

XHN-101

Hydraulic lime laying mortar

1- PRODUCT DESCRIPTION

1.1 USE

XHN-101 is a laying mortar based on pure hydraulic lime from St-Astier (France), wellgraded sand and colorants (optional). The hydraulic properties (hardens by reaction with water) of this lime allows formulation of a cement free mortar which is closer to the formulation of historic mortars. Its high lime content increases considerably the following properties: self-healing, waterproofness, water vapour transmission and water retention in comparison with a conventional lime and cement based mortar. For interior and exterior use, this mortar is specially formulated for the installation of masonry elements on historic buildings or for jobs exposed to de-icing salts.

1.2 ADVANTAGES

- Composition similar to historic mortars.
- Excellent water vapour transmission and waterproofness.
- Low shrinkage.
- High resistance to salts.
- Coloured as requested.

1.3 LIMITATIONS

1.3.1 This mortar is exclusively developed for the installation of elements for non-loadbearing walls above ground level. For repointing jobs, use Restomix or the hydraulic lime repointing mortar XHN-60.

1.3.2 Any modification of the mortar composition is forbidden and automatically cancels the warranty.

1.3.3 Addition of additive and/or admixture of any nature such as set accelerators, retarders, antifreeze agents, waterproofing agents, polymers (latex) or else, is forbidden.

1.3.4 Only addition of colourants¹ is allowed although not recommended.

1.3.5 Do not retemper, respect recommended quantity of water. If mortar loses its plasticity within the allowed delay (see section 2.4.2), simply mix again without adding any water.

1.3.6 If there is any doubt on the compatibility of XHN-101 with the elements used in a specific work, consult our technical representatives and/or our technical service.

1.3.7 It is recommended to verify the adhesion between XHN-101 and the element used before starting any work. This precaution is necessary due to the diversity of masonry elements on the market.

2- INSTALLATION

2.1 FIELD CONDITIONS

2.1.1 Make sure the temperature (surface, surrounding and material) is between 5°C (40°F) and 35°C (95°F), during the application and for the following 72 hours.

2.1.2 Never apply mortar on frozen elements.

2.2 SURFACE PREPARATION

2.2.1 Refer to the technical data sheet of the element for special installation requirements.

2.3 MIXING

2.3.1 MIXING IN SMALL QUANTITY (1 BAG)

2.3.1.1 Pour 4 liters (0.9 gallon) of potable water in an appropriate container (20 liter pail).

2.3.1.2 Slowly add dry ingredients while mixing at low speed with an industrial drill equipped with a mixing attachment such as a Jiffier. Use a variable speed drill with at least 1/2 in capacity.

2.3.1.3 Mix for a minimum of 5 minutes and maximum of 8 minutes until a homogeneous consistency is obtained.

Note: Do not add water to recover workability, simply mix for 1 or 2 minutes. Never mix less than one bag.

2.3.2 MIXING IN LARGE QUANTITIES

2.3.2.1 Use a mortar mixer of appropriate size (mixer should be 3/4 full). Selection of mixer type is very important to obtain a homogeneous mix. Contact a Daubois technical sales representative to confirm that the right mixer has been chosen.

Note: Always mix full units.

2.3.2.2 Start mixer. Introduce 4 litres (0.9 gallon) of potable water per 22.7 kg (50 lb) bag.

2.3.2.3 Slowly add dry ingredients. Continue mixing as per instructions in section 2.3.1.3.

2.4 APPLICATION

2.4.1 Spread a uniform coat of mortar. Apply mortar on one end of the element

¹- The quality and quantity of colourant used should respect ASTM C-979 standard.

and position it. Using a level, set it in the bedding mortar with small, sharp taps. Fill all the joints. Do not realign elements once they have been in contact with mortar.

2.4.2 Mortar should be used within 1 ½ hour following mixing if temperature is higher or equal to 25°C (77°F). If temperature is lower than 25°C (77°F), use within 2 ½ hours. Discard unused mortar.

2.5 FINISHING

2.5.1 All mortar joints must be finished using a metal or plexiglas tool to provide the required look as well as weather resistance.

2.5.2 Finishing must be done just before the mortar loses its plasticity, when finger pressure barely leaves any traces. It is impossible to set a specific time, it is necessary to rely on the mason's judgment.

2.5.3 Do not overfloat.

2.5.4 After finishing, strike firmly the mortar with a half-rigid bristles brush to reduce the micro shrinkage cracks (which are normal) and to give a rustic aspect to the mortar.

2.6 PROTECTION AND CURING

2.6.1 This step is crucial to obtain a durable mortar. Accelerated drying will promote crack formation and will result in a weak mortar (friable).

