Ceresit Plasters

This is the decorative plaster that makes the top layer of every thermal insulation system, whatever insulating material is used 'inside'. There are a few main plaster types, differing from each other with the chemical constitution:

- acrylic plasters,
- silicone plasters,
- silicate plasters,
- mineral plasters,
- silicate-silicone plasters.

All these are available in two grain structures:

- 'stone',
- 'rustic'.

Additionally, depending on the grain size, the plaster has a different thickness and appearance.

Apart from its decorative purpose, the role of plaster is to protect the insulation material from weather conditions and any damage as well as to cooperate with other components of the system within the performance of physical parameters.

Plasters and paints with BioProtect formula
Durability and aesthetics for years

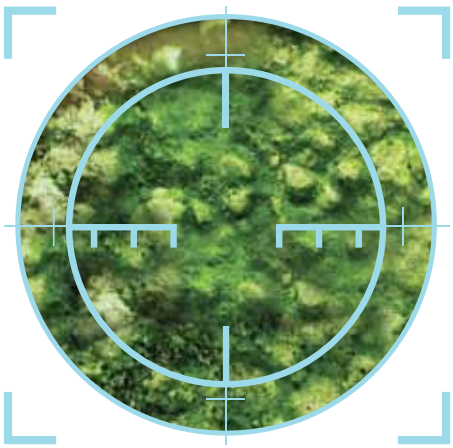
Protection and aesthetics

The dusty and neglected facades of buildings are usually the result of excessive atmospheric pollution, human activities and their interference with the environment. Dirty-gray precipitation often appears on the surface of building walls. This is already the result of the development of microorganisms – fungi and algae – which are invisible to the naked eye.

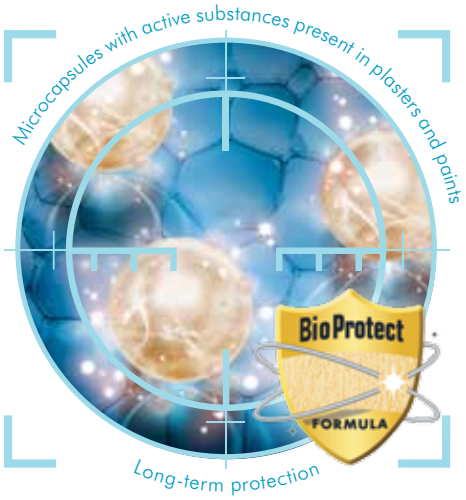
Microorganisms can only grow in specific conditions favourable to them. Unprotected plaster is exposed to their action and beyond the negative impact on the aesthetics of the facade, also entails the danger of its inevitable degradation.

The use of Ceresit plasters and paints with the BioProtect formula on the building facades protects elevations for many years and helps to maintain their aesthetics. Active substances existing in the products actively protect the facades against the development of microorganisms and their destructive influence. The durable and beautiful appearance remains pleasing to the eye for years. The effectiveness of the BioProtect formula products was confirmed by the appropriate permission of the Minister of Health.

Unsecured plaster with biological contamination.
Dirty and unaesthetic facade.



