MCM Construction Products

ALWAYS ONE STEP AHEAD

CERAMOR FAÇADE

"LIQUID CERAMIC" THERMAL INSULATION COATINGS

FOR COMMERCIAL USE

- High Thermal Insulation
- Water repellent
- Stops Condensation
- Low film thickness
- Rockwool Alternative
- Long Life Span

What is Ceramor?

CERAMOR Façade is a water based thermal insulation material and designed to be applied on a variety of surfaces.

Free of organic solvents and volatile compounds. It is a safe and non-toxic material suitable to use, both inside and outside of residential and industrial buildings .

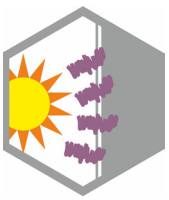
WHAT CERAMOR DOES?

The insulation is, nowadays, an important measure to significantly reduce the energy costs and the use of energy resources at the buildings. Therefore, the insulation materials, acquire special relevance for the customer. A high quality thermal insulation, ensures a comfortable environment protects the construction structures from the climate damage and destructive impact.

Ceramor provides high level of thermal insulation while protecting your buildings and façades against heat and external factors such as condensation and mold. Due to its unique texture, Ceramor can be easily applied to various of surfaces, including the hard-to-reach areas, and unconventionally shaped structures without altering the look of the buildings.
It creates a uniform, smooth insulation layer. It is ideal for the protection of new and old building facades, as well as buildings and structures with a special architectural or cultural value.

A significant part of the energy resources are destined to heat buildings. Due to deficient cladding, structures and poor insulation, part of the heat is lost. The reduction of the heat losses can be achieved through the use of insulation materials. The application of Ceramor liquid insulation materials, is a complete and detailed solution for the protection of structures, suitable for its application to difficult-to-reach or complex elements of the structure without do them heavier due to the extra-thin, elastic and low structural load application layer.

Energy Efficiency

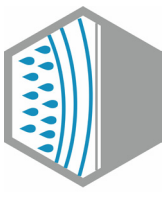


UV Resistant

Prevents Fungi and Mold

Water Resistant

Respects the Environment



High Level of Waterproofing

How it works?

Under the laws of physics, the hot air rises up, but if the buildings are not properly insulated (due to problems in the thermal insulation properties on the ceiling or walls, or the inefficiency of the insulation materials used) then heat losses are inevitable.

The proper thermal conductivity of the building however, may also lead to some side effects, the emergence of “thermal bridges”, also increases heat losses and cause damage in construction. The “thermal bridge” is an external part of the building which has a stronger thermal conductivity than the main metallic structure.

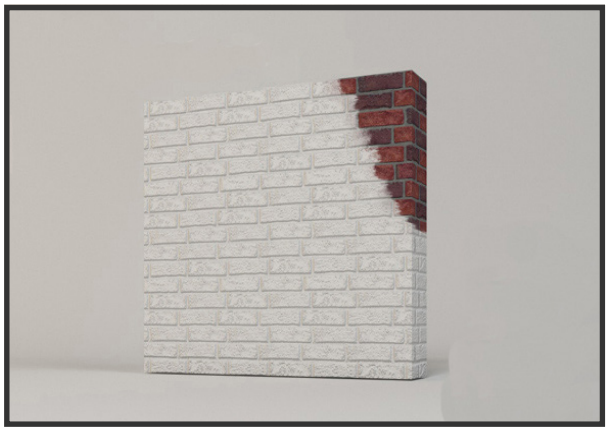
Insulating buildings with Ceramor to reduce heat losses in winter and the air conditioning costs in summer, as well as eliminate fungi, condensation and frost formation are freat option. Since Ceramor is applied uniformly, it also eliminates the formation of thermal bridges as well.

For restoration works, Ceramor is economically viable, convenient and effective way.
The construction projects concerning the use of Ceramor does not have any difficulties regarding the time, temperature and avoiding conflicting situations in the building process when the project is carried out. Ceramor avoid the possibility of damage at the building, improves the thermo-technical characteristics and provides a more pleasing appearance to the building façade.

Water-based thermal insulation material. Solvent and VOC free.

