**LIMECRETE**

High-performance structural mortar for transpirant render and masonry work, based on natural hydraulic lime NHL 5,0 particularly suitable for making “reinforced” in FRCM cycles

**Description**
High-performance structural mortar for transpirant render and masonry work, based on natural hydraulic lime NHL 5,0 particularly suitable for making “reinforced” in FRCM-CRM cycles.
LIMECRETE is marked CE according with EN 998-1 and 998-2. The characteristics of the mortar M15 are particularly suitable for the use in the reinforced cycles FRCM-CRM.

**Uses**
Rendering old stone, brick, tuff and mixed masonries, including ancient and decorative ones, with high-performance transpirant mortar applied using a rendering machine or trowel.
“Reinforced” render with metal or composite mesh FRCM-CRM and construction joints for consolidating, strengthening and renovating weak masonry.
Pointing between elements on masonries, including those with a natural-finish.
LIMECRETE combined with mesh AR glass G-NET and preformed RG NET BA, basalt B-NET, Carbon C-NET, and UHTSS galvanized steel textile Steel Net G is consistent with the approach defined in the Italian guidelines for the qualification of FRCM and CRM systems, which stipulate that the entire strengthening system must be qualified.
For load-bearing and buffer walls or for rebuilding old masonries.

**Advantages and properties**
LIMECRETE NHL 5.0 is a pre-blended cement-free mortar in powder form for render and masonry work, made from natural hydraulic lime, natural sand, special admixtures, micro-fibres according to a formulation developed in the Company’s research laboratories.
This product is classified according to EN 998-1 Category CS IV and 998-2. Class M 15, with compressive strength > 15 N/mm².
When LIMECRETE is mixed with water using a continuous mixing rendering machine or a mortar mixer, it forms a transpirant rendering and masonry mortar with a plastic-thixotropic consistency which is easy to apply by spraying or with a trowel. Thanks to its special composition, LIMECRETE has an extremely low rate of hygrometric shrinkage which drastically reduces the risk of the formation of cracks in the mortar.
The mortar has a good adhesion after the right preparation of the surface.
LIMECRETE is salts free and does not create any damage on the old structures for salts crystallization.
The mortar is vapor transpirant with low capillary absorption. The mortar is Class A1.

**Technical data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Hazel-gray color</td>
</tr>
<tr>
<td>Bulk density fresh mortar</td>
<td>1.8-1.9 g/cm³</td>
</tr>
<tr>
<td>Yield</td>
<td>17-18 kg/m² x cm thickness</td>
</tr>
<tr>
<td>Mixing water in wt</td>
<td>17-19%</td>
</tr>
<tr>
<td>Compressive strength at 28 days</td>
<td>&gt;15 N/mm²</td>
</tr>
<tr>
<td>Flexural strength at 28 days</td>
<td>&gt;4 N/mm²</td>
</tr>
<tr>
<td>Elastic modulus at 28 days</td>
<td>&lt;10000 N/mm²</td>
</tr>
<tr>
<td>Coefficient of vapor diffusion</td>
<td>μ&lt; 13</td>
</tr>
<tr>
<td>Consistency of fresh mortar</td>
<td>mm 90</td>
</tr>
<tr>
<td>Capillary absorption coefficient</td>
<td>&lt;0.2 Kg x m⁻² min⁻¹.⁵</td>
</tr>
<tr>
<td>Bond strength at 28 days</td>
<td>&gt;0.6 N/mm²</td>
</tr>
<tr>
<td>Reaction to fire</td>
<td>Class A1</td>
</tr>
<tr>
<td>Temperature application range</td>
<td>+5 °C +35°C</td>
</tr>
</tbody>
</table>

**Description**
High-performance structural mortar for transpirant render and masonry work, based on natural hydraulic lime NHL 5,0 particularly suitable for making “reinforced” in FRCM cycles.
LIMECRETE is marked CE according with EN 998-1 and 998-2. The characteristics of the mortar M15 are particularly suitable for the use in the reinforced cycles FRCM-CRM.

**Uses**
Rendering old stone, brick, tuff and mixed masonries, including ancient and decorative ones, with high-performance transpirant mortar applied using a rendering machine or trowel.
“Reinforced” render with metal or composite mesh FRCM-CRM and construction joints for consolidating, strengthening and renovating weak masonry.
Pointing between elements on masonries, including those with a natural-finish.
LIMECRETE combined with mesh AR glass G-NET and preformed RG NET BA, basalt B-NET, Carbon C-NET, and UHTSS galvanized steel textile Steel Net G is consistent with the approach defined in the Italian guidelines for the qualification of FRCM and CRM systems, which stipulate that the entire strengthening system must be qualified.
For load-bearing and buffer walls or for rebuilding old masonries.