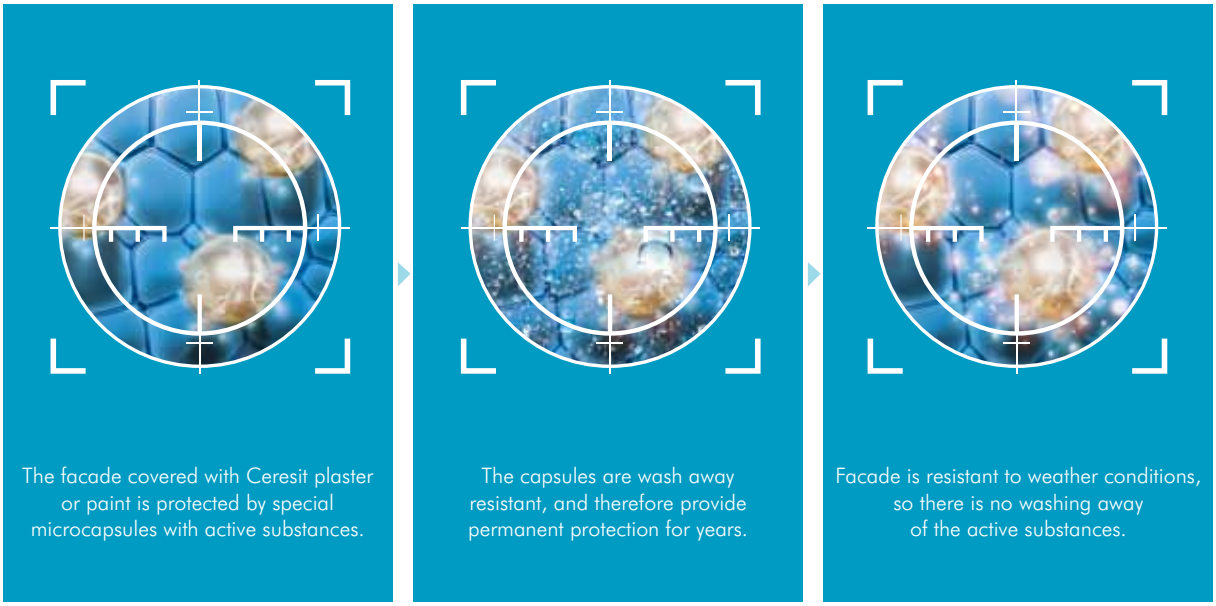
Ceresit plaster with BioProtect formula.
Durable and aesthetic facade.



How does it work

BioProtect formula works by employing microcapsules with active substances present in Ceresit plasters and paints.

Active substances, enclosed in the microcapsules, have a high resistance to being washed off, which in turn leads to a gradual substance release and works effectively in changing weather conditions. The active substances are released in a controlled manner for many years. This means that Ceresit products significantly extend the facade durability.



Additional protection

Ceresit plasters and paints also have antistatic properties, obtained through the Anti Dirt Pick-up effect, which protects the surface against the excessive deposition of pollutants. On the surface of the plasters and paints settles less pollution, so the facade is not proper environment for the development of fungi and algae.

Ecology and safety

The process of the gradual release of active substances is fully ecological. The form and character of microcapsules, with the active substances, is developed in such a way as not to affect the soil or sources of the drinking water. The safety of their use was confirmed by the appropriate permission of the Minister of Health. This also means that the active substances release process is completely safe for humans, animals, and the environment.

Plasters technical parameters

European standards of the EN 1062 series define the following values for thermal insulation systems:

- absorbency,
- water vapour permeability,
- self-cleaning ability.

The systems are also classified according to their water permeability coefficient:

Class	Water permeability coefficient W [kg/m^2 x h 0.5]	Classification
I	below 0.1	resistant to water
II	0.1-0.5	water repellent
III	0.5-2.0	water limiting
IV	above 2.0	water permeable

The diffusivity of a facade system is determined by:

μ Coefficient of relative diffusion resistance stating how many times water vapour diffusion resistance in the coat exceeds water vapour diffusion resistance in still air gap/layer of the same obstacle to thickness than temperature
Sd Relative diffusive resistance, i.e. thickness of still air gap, which constitutes the same obstacle to water vapour permeation than the given material [m]
d Layer thickness [m]
Sd $= \mu$ x d [m]

Classification of facade materials according to their Sd coefficient:

Type of coating system	Loss of whiteness degree [%]	Sprinkling angle [°]
Silicate-organic system	0.11	79
Silicone system	0.19	120
Acrylic system	2.12	104

Under standard operating conditions of the elevation, the resistance of decorative layer (plaster, paint) to the dirt is very important. This is specified by the degree of whiteness loss of top layer materials. Determining parameter of susceptibility to dirt is the contact angle of water meeting the coating surface. The higher the angle, the coating is more hydrophobic and the water carrying dirt penetrates into the structure of the substrate harder.