The restoration of buildings is very important in order to reduce heat losses and conserve energy.

In general, the actions in relation to the restoration and modernization of the structures includes the HVAC of buildings, the efficient use and the saving of energy with insulation technologies in order to reduce the consumption of energy and provide comfortable living conditions for residents.



The thermal insulation of the facades of buildings is one of the key points of the plans of action of the different organizations involved in the restoration of buildings. In addition, thermal insulation of interpanel joints is often required, as well as and roof restoration.

Ensures the heat preservation and reduces expenses in the maintenance of the required temperature, avoiding losses. Thermal energy conservation with the “warm floor” system, returns up to 70% of heat radiation into the building (reducing heating costs in winter).

Maintains a favourable working and living environment inside the building by preserving the temperature.

Insulation of heat, water and soundproofing of buildings and residential and non-residential installations.

Advantages

HIGH THERMAL INSULATION
With Ceramor, you can enjoy the energy savings from 20% up to 90%. The product has a very low heat conductivity of **0.004 w/mK.** and it is a great alternative to traditional insulation materials. You can find our official test results below.

SUPERIOR ALTERNATIVE TO ROCKWOOL - EPS - XPS
Ceramor is the superior alternative to traditional insulation materials such as rockwool. It provides the equivalent thermal insulation of 13 cm of rockwool with only 1,5mm thickness. It also provides countless other benefits such as surface protection and mold and mildew prevention. You can find more information below.

GREAT HEAT REFLECTIVITY
Ceramor “heat mirror“ effect reflects 95% of the sunlight during summer and it keeps up to 70% of the radiant heat inside the building during winter months.
(if the heat source is radiant) ASTM ASTM E 1980:11

WORKS ALL YEAR AROUND
Ceramor keeps working all year around. It keeps the heat “inside” during winter and “outside” during summer. So you can enjoy the savings all year around.

UV RESISTANCE
Ceramor is 100% UV resistant and it doesn’t degrade when it is applied with colors. It protects buildings from overheating, resulting from the exposure to high temperature and direct sunlight. It also continues to work without any loss of performance, even under intense UV.

WATER REPELLENT (HYDROPHOBIC)
Ceramor has a great water retention and repelling capabilites. It protects buildings and equipment by keeping the water and other harmful elements away from structures.

Advantages

GREEN PRODUCT - ZERO VOC
All Ceramor coatings are water based and 100% friendly to the environment. They are safe to use on indoor areas, food production facilities or hospitals. Ceramor is the only water-based coating that stands up to 500 C Celsius.

LOW FILM THICKESS
Ceramor can be applied from 1mm to 4mm. Depending on the desired outcome and application area. It allows structures to keep their form and not be affected by bulky materials. Suitable for various surfaces. Low film thickness also allows for non-disruptive applications on building shapes and forms.

SURFACE PROTECTION
Ceramor also protects the surfaces against harmful substances. In additioon to water repellency, the material provides high level of protection againts various external elements such as saltwater or sand storms. This makes the coating ideal for harsh environments or seaside projects. Also, coating covers the tiny structural cracks and stops deterioration while extending the life expectancy of buildings.

1C **SINGLE COMPONENT**
Ceramor is only one component and ready to use. It doesn't require mixing multiple components or complicated preparation methods. It just needs to be mixed throughly (3-5 minutes) before use and can be applied onto surface immediately.

EASY APPLICATION
Product is easy to apply. You can either choose brush, roller or spray for effective and practical application. Compared to traditional methods such as rockwool, it saves users many hours of labor-time and cost. It can also be applied all year around since it is safe from freezing. Whether the area small or big, Ceramor allows you to perform easy and effective insulation application every time.

LIGHTWEIGHT
Ceramor is very light. 1 liter of material only weighs 500 grams. It doesn't add extra weight to your structures. It is also very easy to repair if the surface ever gets damaged. All you have to do is top-coat the damaged area and it will heal itself.

Advantages

STOPS CONDENSATION
Condensation is one of the biggest issues for the buildings and it causes mold, mildew or corrosion on structures. Ceramor stops condensation completely so you can enjoy “maintenance free” energy savings all year around.