**Advantages and properties**
LIMECRETE NHL 5.0 is a pre-blended cement-free mortar in powder form for render and masonry work, made from natural hydraulic lime, natural sand, special admixtures, micro-fibres according to a formulation developed in the Company’s research laboratories.
This product is classified according to EN 998-1 Category CS IV and 998-2. Class M 15, with compressive strength > 15 N/mm².
When LIMECRETE is mixed with water using a continuous mixing rendering machine or a mortar mixer, it forms a transpirant rendering and masonry mortar with a plastic-thixotropic consistency which is easy to apply by spraying or with a trowel. Thanks to its special composition, LIMECRETE has an extremely low rate of hygrometric shrinkage which drastically reduces the risk of the formation of cracks in the mortar.
The mortar has a good adhesion after the right preparation of the surface.
LIMECRETE is salts free and does not create any damage on the old structures for salts crystallization.
The mortar is vapor transpirant with low capillary absorption. The mortar is Class A1.

**Technical data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Hazel-gray color</td>
</tr>
<tr>
<td>Bulk density fresh mortar</td>
<td>1.8-1.9 g/cm³</td>
</tr>
<tr>
<td>Yield</td>
<td>17-18 kg/m² x cm thickness</td>
</tr>
<tr>
<td>Mixing water in wt</td>
<td>17-19%</td>
</tr>
<tr>
<td>Compressive strength at 28 days</td>
<td>&gt;15 N/mm²</td>
</tr>
<tr>
<td>Flexural strength at 28 days</td>
<td>&gt;4 N/mm²</td>
</tr>
<tr>
<td>Elastic modulus at 28 days</td>
<td>&lt;10000 N/mm²</td>
</tr>
<tr>
<td>Coefficient of vapor diffusion</td>
<td>μ&lt; 13</td>
</tr>
<tr>
<td>Consistency of fresh mortar</td>
<td>mm 90</td>
</tr>
<tr>
<td>Capillary absorption coefficient</td>
<td>&lt;0.2 Kg x m⁻² min⁻¹.⁵</td>
</tr>
<tr>
<td>Bond strength at 28 days</td>
<td>&gt;0.6 N/mm²</td>
</tr>
<tr>
<td>Reaction to fire</td>
<td>Class A1</td>
</tr>
<tr>
<td>Temperature application range</td>
<td>+5 °C +35°C</td>
</tr>
</tbody>
</table>
Preparation of the substrate
Remove all loose and flaky parts, dust, mould and any other material either manually or mechanically until a clean, sound and compact surface is obtained to guarantee a good bonding surface for LIMECRETE. When rebuilding the masonry installation joints remove all deteriorated and loose mortar. Then clean the wall with low-pressure water jets to remove any efflorescence or salts present on the surface. Repeat this operation several times if necessary.

Voids and uneven areas in the masonry must be repaired by patching or tacking with LIMECRETE or LIMECRETE TA with pieces of stone, brick or tuff with similar characteristics to the original material. In the case of particularly difficult masonries, such as those in stone and mixed or porous or mechanically weak materials, we recommend applying a starter layer approximately 5 mm thick of LIMECRETE with a semi-fluid consistency to even out the absorbency of the substrate and improve the bond of the plaster.

If large surfaces need to be rendered, we recommend applying the product with a continuous-feed rendering machine and to place vertical shims on the walls to check that the render is even and flat.

Before applying the mortar the substrate must be partially saturated to avoid the substrate absorbing water from the mortar, compromising the final performance characteristics of the mortar. Excess water must be eliminated, so that the masonry is saturated and the surface is dry. Compressed air may be used to speed up this process.

Preparation of the product
LIMECRETE must be prepared in a mortar mixer if it is to be applied by trowel or in a continuous-feed rendering machine if mechanical application is preferred. Although the product is suitable for application using manual techniques, we recommend using a rendering machine to apply the product on large surfaces to obtain a better yield. Small amounts of the product may be prepared using a low-speed electric drill with a mixing attachment. Mixing by hand is not recommended.