The criterion for differentiating the various plasters is their base binder. The binder in mineral plasters is cement, the binder in acrylic plasters are polymers (acrylic resins), the binder in silicate plasters are water solutions of potassium silicate and polymer dispersions, the binder in silicone plasters are silicon resins combined with acrylic or acrylic-styrene resins.

The essential differences between particular types of plasters can be described as follows:

- mineral and silicate plasters are characterised by a relatively low diffusion resistance,
- acrylic and silicone plasters have a low absorbency.

Below the characteristics of different plasters according to their binders are summarized.

Flexibility

- In the acrylic and silicone plasters flexibility compensates for shrinkage is greater than in the mineral and silicate plasters.

Absorbability

- Acrylic and silicone plasters contain significantly higher amount of polymers that seal the system and reduce water absorption, what increase mechanical strength.
- In the mineral and silicate plasters absorption is limited by the addition of hydrofobisators.

Resistance to dirt

- Acrylic and silicone plasters get naturally dirty due to environmental pollution, resulting in setting of dust on the surface of the plasters. With low water absorption of these plasters, the dirt settles only on the surface and in a great degree is self-cleaned with rain.
- Mineral and silicate plasters get naturally dirty with the same intensity, but because of the open structure, impurities are able to penetrate the plaster microstructure, and thus are harder to wash off by rainfall.

Maintain easiness

- As a result of low water absorption of acrylic and silicate plasters contamination is located on their surface and can be removed by washing elevation with water under pressure.
- With the possibility of deposition of pollutants in the microstructure of mineral and silicate plasters, in order to refresh the appearance of the facade, it is necessary to repaint the surface.

Large variety of colours

- Acrylic, silicate, silicone and silicate-silicone plasters can be tinted in a virtually unlimited number of colours.

The occurrence of discolouration

- Acrylic, silicone, silicate and silicate-silicone plasters do not contain cement or lime, so in the case of unfavourable conditions appearing during application or soon after its completion, there is no risk of discolouration.

Colour durability

- Acrylic, silicone and silicate-silicon plasters due to lower alkalinity are characterized by increased colour stability (slower fading with time).
- Silicate and mineral plasters due to the high alkalinity are characterized by moderate resistance to colour fading.

The resistance to microbiological contamination

- Thanks to the unique BioProtect formula, acrylic and silicone plasters are well protected against microbiological contamination. In addition, the closed structure impedes the growth of fungi and algae.
- Silicate and mineral plasters are characterized by very high alkalinity (pH>12), which forms a natural barrier against the development of microorganisms on the elevation surface. The addition of a BioProtect biocid agent provides additional protection against the development of microorganisms on the elevation surface.

Silicate-silicon plasters

- These plasters are a hybrid combination of two binders – silicone resin and silicate. By combining these two materials the plaster with high vapour permeability and at the same time with low water absorption was obtained. Increased alkalinity enhances the natural protection against growth of microorganism, and the compact structure of the polymer prevents the penetration of dirt particles in the structure of the plaster.

Comparison of physical properties of Ceresit plasters

Ceresit plasters	Vapour permeability	Water nonab-sorbability	Dirt resistance	Resistance to microbiological contamination	Durability
Mineral plasters CT 34, CT 35, CT 137	+++++	+	+	+++++	+++
Acrylic plasters CT 60, CT 63, CT 64	++	+++	++	++++	+++
Silicone-silicate plasters CT 174, CT 175	+++	+++	+++	++++	++++
Silicate plasters CT 72, CT 73	+++++	++	++++	+++++	+++++
Silicone plasters CT 74, CT 75	++++	+++++	+++++	++++	+++++

Ceresit Plasters textures

The choice of plaster texture and the technique of application influence the final appearance of the facade. One can decide between more definite rustic texture and a subtle stone texture. The expected effect is obtained by choosing the adequate grain size and the floating technique, which can be vertical, horizontal or circular.

I. 'Stone' textures

Materials with a high grain content of the same fraction ensure a more homogeneous appearance. When using a plastic float, they obtain the texture of dense aggregate, the so-called 'stone' texture. This plaster provides an elegant surface. When choosing an appropriate grading, the plaster can reinforce the building's architectural style.