LIMITLESS COLOR CHOICES
Ceramor Façade is produced in matte-white color. As per client requests, it can be tinted in any color from the standard RAL palette. If desired, it can also be colored on construction site by using recommended pigments. Please see “Coloring Guide“ for more details.

NO FUNGUS GROWTH
Ceramor stops condensation on buildings . As a result, it prevents the formation of fungus, rust and humidity on all surfaces. The anti-fungal coating inhibits the growth of mould, fungi and destroys the existing ones.

FAST DRYING TIME
It takes only 24 hrs. to be fully cured for 1mm of application. For multiple layers, usually 4-6 hours between the layers are adequate. Please consult your representative for more details.

FIRE RESISTANCE
Ceramor doesn’t catch fire and it is safe to use in all areas, both indoors and outdoors. It is tested and passed 60 minutes time mark. f you wish to receive more details about this feature, please contact us.

LONG LIFESPAN
Ceramor coatings have a very long lifespan compared to traditional insulation materials such as rockwool or EPS boards, which must be replaced every 4-5 years. Life expectancy of Ceramor for indoor applications is minimum 12 years, for exterior applications 7-10 years (depending on climate conditions).

Advantages

WIDE USE AREAS
Ceramor can be used on veriety of surfaces, areas, structures and equipment.
It offers great flexibility and ease of use for practical and effective thermal insulation.

CAN BE TOP COATED - PAINTED OR TILED
Ceramor can be painted, top-coated or covered with tiles. It would not effect the performance of the coating in any ways. Important Note: paint or the topcoat of your choice must be suitable for the constant surface temperature. Also, if you desire to apply tiles over vertical surface, maximum load per m2 must not exceed 8-10 kg.

GREAT ADHESION TO MOST SUBSTRATES
Ceramor is specifically formulated to have great adhesion on concrete, plaster, all types of cement based structures, mineral based surfaces, brick and wood.

PREVENTS COLOR FADING
Due to its high level of UV reflectivity, Ceramor keeps the colors bright and prevents fading or discoloration even after many years of use. This is a very common problem with traditional surface coatings but not an issue with Ceramor.

NO THERMAL BRIDGING
One of the most common issues of building insulation is the formation of thermal bridges. These points are susceptible to most amount of heat leak if not treated properly. With traditional materials such as rockwool, it is impossible to avoid this issue simply because the material cannot be uniformly applied. All joints and corners of these panels will be subject to this problem while projects done by Ceramor will never have such issues, due to superior coverage and uniform application over the surface.

Areas of Use

FAÇADES AND ROOFS

Some application areas:

- Building's facades
- Exterior walls
- Concrete roofs
- Sloped and flat roofs
- Terraces
- Wooden structures

Building's facades and facilities are sometimes under negative effects of sunlight, wind, low temperatures and rainfalls. A reliable thermal insulation in facades allows the reduction of essential heating costs in winter and air - conditioning in summer to reduce significantly maintenance work costs.

An efficient insulation in facades helps to solve these tasks:

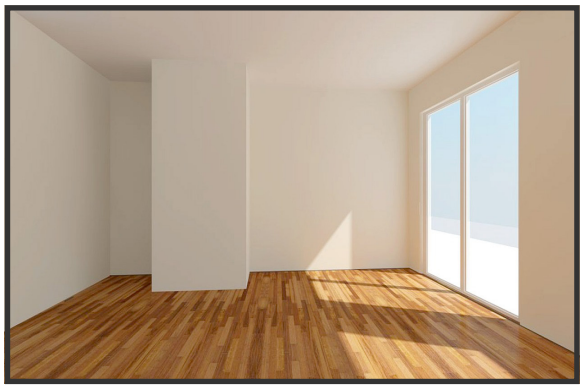
- Protection against unfavourable climatic conditions: strong winds, rains and excessive high and low temperatures.
- Thermal protection, thermal insulation.
- Protection against ice cover and risk of frosts.
- Prevention of thermal bridge formation to save thermal energy.
- Rust and fungus formation prevention caused by high humidity.
- Improvement in the operating characteristics and extension of useful life.
- A great costs reduction and damage prevention.
- Protection against fire propagation.
- Heat loss reduction and maintenance at the costs of the necessary temperature. Air - conditioning.
- Protection against adverse weather conditions
- Prevention against the growth of fungus and mould caused by humidity and excess
- Improves operational capabilities
- Prevents the formation of small and large cracks (prevention of deterioriation)
- Reduction of consumption for AC and heating

