

Conserv. Technical File – Natural Hydraulic Lime Mortar



Technical File

Natural Hydraulic Lime Mortar

Manufactured by
Stone Tech (Cleveland) Ltd, Lee Road, Bolckow Industrial Estate,
Middlesbrough, North Yorkshire, TS6 7AR, UK.

SECTION:1

Product Data: NHL3.5/C26

Product Name: C26

Binder: NHL3.5 to BS EN 459-1:2010

Aggregates: to BS EN 13139:2002

Particles: good blend, 60mu to 2mm

Distribution*:

60mu	5%
125mu	18%
250mu	34%
500mu	28%
1mm	12%
2mm	3%

*Per 100mg aggregate sample

Mortar type: moderately hydraulic, HLM3.5

Texture: fine

Bed size: 4mm>

Colour: Yellow

Packaging*:

- 10kg

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*all pre-blended and gauged in waterproof packaging.

Alternatively FBC, blended only for onsite gauging. No waterproof packaging needed.

Mixing:

- forced action mixer
- plaster or mortar whisk

Water: mix to workable consistency based on application requirements

Application:

- general building
- laying brick, block or natural stone (with 4mm minimum joint)
- re-pointing of masonry

Storage:

- keep dry and frost-free
- shelf life is 6 months (when unopened)

Protection: mask alkaline sensitive materials (e.g. lead and copper flashings)

Typical Performance* (on full cure)

Resistance to freeze thaw	moderate (10-25 cycles)
Resistance to Sulphate exposure	very high (>50 cycles)
Resistance to freeze thaw in Sulphate conditions	moderate (10-25 cycles)
Carbonation rate	moderate
Capillary rise (mm's in 6 hrs.)	moderate (76-100)
Typical compressive strength	0.57MPa/7days1.41MPa/28days@10-15C
Compressive strength at 91 days	2.5MPa typical at 91days@10-15C
Flexural strength	0.28/28days and 1.38/6months
Vapour permeability on complete carbonation (gr air m2 x hrs. x mm hg)	0.74
Mortar durability class	3 to 4
Minimum application temperature	5°C and rising
Mix Ratio	3 to 1

*actual performance will depend upon various factors; including water content, site mixing, site curing, workmanship and weather conditions

SECTION: 2

Instructions for use

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Mixing

- natural hydraulic lime mortar comes in a number of different formats
- inside the packaging, you will find a pre-mixed blend of aggregates and natural hydraulic lime
- the product usually comes pre-gauged, meaning it can be placed directly into a mixing vessel

Follow these steps to mix your mortar:

1. place the product in a suitable mixing vessel- forced action mixer or paddle, whisk and Trug)
2. add the aggregate first, then the lime
3. dry mix for 2 to 5 minutes, depending upon quantity
4. add a small amount of water and mix together for 5 minutes until a stiff consistency has been reached
5. leave to stand for 10 minutes before slowly adding more water to achieve your desired application consistency
6. mix for no less than 15 minutes (this gives the sand enough time to absorb the lime and help plasticity, with any water raised to the surface being absorbed back into the aggregate and lime by the remixing process)

The mixture will set overnight, although it will take 91 days to fully cure and harden.

Application

Preparation:

- lightly dampen the masonry surface before applying the mortar as it will start to 'go off' (stiffen) as the water is absorbed into the masonry (this will happen quickly on absorbent surfaces like sandstone and limestone, but will take much longer on hard stone like granite and slate)
- vary the consistency of your mortar by adding more or less water, depending on the desired use (a more spreadable mortar is needed for laying whereas a dryer mix is preferable for re-pointing work)

Placement:

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- A full bed is to be laid and finished flush, ensuring adequate drying time is allowed for the mortar to “go off” (stiffen) - this will vary depending on temperature
- finish the joint using a coconut bristle haired hand brush and thoroughly stipple the surface, this will raise the aggregate to the surface and compact the joint
- do not brush diagonally across the joints as this will result in spillage
- do not finish the joints with brick irons as this will make the joint surface dense, reducing vapour permeability
- a mason’s bronze or brass re-pointing brush is generally used to clean down the re-pointed areas once the mortar has initially set but not fully hardened
- do not use stainless steel or nonferrous brushes as these may cause oxide staining

Protection:

- protection of your completed work is critical, especially from the effects of weather.
- strong sunlight and high winds will accelerate the drying process, leading to shrinkage whilst rain may wash out the mortar and temperatures below zero may freeze it
- Mortar Fleece can provide comprehensive protection until the product is fully cured
- Hessian Sheeting can also be used, but do not use plastic sheeting as it is ineffective
- if the masonry being worked on has been recently laid, or is subject to heavy rain, ensure that it remains protected for a long enough period

If the mortar is for external use, do not apply in temperatures under 5°C. The material must be protected from the weather during placement and curing. Winter working will greatly increase the curing period and may reduce performance.

A note about ‘powered applicators’

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These appear in various formats, from drill attachments to pneumatic guns. All types essentially rely on power to propel the mortar out of a nozzle. Powered applicators can be problematic due to the aggregate particle size contained with this product and their tendency to make sloppy mixes to facilitate flow, making the mortar unacceptable for use.

Our 'Gunlime mortar' is a product specifically engineered to be used in mortar guns and should be considered if a powered applicator is required.

European Standard

 13	Ref Standard: BS EN 998-2:2010 Designation: (GP) General purpose or conservation using hydraulic lime for internal or external use. Instructions: Please read the documents attached Manufactured By: Stone Tech (Cleveland) Ltd Lee Road, Bolckow Ind Est, Middlesbrough. TS6 7AR
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Other Information:

- sample panels should be prepared and approved before full application of this product
- the information contained in this data sheet is, to the best of our knowledge, true and accurate (last updated April 2013)
- prepared in accordance with Directive 2001/58/EC & UK Statutory Regulations (CHIP 3)
- Conserv is registered trademark of Stone Tech (Cleveland) Ltd

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