Stone texture produced with **Ceresit CT 137** mineral plaster, grain size 1.5 mm, obtained by floating with a plastic float

Stone texture produced with **Ceresit CT 60** acrylic plaster, grain size 1.5 mm, obtained by floating with a plastic float

Stone texture produced with **Ceresit CT 137** mineral plaster, grain size 2.5 mm, obtained by floating with a plastic float

II. ‘Rustic’ textures

A ‘rustic’ texture is obtained by floating the surface with a plastic float. During this process, aggregate grains contained in the material roll and scratch the plaster depending on the float’s direction of motion. Thanks to various floating techniques (vertical, horizontal, circular) the plaster can be textured according to individual wishes. Depending on the grain size, the texture can be fine or coarse.

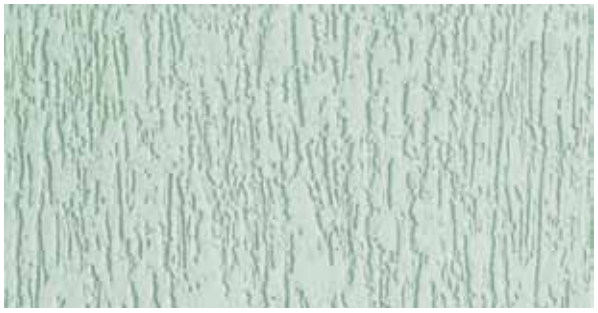
Rustic texture produced with **Ceresit CT 35** mineral plaster, grain size 3.5 mm, obtained by floating with a plastic float in one direction

Rustic texture produced with **Ceresit CT 35** mineral plaster, grain size 2.5 mm, obtained by circular floating with a plastic float

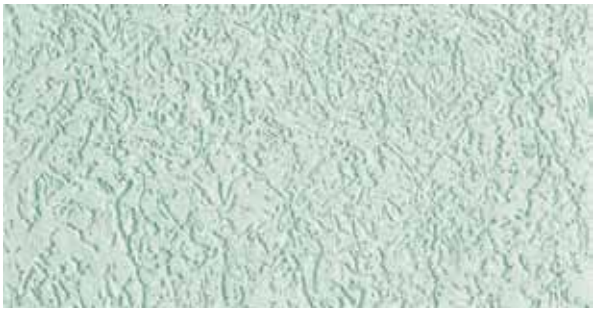
Rustic texture produced with **Ceresit CT 64** acrylic plaster, grain size 2.0 mm, obtained by floating with a plastic float in one direction

Rustic texture produced with **Ceresit CT 35** mineral plaster, grain size 2.5 mm, obtained by floating with a plastic float in one direction

Rustic texture produced with **Ceresit CT 64** acrylic plaster, grain size 2.0 mm, obtained by circular floating with a plastic float



Rustic texture produced with **Ceresit CT 63** acrylic plaster, grain size 3.0 mm, obtained by floating with a plastic float in one direction

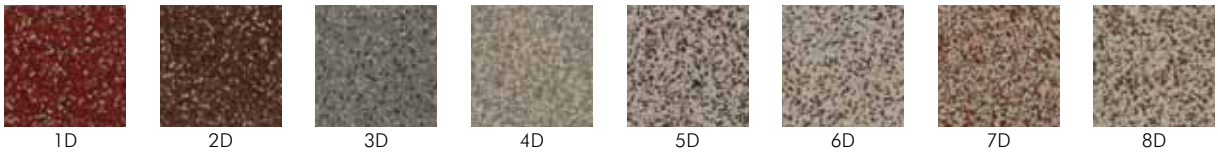


Rustic texture produced with **Ceresit CT 35** mineral plaster, grain size 3.5 mm, obtained by circular floating with a plastic float