Areas of Use

WALLS AND CEILINGS

Some application areas:

- Interior walls
- Ceilings
- Small rooms
- Pillars, cold rooms, small areas
- Areas with condensation



Sometimes, thermal insulation on external walls is difficult to perform. However, the biggest heat loss happens due an insufficient insulation in walls, specially if the building is very old.

Thermal insulation in partition walls are necessary to avoid heat loss in winter and cool loss in summer, support a comfortable indoor conditions, protect the building from temperature gradients, excessive humidity as a result of thermal bridges and condensation. Thermal insulation is also necessary when some rooms in a building heat up or there are areas for special purposes such as a basement, a warehouse or a garage that maintain a specific temperature which is different of environmental temperature for storage purposes or effective storage.

An efficient insulation in walls, floors and roofs help to solve these tasks:

- Heat loss reduction and heating costs in winter and air - conditioning in summer.
- Protection against temperature gradients and condensation.
- Keep a favourable climate inside the building due to the temperature conservation.
- Hot radiation prevention and environment protection.
- Overheating protection against high temperatures and direct sunlight.
- Protection against freeze and low temperatures.
- Thermal energy saving with “warm environment at facilities”.
  Separation between rooms with or without heating to keep the energy.
- Seal the joints to avoid heat losses and dust penetration, rainfall and further deterioration.
- Protection against fissures and further destruction, useful life extension.
- Acoustic insulation and waterproofing.

Performance

HEAT REDUCTION CHART

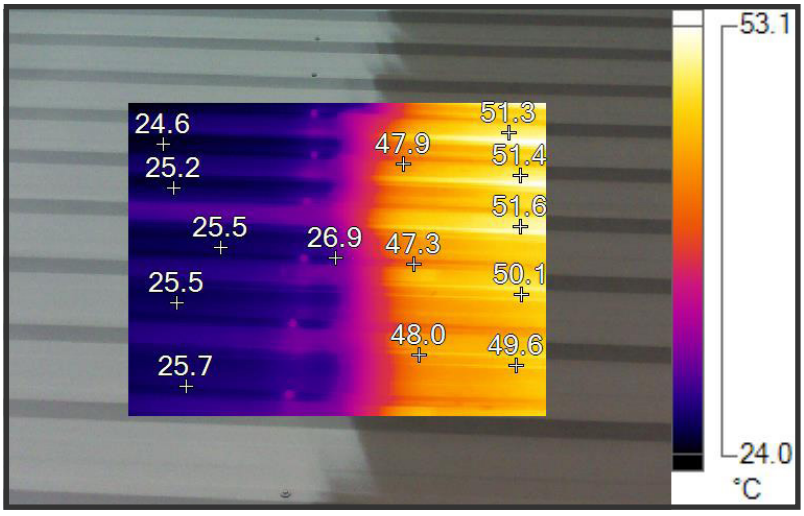
The table of decrease in temperature on the surface of the metal roofs, according to requirements of Construction Norms and Regulations.

Thickness CERAMOR	Temperature on top of surface (Celcius)					
	60°	80°	100°	120°	150°	200°
1 mm	42°	54°	64°	68°	77°	100°
1.5 mm	33°	42°	56°	57°	64°	76°
2 mm	31°	35°	45°	51°	58°	70°
2.5 mm	30°	31°	42°	46°	50°	66°
3 mm	28°	29°	35°	42°	45°	52°
4 mm	25°	26°	32°	35°	39°	46°

* The table presents the average values, the temperatures may differ by around 10% depending on the environment, the condition of the coating, etc.

Ceramor applied over a roof at (1,5 mm). Thermal camera image clearly shows that temperature drops from 48 C to 24C with only one coat of application.