Application of the product
Application with rendering machine
Pour the contents of the bags of LIMECRETE into the hopper of a continuous-feed rendering machine (such as a PFT G4 or G5, Putzmeister MP 25, Turbosol or similar) and set the flow-rate at 320-340 l/h, according to the type of machine used, until a “plastic” consistency is obtained. Tests to validate the product at the right consistency. If an initial approx. 5 mm thick layer of with a semi-fluid consistency has been applied, wait until this product starts to set and then apply a single layer of LIMECRETE (max 20 mm) starting from the lower part of the masonry and working upwards.

If the thickness to be applied is thicker LIMECRETE must be applied in several layers. Each layer must be applied without tamping the previous one.

We recommend rendering the wall from a distance of approximately 20 cm so that the product is applied uniformly.

After applying the mortar, wait a few minutes and level off using an aluminium H-type or blade-type straight edge by passing over the surface horizontally and vertically until it is flat.

Remove the vertical shims which were previously attached to the wall and fill the spaces with the same mortar. Finish the surface of LIMECRETE with a plastic, wooden or sponge float a few hours after the application, according to the surrounding temperature and conditions.

Even though LIMECRETE contains products which contrast the formation of micro-cracks, it is good practice to apply the mortar when the wall is not exposed to direct sunlight and/or wind. In such cases, such as during hot and/or particularly windy weather, take special care when curing the mortar, especially during the first 36-48 hours. Spray water on the surface or employ other systems to impede the mixing water evaporating too quickly.

Application by trowel
After pouring a minimum amount of clean water in the mixer (approximately 4.5 litres per 25 kg bag of LIMECRETE), slowly pour the powder in a continuous flow. Mix for approximately 3 minutes and check that the blend is well mixed, even and free of lumps and remove all the material which has stuck to the walls of the mixer. Then mix LIMECRETE again for a further 2-3 minutes to obtain an even, “plastic” and thixotropic blend.

Apply LIMECRETE in layers of up to 20 mm thick per layer, starting from the bottom of the wall.
If the product is used as masonry mortar on facing walls or for patching and tacking, form a laying surface beforehand and then apply the constructive elements by pressing them in with a light pressure until they are in the right position. Remove excess mortar with a trowel. On natural-finish walls, remove any excess product and clean the facing wall with water and a sponge float.

**Finishing**

Wait until 7 days per cm thickness before apply any finishing and paint. If the surface of the render is to be smoothed off and then decorated or protected, use thin layers of a coloured finish such as silicate finish or siloxane finish after priming the surface with a primer from the corresponding ranges of products. As an alternative to the products mentioned above, if the surface of the render is to be painted, use GP SunZenit Exterior and Interior special thermoceramic coating after applying their corresponding primers (see technical sheet). For constructions particularly exposed to rain, if the render does not require any coating, it may be protected with a transpirant product such as I.S. transparent, transpirant, siloxane resin impregnator in solvent or I.S.W. transparent, transpirant, siloxane resin impregnator in water dispersion.

**Cleaning**
The mortar which has not yet hardened may be washed from tools using water. Once hardened, cleaning is much more difficult, and must be carried out mechanically.

**Yield**
Approx. 17-18 kg/m² per cm of thickness.

**Color**
Hazel-gray color

**Packaging**
25 kg bags. Pallet kg 1200

**Storage**
12 months in a dry, covered environment in its original, sealed packaging.

**Recommendations**
Never add admixtures, cement or other binders (lime and gypsum) to LIMECRETE. Do not add more water than prescribed. Wait until LIMECRETE is completely cured before skimming the surface or applying a thin layer of coloured coating. Do not apply LIMECRETE if the temperature is lower than +5°C or higher than +35°C. Do not apply on frozen substrates that are about to thaw or with the risk of frost in the next 24-48 hours. Do not apply on gypsum, wood, metal or plastic substrates. Protect from rain for at least 48 hours after installation. Protect in case of strong sunlight for at least 48 hours. Do not use damaged or open bags. Do not add water to restore workability of the product during hardening.

**Safety instructions**
LIMECRETE contains special hydraulic binders, which when in contact with sweat or other body fluids may cause problems to the eyes. During use, wear protective gloves and goggles and take the usual precautions for handling chemicals. If the product comes in contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention. For further and complete information about the safe use of the product please refer to the latest version of our Material Safety Data Sheet (SDS).

**PRODUCT FOR PROFESSIONAL USE.**