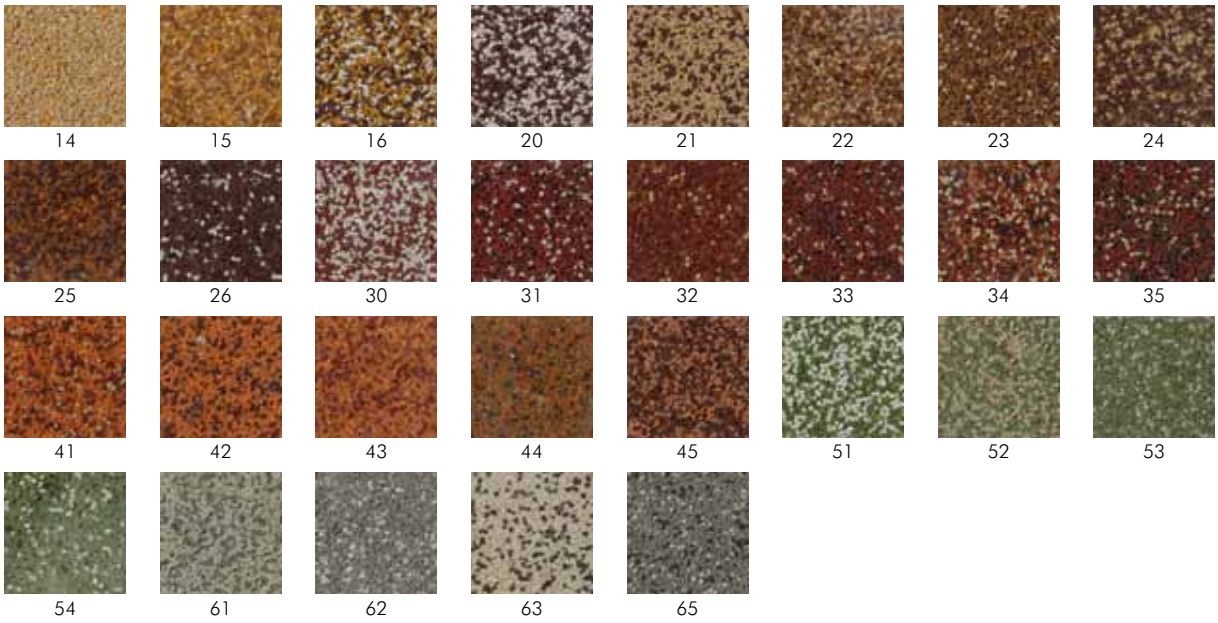
III. Colours of mosaic plasters

Ceresit CT 77 plasters are applied and smoothed with a metal float. Depending on the grading fraction, it is possible to produce a smoother or more intricate surface. Transparent resins are used a s a binder whereas coloured grit is used as a filler. After setting, the surface has a glassy colourful appearance which is easy to keep clean. Mosaic plasters are recommended for use on building pedestals, on the surface of balustrades as well as on window and door reveals and frames.

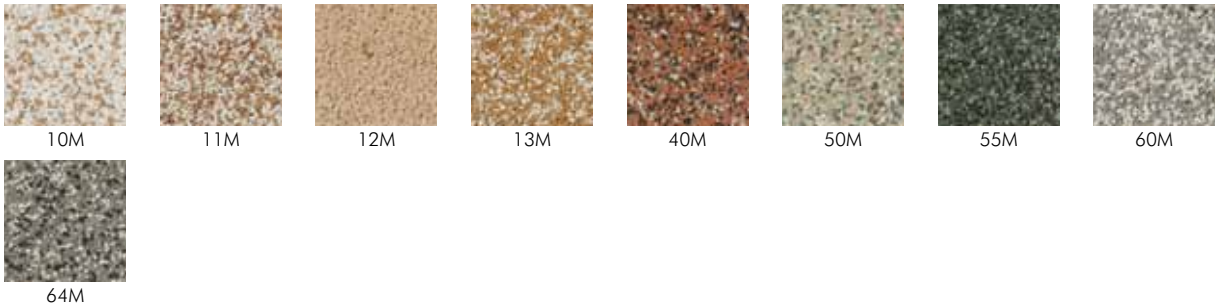
1. Mosaic plasters with fine grain 0.8-1.2 mm



