO CERAM PROTECT	Genius Pro	Difference %
amount of water	0,03	0,03	***
Absorption chalkplaster + brick	3,1%	50,3 %	47,2 %
absorption gypsum board	2,3%	25,5%	23,2%

Protection against fungus

With high moisture most of the time fungus comes as a real plaque into the house.

THERMO CERAM coating have been tested on their receptiveness for fungus and mold. THERMO CERAM PROTECT is resistant against most climates. It is proven to be cleaned with water very easily.

It is proven that no fungus grows on THERMO WELL– inside coating in real climate conditions.

THERMO WELL is not only resistant against fungus, but is providing a climate that does not allow fungus to grow. The limits of protection are seen only under direct and intense condensate exposure under hot conditions. However, this is still good in comparison with other coatings. If there is incoming water found THERMO WELL can manage up to 1 % moisture of the building structure. Beyond this the water needs to be hindered first of entering the wall. Then the wall can be dried up through coating the inside walls of the room.

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Heat protection

The data provided of the institutes show that THERMO CERAM has a colour degree of Y 89,6. Normal white is counted as the standard by Y100. The ceramic paint shows great brightness in colour. It is best known that white is reflecting while black is absorbing light. However, this cannot explain the extraordinary data of light reflection and absorption THERMO CERAM PROTECT is been tested of.

It only absorbs 15 % of light according to the simple reflection measurement. The diffused light is not counted at all in this rate. As more diffused light is created through the rough surface the less heat is absorbed.

The emission of heat has been proven to be better than standard white coatings as well. The heat of the day is quicker being emitted to the dark sky of the night. The surface is kept cooler.

(see for more detailed explanation the article of Heat Protection)

Light/Heat – Absorption Test: Fraunhofer Institut	
coating	Degree of absorption **-a-**
THERMO CERAM PROTECT outside	0,15
Dispersion coating F1	0,20

Light/Heat – Emission Test: Fraunhofer Institut	
coating	Degree of Emission **-e-**
THERMO CERAM PROTECT outside	0,91
Dispersion coating F1	0,89

Fire Protection

The certificate show that THERMO WELL – the inside coating- cannot burn. It protects best any structure against fire. It takes 3 times longer until any coated material starts to change through fire due to heat transmission. According to European law each application of the coating needs to be tested in order to have independent data on the burning characteristics. However, generally speaking it is obvious that THERMO WELL is useful as a heat and even fire protection. The coating sets the limits of heat acceptance far beyond the normal standard.

Materialprüfanstalt f. d. Bauwesen MPA BS 3.1 Braunschweig

A2 = not burnable although burnable ingredients are found

s1 = no smoke development

dO= can fire remove parts from the structure that fall down

Product	Burning characteristics	Smoke	Falling down through heat
THERMO WELL	A 2	s1	dO
	Not capable of burning	No smoke	No parts fall down through fire