BUILDING TRUST
CONSTRUIRE LA CONFIANCE

PRODUCT DATA SHEET

King® HLM-350

Natural hydraulic lime-based masonry mortar for repointing applications

PRODUCT DESCRIPTION

King® HLM-350 is a premixed, factory-bagged mortar specially designed to be used when repointing masonry elements. This mortar is formulated with natural hydraulic lime, masonry sand with controlled grain size and an air-entraining admixture.

WHERE TO USE

- Repointing buildings or monuments (ancient or modern)
- Can be used for interior and exterior applications

CHARACTERISTICS / ADVANTAGES

- Factory-calibrated mix
- Formulated without cement
- Formula similar to historic mortars
- Excellent water vapour transmission properties
- Better resistance to freeze-thaw cycles than hydrated lime
- Better resistance to de-icing salts than hydrated lime

PRODUCT INFORMATION

CSC MasterFormat®	04 05 13 - Masonry Mortaring and Grouting Specifications template are available on Sika Canada Website
Packaging	30 kg (66 lb) triple-lined bags, polywrapped on wooden pallets.
Shelf Life	12 months in original, unopened bag
Storage Conditions	Always store in a dry area, protected from the weather. At the job site, an additional tarpaulin must be used to cover the product to prevent water infiltration.
Appearance / Colour	Powder / Cream Note: May be factory-coloured or at the job site using the King® ColourPlus Pigment System exclusive to Sika Canada. All pigments used conform to the requirements of *ASTM C979 Pigments for Integrally Colored Concrete* .

TECHNICAL INFORMATION

Compressive Strength

ASTM C109 - Minimum *

7 days	28 days	90 days
0.7 MPa (101 psi)	1.8 MPa (145 psi)	2.7 MPa (290 psi)

* The compressive strengths of natural hydraulic lime mortars gradually in-

	crease as a function of time unlike mortars containing cement which reach their optimal value around 28 days. Note: The pigments used to colour the mortar have no effect on its mechanical properties.
Shrinkage	**ASTM C596 / Shrinkage** 0.05 % at 91 days
Porosity	**EN-1015-7 Method / Air Content** 14 % Maximum
Yield	Approx. 0.018 m^3 (0.65 ft^3) of fresh mortar per 30 kg (66 lb) bag
Consistency	**ASTM C780 / Vicat Cone** 15 mm ± 5 mm (0.6 in ± 0.2 in)
Product Temperature	Refer to the "Placement condition" section on the Specifications template document on Sika Canada Website.
Ambient Air Temperature	Refer to the "Placement condition" section on the Specifications template document on Sika Canada Website.
Substrate Temperature	Refer to the "Placement condition" section on the Specifications template document on Sika Canada Website.

BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LIMITATIONS

- **Do not use the King® HLM-350 when the temperature at the job site drops below 5 °C (40 °F)**
- Do not use King® HLM-350 for laying masonry units, use King® HLM-500.
- Do not use King® HLM-350 for below ground level application.
- Never add admixtures at the job site to modify set time, workability, or any other property of the mortar in its plastic or hardened state.
- Always use potable water.
- Use only the recommended water dosage to obtain the desired properties of the mortar in its plastic or hardened state.
- Never add water to recover the loss of workability. Only mix again.
- Never use on frozen surfaces.
- Colour variations on the hardened mortar can be observed even if the mortar in-place has been previously factory-prepared and complies with the project specifications. These colour variations are mainly attributable to inadequate application conditions such as delay between mixing and tooling of joints, lack of protection against the weather during installation, or variable absorption/moisture rates of the construction elements. In order to avoid an undesirable result, we recommend that you pay particular attention to these points.

ENVIRONMENT, HEALTH & SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Prepare the surface to be repaired in order to remove loose particles and faulty mortar on a thickness corresponding at least to twice the thickness of the joint to be repaired or up to obtaining a healthy mortar. Moisten the area to be repaired without leaving standing water in the cavities to be filled.

MIXING

Small batch
Important: In order to avoid segregation issues, always mix the total content of one bag. If less than a 30 kg (66 lb) bag of King® HLM-350 is required, dry mix - without water - the total content of the bag in a clean container, take the required amount, and then add water to the amount withdrawn from the mixture.

Large batch
Always mix the entire content of the bag. Mix the King® HLM-350 with a maximum of 4.2 L (1.1 US gal) of water per 30 kg (66 lb) bag, in a clean mortar mixer. Pour 3.8 L (1 US gal) of water into the mixer and add 30 kg (66 lb) of King® HLM-350. Mix for five (5) minutes, or five (5) to ten (10) minutes when using a coloured mortar or when a colourant is added at the job site. Allow the mortar to stand for a short period of time. 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.

APPLICATION

The application of the mortar must comply with the requirements of Section 6 of CSA-A371-14.

APPLICATION METHOD / TOOLS

MORTAR PLACEMENT

Place the mortar in successive layers of 6 mm (¼ in) 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 process. Avoid working in direct sunlight or exposed to wind. Sun and wind are factors to be taken into account in order to avoid cracking problems.

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 finger mark remains. Always tool the joint in order to respect the historical aspect of the original mortar.

CURING TREATMENT

Curing is essential for optimizing the physical properties of the mortar. Curing is carried out by performing a moist cure which must begin as soon as the initial setting of the mortar begins and for a period of three (3) to seven (7) days. To learn more about the moist cure, refer to the guide: How to perform a moist cure for masonry, published by Sika Canada and available on the company's website.

CLEAN UP

In order to avoid the use of chemicals, it is always recommended to remove as much mortar splashes or stains as possible before the material hardens. Use water, a piece of burlap or wood. 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 is important to mention to the manufacturer that it is a hydraulic lime-based mortar with the addition of iron and titanium oxides pigments when coloured.

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.

Clean all tools and equipment after use with water. Once hardened, the product can only be removed mechanically.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.