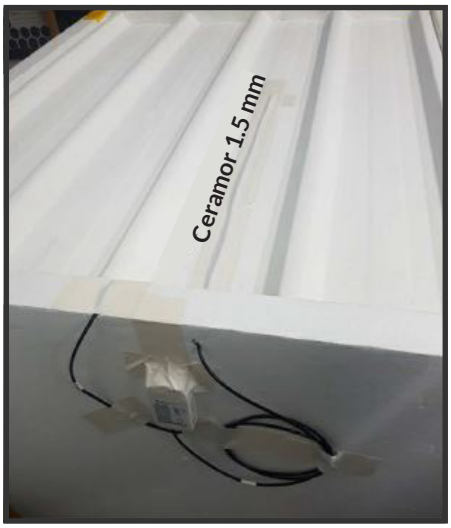
For more case studies, please contact us at mcm@mirava.com.tr



Performance

COMPARISON WITH ROCKWOOL

CERAMOR METAL VS ROCKWOOL



Temperature monitoring (all measurements are in Celsius C)

Plain roof vs. Rockwool insulated roof (130mm) vs. Ceramor Metal Applied Roof (1.5mm)

Time	Ambient Temp.	Plain Roof Surface	Plain Roof Underside	Plain Roof Space Temp.	Classic Insu-lation Surface	Classic Insulation Underside	Classic Insulation Space Temp.	Ceramor 1.5mm Surface	Ceramor 1.5mm Underside	Ceramor 1.5mm Space Temp.
8:00	13.85	15.23	15.27	15.78	14.24	14.20	14.54	14.88	15.01	15.36
9:00	14.71	15.91	15.91	16.08	16.73	14.88	14.97	18.87	15.83	15.74
10:00	16.04	16.51	16.47	16.69	18.19	16.99	16.69	16.64	16.64	16.56
11:00	17.37	17.03	16.99	17.07	19.39	18.36	18.06	17.37	17.29	17.07
12:00	19.52	33.03	32.99	24.88	35.09	23.42	20.98	21.45	20.50	20.98
13:00	26.98	30.63	30.97	29.38	32.09	25.57	23.12	27.67	24.15	23.38
14:00	26.90	30.46	30.84	26.98	32.39	26.08	23.94	24.97	22.52	23.16
15:00	23.64	20.89	21.10	22.18	20.93	22.09	21.66	20.42	19.77	20.76
16:00	21.23	17.84	17.84	19.17	17.63	19.52	19.52	17.67	17.54	18.53
17:00	19.30	17.54	17.54	17.41	17.59	18.02	18.23	17.50	17.41	17.24
18:00	18.27	17.59	17.59	17.72	17.72	17.46	17.54	17.59	17.59	17.59

As you can see the on the table above, Ceramor with its very low heat conductivity of (0.0012 - 0,004 W/mK) and thin film thickness (1.5 mm) performs better than 13 cm of rockwool.

With Ceramor, you don't need to renew the application every few years as with traditional insulation materials. It also provides countless other benefits in addition to its superior insulation capabilities. Please see the full features section above for more details. If you wish to receive the complete report of this test, please send an email to **mcm@mirava.com.tr**

Test Results

Some of our test results (ASTM)

Hardness	Shore “A”	ASTM D 2240-05
Density	260 kg/m3	ASTM D 1622-98
Elasticity	46.48 MPa	ASTM D 638-99
Thermal conductivity	0.0012 - 0,004 W/mK	ASTM C 518-10
Salt Fog		ASTM B117
Water immersion		ASTM D870
Solar reflective index (medium wind condition)	104.85%	ASTM E 1980:11
Pull of strength (adhesion) concrete	1.09 N/mm	ASTM D 4541-95
Pull of strength (adhesion) steel	0.81 N/mm	ASTM D 4541-95
Pull of strength (adhesion) brick	1.33 N/mm	ASTM D 4541-95

If you wish to see official results of our **“Heat Conductivity Test (ASTM C518-10)”** or other test results, please contact us at **mcm@mirava.com.tr**

Some Applications

Exterior Applications:

Ceramor offers the perfect solution for your restoration projects. Whether it is a multi-storey apartment or a single house, with Ceramor you can insulate and protect at the same time.

Some Applications

Ceramor stops condensation

The product does not only provide great thermal insulation but also eliminates mold and mildew formation as well.

