THERMOSAN® CAL

LIME-BASED MACROPORUS MORTAR FOR RESTAURATION OF SUBSTRATES DAMAGED BY RISING DAMPNESS

DESCRIPTION

THERMOSAN® CAL is a one-component, macroporous mortar based on hydraulic lime and light weight aggregates with polypropylene fibres and thermal-dehumidifying properties, which forms a layer for restoration and treatment of substrates damaged by capillary rising dampness.

APPLICATION FIELDS

- Treatment and/or elimination of capillary rising dampness and condensations by cold wall effect, on indoor or outdoor walls, underground walls, wall footings, etc.
- Prevention of damages by salt crystallization and appearance of efflorescence on masonry surfaces.
- Rehabilitation of heritage and historical buildings: walls, ceilings and vaults affected by capillary rising dampness and phreatic level.

ADVANTAGES

- Very permeable to water vapour, allows the substrate to breath, i.e. does not form a vapour barrier.
- Greatly delays the salt crystallization on surface, avoiding its disintegration effect on mortar.
- Internal macroporous structure which absorbs the substrate humidity and allows its dehumidification and auto-ventilation.
- Cement-free mortar. Compatible with non-structural substrates and weak masonry units.
- Salt-free composition, does not promote expansive alkali reactions.
- Very low thermal conductivity which provides an insulation effect against extreme changes of temperature, preventing the cold wall effect.
- Excellent adhesion on substrate. No additional primer/bonding agent is required.
- Its self-ventilating property drains and dries the substrate.
- Good workability and easy to apply.
- Good thixotropy, allows vertical layers up to 3 cm thickness.

APPLICATION INSTRUCTIONS

Surface preparation
Surface must be clean and free of paints, coatings, efflorescence, loose particles, grease, oils, curing agents, form release agents, dust, gypsum plasters, organic growth or any other contaminants that may affect to adhesion.

Eliminate any remains of previous renders at least 90 cm above the highest point of the capillary dampness.

For cleaning and preparing the substrate, use sand blasting or high pressure water cleaning methods, not being desirable aggressive mechanical means.

All non-structural defects such as voids, honeycombs, static cracks, etc can be repaired and levelled previously with ***THERMOSAN® CAL*** to provide an even surface.

Over very uneven, weak or non-absorbent substrates, fix mechanically chicken mesh reinforcement on the substrate, prior to application of ***THERMOSAN® CAL***.

To minimize any possible damage caused by the salt crystallization from substrate, apply previously the anti-efflorescence treatment ***MAXCLEAR® SULFALT*** (Technical Bulletin No. 163).

In severe cases of capillary raising dampness and/or presence of salts from the substrate, use horizontal damp proofing chemical barriers such as ***MAXCLEAR® INJECTION*** (Technical Bulletin No. 152).

Dampen thoroughly the entire surface to be treated with clean water, avoiding the formation of puddles. If it gets dry, proceed to saturate with water again.

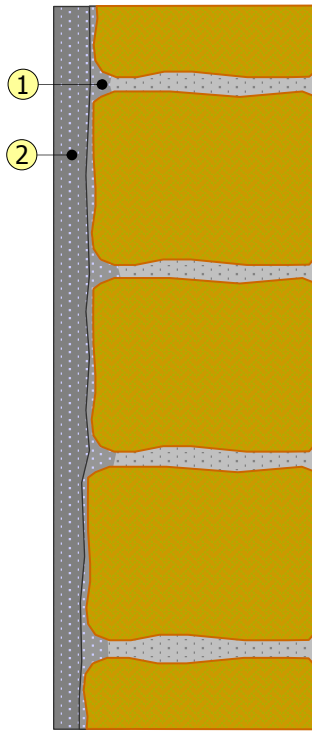
Mixing
A 15 kg bag of ***THERMOSAN® CAL*** requires from 4,8 to 5,4 litres (32-36 %) of water, depending on existing ambient conditions and desired consistency.

Use a mixer or mechanical stirrer. Add the powder into about 90% of mixing water required, and then mix for about 10 minutes. Allow the product to rest for 3 - 5 minutes. Remix again for another 5 minutes until a lump-free homogeneous mortar is achieved, adding the rest of the mixing water.

Manual mixing or concrete mixer does not furnish enough mixing to provide the product with all its properties. If done by hand, do so for 20 minutes in a semi-dry consistency, afterwards add total mixing water. Never use more water than the maximum amount recommended.

Application

1.- Apply a thin first layer pressing it well with trowel or, a slurry coat with ***MAXBRUSH***® brush, to improve adhesion.



2.- Once this levelling layer or slurry coat has dried, i.e. 24 h, spread the mortar with a trowel by spattering on the surface without pressing excessively, or by mean of a spray gun, to a thickness between 1,5 to 3 cm and in a single layer if possible.

If greater thickness is required, allow one day before applying another layer over it, which will previously be left rough to ease the bonding of the next one. For finishing procedures it can be smoothed with an aluminium straight edge or metal trowel, without pressing excessively so as not to reduce the porosity of the mortar.