2.6.2 Protect from freezing (temperature over 5°C, 40°F) and rain for the first 72 hours. In hot weather, protect from sun and wind to avoid rapid water evaporation of mortar.

2.6.3 Keep the joints damp for the first 72 hours. If job is interrupted (evening, week-ends) protect the joints with wet jute (burlap) without touching the mortar. Cover the jute with plastic sheeting.

2.6.4 Protect and cover surroundings such as windows, openings, metallic flashings, sills and any other material sensitive to alkaline material.

2.7 CLEANING

2.7.1 Clean tools with water while mixture is not yet hardened. Once hard, only mechanical cleaning will be efficient.

2.7.2 During application, remove mortar spots with jute (burlap) or with a stiff bristle brush. Do not use a metal brush.

2.7.3 Consult the element manufacturer or a cleaning specialist before any cleaning step is initiated. It is important to preserve mortar's integrity. Let the mortar dry for 28 days prior to initiate cleaning. This delay is necessary since hydraulic lime requires a longer curing time.

3- PACKAGING

This product is available in 22.7 kg (50 lb) paper bags. A pallet contains 63 bags.

4- STORAGE

4.1 INTERIOR STORAGE

Store in a cool, dry place. Avoid placing bags directly on the floor.

4.2 EXTERIOR STORAGE

Cover bags with a waterproof sheeting. Do not store directly on the ground.

4.3 SHELF LIFE

Shelf life is one year in original, unopened bags.

5- FIRST AID

This product contains lime and may cause eye, skin and respiratory system irritation. Wear rubber gloves, safety glasses and approved dust mask. If swallowed, call a Poison Control centre or doctor immediately. Do not induce vomiting. In case of contact with eyes, rinse well with water for 15 minutes. In case of skin contact, rinse well with water. Keep out of reach of children. Consult the safety data sheet for more information.

6- TECHNICAL SUPPORT

Daubois offers the possibility to colour XHN-101 in factory to match it perfectly with a masonry element. In this case, a representative sample of at least 6 cm² (1 in²) area of the element to match is required. Once the colour matches completed, Daubois will supply a coloured sample of 8 cm by 1 cm (3 in by 3/8 in) to its customer for approval. Expect 5 business days delay for the coloration of one sample.

Contact Daubois for more information about application methods or conditions or to obtain the latest version of our technical documents.

Phone: 1-800-561-2664
(514) 328-1253
Fax: (514) 328-7694

Daubois inc
6155, boul. des Grandes Prairies
Saint-Léonard, Qc H1P 1A5
Canada
<http://www.daubois.com>

7- WARRANTY

Daubois guarantees that this product will perform as specified in this technical data sheet and suits the application for which it was intended. Nonetheless, Daubois does not offer any explicit or implicit warranty since it cannot control application methods and /or field conditions. Under this warranty, Daubois' responsibility is limited to either replace or refund the cost the product proved defective.

8- WARNING

Colour variation may be observed on the final job even if a precoloured mortar was used. These variations are generally caused by several application conditions such as:

- waiting time before finishing is done (tooling).
- variable humidity content of the elements.
- lack of protection during installation or job interruption.

Technical data table

Property		Results ¹
Compressive strength, ASTM C-109	7 days 28 days 90 days	2.8 MPa (400 psi) 7.2 MPa (1000 psi) 9.6 MPa (1390 psi)
Water vapour transmission, ASTM E-96		19 perms
Water retention, ASTM C-1506		min. 70 % of initial flow
Water absorption, ASTM C-1403	24 hours	130 g/100 cm ²
Pull-off adhesion on clay brick, CSA 23.2-6B	28 days	0.40 MPa (54 psi)
Drying shrinkage, ASTM C-596	90 days	0.06 %
Freeze/thaw resistance, ASTM C-666M ²		40 cycles
Flexural strength, ASTM C-348	7 days 28 days	1.1 MPa (160 psi) 2.6 MPa (370 psi)
Specific gravity		1870 kg/m ³ 117 lb/ft ³
Yield of a 22.7 kg (50 lb) bag		0.012 m ³ 0.42 ft ³
Approximate number of bricks installed per 22.7 kg bag		30 to 35 bricks of 6.5 brick/ft ²

¹ Results obtained in laboratory controlled conditions with a standard sample mixed to a flow of 100 to 115%. These results may vary slightly from one sample to the other and are used as a performance indicator of the mortar. These results cannot be used for the acceptance or rejection of a mortar bag.

² Test executed according to Procedure A of ASTM C-666M standard.