2. Mosaic plasters with coarse grain 1.4-2.0 mm



3. Mosaic plasters with marble aggregates



Ceresit plasters types and characteristics

Type	Name	Structure and grain	Characteristics
Mineral	CT 34 (more information on p. 97) 	‘smooth’ structure	• vapour permeable (breathing) • hydrophobic • flexible • weather resistant • good adhesion • reinforced with microfibres • easy to use • requires mixing with water
	CT 35 (more information on p. 97) 	‘rustic’ structure grain 2.5 mm grain 3.5 mm	• highly vapour permeable (breathing) • highly durable and weather resistant • naturally resistant to bio-contamination (e.g. mould or moss) • hydrophobic • available in white and in version for painting • requires mixing with water
	CT 137 (more information on p. 98) 	‘stone’ structure grain 1.5 mm grain 2.0 mm grain 2.5 mm	• highly vapour permeable (breathing) • highly durable and weather resistant • naturally resistant to bio-contamination (e.g. mould or moss) • hydrophobic • possibility of mechanical application • available in white and in version for painting • equires mixing with water
Acrylic	CT 60 (more information on p. 98) 	‘stone’ structure grain 1.5 mm grain 2.0 mm grain 2.5 mm	• weather resistant • ready to use • low absorption and high flexibility • resistant to exploitation damages • vapour permeable (breathing) • BioProtect formula – resistant to mould, fungi and algae • colour stability • possibility of mechanical application • available in full colour range of Ceresit Colours of Nature®
	CT 60 Zima (more information on p. 99) 	‘stone’ structure grain 1.5 mm grain 2.5 mm	• possibility of application also in lower temperatures • ready to use • vapour permeable (breathing) • hydrophobic • weather resistant • BioProtect formula - resistant to mould, fungi and algae
	CT 63 (more information on p. 99) 	‘rustic’ structure grain 3.0 mm	• weather resistant • ready to use • low absorption and high flexibility • resistant to exploitation damages • vapour permeable (breathing) • BioProtect formula - resistant to mould, fungi and algae • colour stability • available in full colour range of Ceresit Colours of Nature®
	CT 64 (more information on p. 100) 	‘rustic’ structure grain 2.0 mm	
Silicate-silicone	CT 174 (more information on p.104) 	‘stone’ structure grain 1.5 mm grain 2.0 mm	• vapour permeable (breathing) • ready to use • low absorption • resistant to exploitation damages • highly weather resistant • BioProtect formula – resistant to mould, fungi and algae • colour stability • possibility of mechanical application • available in full colour range of Ceresit Colours of Nature®
	CT 175 (more information on p. 104) 	‘rustic’ structure grain 2.0 mm	
Silicate	CT 72 (more information on p.102) 	‘stone’ structure grain 1.5 mm grain 2.5 mm	• highly vapour permeable (breathing) • ready to use • highly durable – resistant to exploitation damages and cleaning • weather resistant • BioProtect formula – resistant to mould, fungi and algae • colour stability • possibility of mechanical application• available in full colour range of Ceresit Colours of Nature®
	CT 73 (more information on p. 102) 	‘rustic’ structure grain 2.0 mm	• highly vapour permeable (breathing) • ready to use • highly durable – resistant to exploitation damages and cleaning • weather resistant • BioProtect formula – resistant to mould, fungi and algae • colour stability • available in full colour range of Ceresit Colours of Nature®
Silicone	CT 74 (more information on p. 103) 	‘stone’ structure grain 1.5 mm grain 2.5 mm	• high dirt resistance • ready to use • highly flexible and impact resistant • high colour stability • highly durable • very limited absorption and high vapour permeability (breathing) • highly weather resistant • BioProtect formula – resistant to mould, fungi and algae • available in full colour range of Ceresit Colours of Nature®
	CT 75 (more information on p. 103) 	‘rustic’ structure grain 2.0 mm	
Mosaic	CT 77 (more information on p. 101) 	grain 0.8 - 1.2 mm grain 1.4 - 2.0 mm	• available in many colour compositions • ready to use • weather resistant • scrub resistance • easy to keep clean • BioProtect formula – resistant to mould, fungi and algae