Application conditions
Do not apply when rainfall, contact with water, condensation, dampness and dew is expected within 24 hours.

The optimum temperature range for application is from 10 ºC to 35 ºC. Do not apply with substrate and/or ambient temperature is at or below 5°C, or when temperatures are expected to fall below 5 °C within 24 hours. Do not apply to frozen or frost-covered surfaces.

For applications at hot temperatures, low relative humidity and/or windy conditions, i.e. summer time (> 30ºC), surface must be wet thoroughly with plenty of water prior to application, and use ***MAXCRYL***®:water dilution 1:3 for mixing. Avoid applications in areas exposed to direct sunlight with high temperatures (> 35 ºC).

Curing

At hot weather, windy and/or low humidity conditions with direct sunlight, prevent a quick-drying process of ***THERMOSAN***® ***CAL,*** keeping a moisture curing at least 24 hours after application, by using plastic sheeting, damp burlaps or spraying a fine mist of water, avoiding to wash out the surface.

Allow ***THERMOSAN***® ***CAL*** to cure for at least 7 days at 20 ºC and 50% R.H. before applying ***MAXMORTER***® ***CAL-F*** (Technical Bulletin No. 85) or permeable acrylic coatings such as ***MAXSHEEN***® ***-F*** (Technical Bulletin No. 247). Lower temperatures and/or higher R.H. values increase the curing time.

Cleaning
All mixing and application tools must be cleaned immediately with water after use. Once product hardens, this can only be removed by mechanical means.

CONSUMPTION

Estimated consumption for ***THERMOSAN***® is 1,0 kg/m^2·mm thickness, applied in a single layer with 15 to 30 mm thickness.

The higher thickness per layer used provides a higher ventilation capacity of substrate.

These figures are for guidance only and may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to ascertain the total consumption exactly.

IMPORTANT INDICATIONS

- Do not add cement, additives, aggregates or other compounds.
- Observe the recommended mixing liquid to powder ratio.
- Observe the recommended consumption and thickness per layer.
- Do not apply on substrates vitrified or enamelled, or treated with water repellent agents. Do not apply on bituminous materials, wood, plasters or paints.
- Do not use leftovers from previous mixes.
- Do not cover ***THERMOSAN***® ***CAL*** with non-permeable layers or coatings.
- For other uses not specified in this Technical Bulletin or further information, consult the Technical Department.

PACKAGING

THERMOSAN® ***CAL*** is supplied in 15 kg bags. It is available in standard white colour.

STORAGE

Twelve months in its unopened and undamaged original sealed packaging. Store in a cool, dry and covered place, protected from moisture, freezing and direct sunlight, at temperatures above 5 °C.

SAFETY AND HEALTH

THERMOSAN® CAL is not a toxic product but is an abrasive composition. Avoid direct skin and eye contact, and breathing dust. Use rubber gloves and safety goggles during application. In case of skin contact, wash affected area with soap and water. In case of eye contact, rinse immediately thoroughly with clean water but do not rub. If the irritation persists, seek medical assistance.

Consult the Material Safety Data Sheet for ***THERMOSAN® CAL.***

Disposal of the product and its packaging should be carried out according to the current official regulations and it is the responsibility of the final user of the product.

TECHNICAL DATA

Product characteristics	
General appearance and colour	White powder
Maximum size of aggregate, (mm)	< 1,0
Density for powder, (g/cm^3)	0,8 ± 0,1
Mixing water, (%, by weight)	34 ± 2
Density for mixed product, (g/cm^3)	1,26 ± 0,1
Application and curing conditions	
Minimum application temperature for substrate and ambient, (ºC)	> 5
Pot life at 20 ºC and 50 % R.H., (min)	25 – 35
Curing time between layers at 20 ºC and 50 % R.H., (h)	24
Curing time for coating with ***MAXMORTER CAL-F*** at 20 ºC and 50 % R.H., (d)	7
Total curing time at 20 ºC and 50 % R.H., (d)	28
Cured product characteristics	
Density for cured and dried mortar, EN 1015-10 (g/cm^3)	1,04 ± 0,1
Compression strength at 28 days, EN 1015-11 (N/mm^2 – Class)	1,7 – CS II
Flexural strength at 28 days, EN 1015-11 (MPa)	1,5
Adhesion and break type, EN 1015-12 (N/mm^2 - FP)	> 0,3
Water absorption by capillary after 24 h, EN 1015-18 (kg/m^2)	1,5
Reaction to fire, EN 13501-1 (Class)	A1
Thickness / Consumption	
Thickness per layer, (mm)	15 – 30
Consumption (kg/m^2·mm thickness)	1,0

GUARANTEE

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. ***DRIZORO®, S.A.U.*** reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. We shall not accept responsibility exceeding the value of the purchased product. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. In order to know the real data, a test on the jobsite must be done, and it will be carried out under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.

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