1. PRODUCT DESCRIPTION

1.1. MAIN USE

1.1.1. XHN-60 is a repointing mortar based on pure hydraulic lime from St-Astier (France), wellgraded sand, an air entraining agent 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 restoration of damaged joints on brick or stone historic buildings

1.2. ADVANTAGES

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

1.3. LIMITATIONS

1.3.1. This mortar is exclusively developed for repointing. For the installation of elements, use Betomix Plus or XHN-101 (hydraulic lime application mortar) mortars.

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 colourants[1] is allowed although not recommended.

1.3.5. Do not retemper, respect recommended quantity of water. If mortar looses its plasticity within the allowed delay (see section 5.4), simply mix again without adding any water.

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 XHN-60 on frozen mortar or frozen masonry elements.

3. SURFACE PREPARATION

3.1.1. Using a chisel, carefully remove damaged mortar. It is possible to use a grinder when mortar is very hard and conventional tools are not efficient. Blade thickness must be smaller than half of the joint thickness. Take all necessary precautions to avoid damaging surrounding masonry elements.

3.1.2. Remove damaged mortar up to a minimum thickness of 25 mm (1 in). In all cases, sound mortar should be reached.

3.1.3. Remove dust and other residues with a low stream of water or air.

3.1.4. Humidify joints before application avoiding accumulations.

4. MIXING

4.1. MIX IN SMALL QUANTITIES (1 BAG)

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

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

4.1.3. Mix for a minimum of 5 minutes and maximum of 8 minutes. Product should have a thick consistency forming a ball when hand pressure is applied.

Note: During the first minutes of mixing, the product seems to be missing water. Continue mixing and it will reach the desired texture in the prescribed delays.

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

4.2. MIXING IN LARGE QUANTITIES

4.2.1. Use a mortar mixer of appropriate capacity (the mixer must be at least ¾ full). The choice of mixer is very important to obtain a homogeneous mix.

4.2.2. Start the mixer. Pour in the required quantity of potable water, i.e. 4 liters (0.9 gallons) per 22.7 kg (50 lb) bag.

4.2.3. Gradually add the dry ingredients.

4.2.4. Mix for a minimum of 5 minutes and a maximum of 8 minutes. The resulting product should have a consistency thick enough to produce a shape-retaining ball in the hand.

Note: During the first few minutes of mixing, the product seems to lack water. It will reach the desired texture by continuing to mix within the prescribed time. Do not add more water to restore workability, simply mix again.

Note: Never mix less than one bag and always mix full bags. complete bags.

5. APPLICATION

5.1. The mortar should be applied in 3 passes. Using a cat's tongue, push the mortar firmly into the joint, taking care not to spread it. Compact well to eliminate air pockets. Apply a first coat of mortar to the previously moistened surface, ensuring a uniform depth.

5.2. Allow to harden until light finger pressure remains before applying the next coat.

5.3. Lightly wet the surface, then apply a second coat. Repeat steps 5.1 and 5.2 until the required thickness is reached. A joint slightly recessed from the element is recommended.

Note: Mortar can be left to harden longer between applications. The important thing is to moisten the surface before the next application.

5.4. The mortar should be applied within 1½ hours of mixing, if the ambient temperature is equal to or greater than 25 °C (77 °F) and, within 2½ hours, if the temperature is below 25 °C (77 °F). Unused mortar after this period should be discarded.

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

6. FINISHING

6.1. To enhance appearance and maximize weather resistance, all joints should be finished with the appropriate tools (metal, plexiglas, etc.).

6.2. The 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.

6.3. Do not overfloat.

6.4. 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.

7. PROTECTION AND CURING

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

7.2. 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.

7.3. 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.

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

7.5. COLD-WEATHER CONDITION

7.5.1. Mortar must be protected from frost (temperature above 5 °C, 41 °F) and rain for 72 hours after application.

7.5.2. It is advisable to keep freshly constructed structures sheltered from the elements for a period of 5 days during periods when the risk of frost is high.