With Ceramor, you can enjoy effective, practical thermal insulation that keeps your interior dry and free of mold all the time.

Pictures on the left:

Top: Before application

Bottom: 5 years later (no mold or mildew)

Clearly visible:

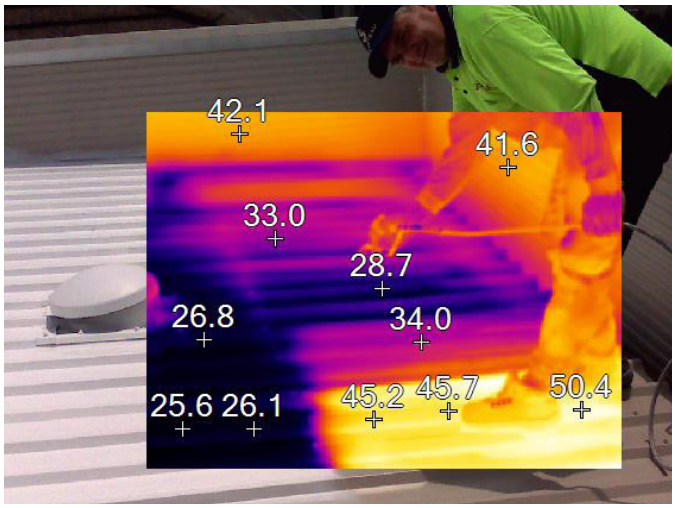
Bottle taken out of refrigerator instantly condensates on the surface. The small area coated with Ceramor is completely dry.

Ceramor also has the same effect on your interior walls as well. It allows you to keep your homes and buildings dry and prevents unpleasant mold/mildew formation.

Some Applications

Standard Roof Application: Temperature drops from 46° C to 22° C.

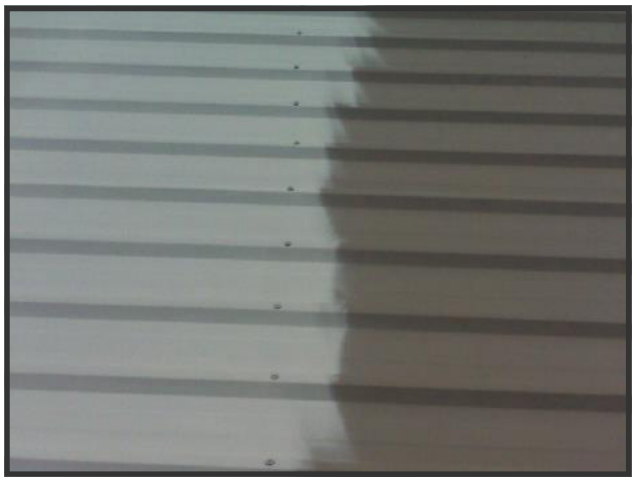
Only 1mm of Ceramor 260 applied.

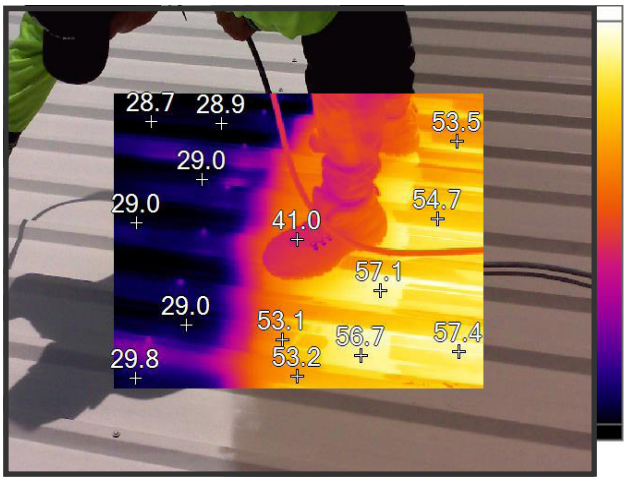


Real time temperature drop can be clearly seen with a thermal camera.

