THE MASONRY PEOPLE

KING
A SIKA COMPANY

DIVISION 04
REPOINTING MORTAR
NATURAL HYDRAULIC LIME BASED

HLM-350

FEATURES & BENEFITS
- Contains no cement
- Formula similar to historic mortar
- Excellent water vapour transmission properties
- Better resistance to freeze-thaw cycles than air lime
- Better resistance to de-icing salts than air lime
- Pre-mixed, which reduces mixing time on site, ensures good proportions and guarantees a homogeneous mortar throughout the project

USES
- For repointing buildings or monuments (ancient or modern)
- Can be used indoors or outdoors

CAUTION
Colour variations on the hardened mortar can be observed even if the mortar in-place has been previously coloured in the factory and complies with the project specifications.

These colour variations are mainly attributed to various implementation conditions such as delay between mixing and tooling of joints, lack of protection against the weather during implementation, or variability in the rate of absorption/humidity. In order to avoid an undesirable result, we recommend that you pay particular attention to these points.

KING HLM-350 is a pre-mixed and pre-bagged mortar specially designed to be used when repointing masonry elements. This mixture is composed of natural hydraulic lime, masonry sand and an air-entraining agent. It is off-white in colour, and may be coloured in the factory or on the job-site using the Colour Plus System exclusive to KING.

EXECUTION
- The application of the mortar must comply with the requirements of sections 6 and 7 of CSA A-371-14 Standard.

MIXING
Small Quantity
Important: In order to avoid segregation issues, always mix the total content of one bag. If less than 30 KG (66 lb) is required (i.e. dry-mix, without water), place the total contents of the bag in a clean container, remove the required amount, and then add water to the amount withdrawn from the mixture.

Large Quantity
Always mix the entire contents of the bag. Mix the HLM-350 with a maximum of 4.2 L (1.1 US gallon) of potable water per 30 KG (66 lb) bag, in a clean mortar mixer. Mix for 5 minutes, or 5 to 10 minutes when using a coloured mortar or when a colourant is added on-site. Using the remaining water, adjust the mortar to obtain the desired consistency. Once well mixed, the consistency of the mortar should be firm enough to allow you to shape a ball with your hands.

MORTAR PLACEMENT
Surface preparation should include, removing any loose particles, dust and debris, as well as removing the old mortar to a depth of twice the thickness of the joint. Moisten the area to be repaired without leaving standing water in the cavities to be filled. Place the mortar in successive layers of 6 mm (¼ inch) thickness maximum. The layers of mortar are applied wet on wet. If work is interrupted, moisten the joint again before resuming work. Tool the joints and start the curing. Avoid working in direct sunlight or exposed to winds. The sun as well as the wind are elements to take into consideration in order to avoid cracking problems. Never spread mortar on frozen surfaces.

TOOLING OF THE JOINTS
The tooling of joints exposed to rain is an important step that contributes to the waterproofing of the masonry system and must be done using a jointer. The amount of water present in the mortar joint at the time of tooling will determine the final colour of the cured mortar. To avoid colour variation, ensure that the mortar joint always contains the same amount of water when it is tooled. As a general rule, the joint is considered ready to be tooled when the mortar has hardened sufficiently such that a fingerprint mark remains. Always tool the joint in order to respect the historical aspect of the original mortar.

CURING
Curing is essential for optimizing the physical properties of the mortar. The curing is carried out using a moist cure which must begin as soon as the initial set of the mortar is complete and continue for a period of 3 to 7 days. To learn more about the moist cure, refer to the guide: How to perform a moist cure for masonry, published by KING and available on the company's website.

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LIMITATIONS

- Never add admixtures on-site to modify set time, workability or any other properties of the plastic or hardened mortar
- Never use HLM-350 on frozen elements or mortar
- Do not use HLM-350 for to lay masonry units. In this case, it is advisable to use HLM-500.
- Never add water to recover the loss of workability. Only mix again.

OPTIMAL PERFORMANCE

- Surface and mortar temperature should be between 5°C and 35°C (40°F and 95°F) and kept within this range for 2 days (48 hours) after the end of the moist cure.

PACKAGING

This product is packaged in 30 KG (66 lb) triple-lined bags or bulk bags, wrapped on wooden pallets.

STORAGE AND SHELF LIFE

Always store in a dry area, protected from the weather. On-site, an additional tarp must be used to cover the product to prevent water infiltration. Unopened, properly stored bags have a shelf life of 12 months.

SAFETY PROCEDURES

This product is made of Natural Hydraulic Lime. Wearing the same safety equipment that is usually used for the handling of cement-based products is recommended: rubber gloves, dust mask and safety glasses. Safety Data Sheets can be provided upon request.

CLEANING

In order to avoid the use of chemicals it is recommended to always remove as much splash or mortar stains as possible before the mortar hardens. If the use of cleaning products is necessary, be sure to contact the manufacturer of the product to validate the compatibility and the procedure to follow. It's important to mention that it is a mortar based on natural hydraulic lime.

If the colour ONYX is used, be sure to mention to the cleaning product manufacturer that the mortar contains Carbon Oxide pigments. Generally used cleaning agents are not compatible with Carbon Oxides. Apart from colour Onyx, all KING coloured mortars contain iron or titanium oxides.

Regardless of the technique or product selected, it is essential to preserve the integrity of the mortar.

Be sure to clean a test area before proceeding with the work.

TECHNICAL DATA*	
VICAT CONE	
ASTM C 780	15 mm (0.6") ± 5 mm (0.2")
COMPRESSIVE STRENGTH**	
CSA A3004-C2	
7 Days	0.7 MPa (101 psi)
28 Days	1.8 MPa (145 psi)
90 Days	2.7 MPa (290 psi)
AIR CONTENT	
EN-1015-7 Method A	14% Maximum
SHRINKAGE	
ASTM C 596	0.05% at 91 days
YIELD PER 30 KG (66 LB) BAG	0.018 m^3 (0.65 ft^3) of fresh mortar

* All the values expressed are average values and are obtained under laboratory conditions.
** The compressive strengths of natural hydraulic lime mortars gradually increase as a function of time unlike mortars containing cement which reach their optimal value around 28 days.

V0523

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Other Locations
Boisbriand (Quebec)
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