7.6. WARM-WEATHER CONDITION

7.6.1. Protect from sun and wind to prevent the mortar from drying too quickly.

7.6.2. Unless otherwise specified by the masonry unit manufacturer, make sure the masonry units are dry.

8. CLEANING

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

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

8.3. Consult 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.

9. PACKAGING

9.1. This product is packaged in 22.7 kg (50 lb) paper bags. One pallet contains 63 bags.

10.STORAGE

10.1. INTERIOR STORAGE

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

10.3. EXTERIOR STORAGE

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

10.5. LIFETIME

10.5.1. Shelf life is 12 months in unopened, well-protected bags.

11.FIRST AID

11.1. WEAR IMPERMEABLE GLOVES, such as nitrile, eye protection, protective clothing and rubber boots. Do not breathe or swallow dust. Wear a NIOSH-approved respirator (mask) such as N95 in poorly ventilated areas, during prolonged or repeated use, or when maximum exposure limits may be exceeded. Do not eat, drink or smoke when using this product. Before handling, read and understand the safety information on this label and on the Material Safety Data Sheet (MSDS) available online at www.daubois.com.

11.2. IF EXPOSED: Wash contaminated body and clothing thoroughly and immediately. If in eyes: rinse cautiously with water for several minutes; remove contact lenses, if present, if possible; continue rinsing. In case of inhalation: remove to fresh air and make patient comfortable to breathe. If swallowed: rinse mouth; do NOT induce vomiting. In case of burns, skin irritation or rash: seek medical advice immediately. Seek immediate medical attention if symptoms are severe or persistent.

12.TECHNICAL SERVICE

12.1. Daubois Products offers the service of building site start up for this product since it requires special application techniques. Do not hesitate to contact us to obtain this service.

12.2. Daubois Products offers the possibility to colour XHN-60 in factory to match it perfectly with the joint to be repointed. In this case, a representative sample of at least 6 cm^2 (1 in^2) area of the old mortar to match is required. Once the colour matches completed, Daubois Products 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.

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

Tel: 1 (800) 561-2664, (514) 328-1253

Fax: (514) 328-7694

Daubois Products Inc.

6155, boul. des Grandes-Prairies, Saint-Léonard,

Qc, Canada H1P 1A5

http://www.daubois.com

13.GUARANTEE

13.1. Get the applicable LIMITED WARRANTY at https://www.daubois.com/fr/produit-garantie.php Or send a written request to Les Produits Daubois Inc, Five Concourse Parkway, Atlanta, GA 30328, USA. Quikrete Canada Holdings, Limited. Manufactured by or under the authority of Les Produits Daubois Inc.

14. WARNING

14.1. It is possible to observe color variations in the final result, even if the mortar used has been pre-colored at the factory and complies with the required specifications. These variations are mainly caused by various processing situations, such as :

- Delay before finishing (smoothing of joints).
- Variable element humidity levels.
- Lack of protection during implementation and site stoppages/interruptions.
- Inappropriate or excessive washing.

14.2. The final choice of color for the entire work should be based on the result obtained from the sample (standard).

TECHNICAL DATA TABLE

Features	Deadline	Results[1]
Compressive strength, ASTM C-109	7 days 28 days 90 days	Min. 0.7 MPa (102 Psi) Min. 3.0 MPa (435 Psi) Min. 4.7 MPa (682 Psi)
Water vapor transmission, ASTM E-96	—	24 perms
Water retention, ASTM C-1506	—	Min. 70% of initial spread
Water absorption, ASTM C-1403	24 hours	125 g/100 cm^2
Tensile adhesion on concrete block H15, CSA 23.2-6B	28 days 90 days	0.21 MPa (30 Psi) 0.44 MPa (64 Psi)
Drying shrinkage, ASTM C-596	90 days	0,10%
Freeze-thaw resistance, ASTM C-666M [2]	—	60 cycles
Flexural strength, ASTM C-348	28 days 90 days	0.6 MPa (87 Psi) 1.2 MPa (174 Psi)
Density	—	1900 kg/m^3 (119 lb/ft^3)
Yield per 22.7 kg (50 lb) bag	—	0.012 m^3 (0.41 ft^3)
Approximate length repointed per 22.7 kg (50 lb) bag for joints 10 mm high and 25 mm deep (3/8" high by 1" deep)	—	50 m (165 linear feet)

[1] Results obtained in laboratory controlled conditions with a standard sample mixed with the recommended amount of water. 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 acceptation or rejection of a mortar bag.

[2] Test executed according in accordance with procedure A of ASTM C-666M.