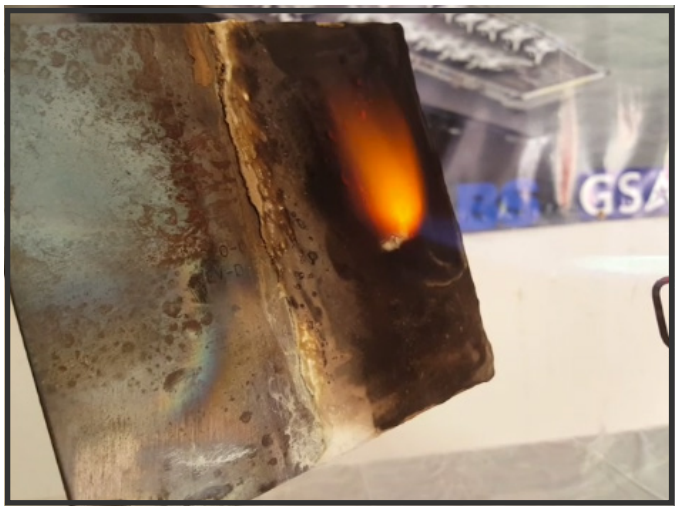
From 50° C to 26° C.

Some Applications





Ceramor creates an instant thermal protection which is safe to use and almost maintenance free. Environmentally friendly, water based coating that is great thermal insulator for almost all surfaces.



Ceramor doesn't catch fire and takes a very long time to burn out completely. It is great as a safety measure for interior applications.

Product Details

CERAMOR Façade:	Surface temperature up to 120C (150C peak)
Main Application Areas:	Interior, Exterior, Ceilings, Roofs, Buildings, Small or large areas, Rooms, Wooden structures or houses, Plastic surfaces.
TopCoat:	As protection layer for horizontal surfaces. If additional abrasion resistance needed, or foot traffic is present, please use Ceramor TopCoat. Maximum surface temperature should not exceed 100° C.
Tiles:	Tiles or granit can be installed over Ceramor, please note that weight of the tiles should not exceed 8-10kg/m2, including the mortar or the glue.
Tinting:	Ceramor can be tinted as desired on site, please refer to instructions.

Packaging

20 liter pails.

Consumption

Ceramor Façade:	**1 liter per m2 (for 1mm thickness)**
Ceramor TopCoat:	**300 ml per m2 (as protective layer)**

About Us

BEST THERMAL INSULATION COATINGS FOR INDUSTRIAL AND RESIDENTIAL USE

The products manufactured by MCM company are advanced insulation solutions for the protection against heat, condensation, corrosion, waterproofing and climate deterioration. Our formulas are continuously improved on the basis of the experience, continuous research and development to expand our range of products according to particular requirements and needs of our customers.

INNOVATION

Innovative approaches of the products developed by us do not have any equivalent due to specialisation in this technology. Ceramor maintains a high demand in the private and industrial sectors in small, medium and large companies.

QUALITY

The Ceramor production plants are located in Germany and Italy. The production is subject to strict quality test, allows us to guarantee the quality and safety of our products, its respect for the environment, compliance with the standards and requirements concerning the production and high quality of our products.

The unique formulas of our products, allow us to satisfy the requirements of our customers in the world market, it counts with a commercial structure in the present countries in order to provide an appropriate commercial and technical attention. Our products can be exported to any part of the world. Our warehouse in Germany has a continuous stock rotation.

CO-OPERATION

We provide individual approach for each customer. Free advisory services of highly qualified professionals. We train and qualify our sales representatives and distributors worldwide. Ensuring the perfect product selection and application.

If you are interested in getting more information about our products and distribution opportunities, please contact us at **mcm@mirava.com.tr**

mirava
TRADE AND CONSTRUCTION LLC

WORLDWIDE DISTRIBUTOR OF
MCM CONSTRUCTION PRODUCTS

TURKEY - Distribution
EMEA - GCC

Akdeniz Cad. Akdeniz Is Mrk. No:5/710
Pasaport / Konak / Izmir

+90 232 446 9083
+90 232 446 9086
mcm@mirava.com.tr
www.mcm-cp.com

USA - Office

Brickell City Centre
Miami Florida / USA

Europe - Production
Continental Europe

Hansaallee 60323
Frankfurt am Main Deutschland