

NATCEM® AC

Instruction for Use
Issue 4 16 September 2024



NATCEM® AC is an environmentally friendly, fast setting mortar.

This document is written specifically for UK public or private drinking water suppliers or their contractors.

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Approval

NATCEM® AC is approved under Regulation 31 of The Water Supply (Water Quality) Regulations 2016.

The product is included in the List of Approved Products for use in Public Water Supply in the United Kingdom.

The List of Approved Products is available on the Drinking Water Inspectorate's website

www.dwi.gov.uk/drinking-water-products/approved-products/index.html

Product Description and Scope of Use

NATCEM® AC is an environmentally friendly, fast setting mortar suitable for installation up to any thickness from **a minimum of 3mm**.

The product consists of a blend of Natural Cement binder, retarder and specially selected graded aggregates all passing a 250-micron sieve.

NATCEM® AC is a multi-use product which can be used in a wide variety of applications. Some typical uses are shown below:

- Concrete repairs
- Grouting
- Void filling
- Rendering
- Anti-carbonation coating
- Infilling surface imperfections
- Pointing

Features

- Fast setting with rapid strength gain
- Fast curing (1 hour after set)
- Tested to BS 6920 - Effect on Water Quality
- Easy to apply
- Excellent adhesion
- Only requires the addition of water
- Waterproof
- Low shrinkage
- Approved for use in public water supplies
- Corrosion Resistant
- Sulphate resistant
- Resistant to chloride penetration
- High chemical resistance
- Sets Underwater
- Environmentally friendly & low carbon footprint
- Contains no chemical additives

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Packaging and Storage

Packaging

NATCEM® AC is packaged in a polythene inner bag complete with a re-sealable tie, within a stitch sealed woven polypropylene outer bag.

Bag Weight: 25kg

Storage

Unopened bags of NATCEM® AC should be stored in dry conditions and will remain usable for a minimum of 12 months.

Method of Use

Preparing the surface

Do not use on frozen or over heated substrates (outside the range of 0°C - 30°C). Prepare the surface in advance, ensuring it is well roughened to provide an adequate key. It should be clean, free from dust and thoroughly dampened.

Where necessary steel or aluminum mesh can be used. Ensure that a **3mm minimum thickness of material is obtained.**

Priming

Priming of the surface or reinforcement is not required.

Application - General

DO NOT apply additional water to the surface during finishing as this may cause surface cracking. Once setting has started, **DO NOT** attempt to remix or smooth the surface; this will cause the mechanical properties, in particular strength and adhesion, to be lost.

Mixing

For optimum results, prepare the mix using conventional mixing machines. Always place the water in the mixer or mixing container and add the powder.

If one bag or less is to be mixed, it should be mixed with a rose bud type paddle attached to an electric drill (900rpm, 1000W). Mix vigorously for at least 2 minutes after adding all the mixture to the water.

NATCEM® AC is designed to give a fluid mix but this only develops after sufficient mixing.

Add the NATCEM® AC gradually to **5 litres** of clean water per bag, whilst mixing continuously. The mix will appear dry at first. Continue mixing until fluidity develops. If greater fluidity is required, additional water may be added to a total of **5.5 litres** per bag.

In cold weather the set can be accelerated using warm water (up to 20°C); likewise, in hot weather cold water can be used to slow down the set.

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Setting Times

Setting time is the time from mixing of the products to its set condition. NATCEM® AC is designed to commence setting at 35 minutes and finish setting at 40 minutes (at 20°C).

In winter NATCEM® AC can be used down to 0°C. The set will be slower but this can be accelerated by using warm water (up to 20°C) if required. In very hot temperatures the set will be faster and can be slowed by using cold water.

See table (right) which gives an indication of how the temperature will affect the initial setting time of NATCEM® AC:

Temperature	Setting Time
20 °C	35 - 40 Minutes
7 °C	60 - 75 Minutes
0 °C	145 - 180 Minutes

After the product has set, a minimum curing time of 1 hour must elapse before returning to service.

Strength Gain

After setting is complete the material will continue to gain strength over time.

A Flexible Strength gain and Compressive Strength gain chart are shown below. The range shown extends up to 28 days but the strength will also continue to develop thereafter.

Start Set End Set	at 20° at 20°
	Compressive Strength (Mpa)
1 Hour	4
3 Hours	5
24 Hours	9
7 Days	13
28 Days	32
<i>Strength continues to develop thereafter.</i>	

Yield

Generally, 1 x 25 kg bag of NATCEM® AC mixed with 5 litres of water will produce approximately **15 litres of finish mortar.**

Cleaning

NATCEM® AC should be removed from tools and equipment and cleaned with water immediately after use.

Disinfection

Disinfection of NATCEM® AC is not necessary, therefore at 1 hour after the setting period, the material may be returned to service without further attention. The water utility may however wish to introduce a disinfection procedure at its own discretion.

Disposal of Waste

Empty polythene innerbags and polypropylene outer bags can be returned to the user's stores for recycling. Alternatively, they can be disposed of into a skip destined for recycling.

Waste material can be disposed via an authorised waste disposal contractor to an approved waste disposal site, observing all local and national regulations and/or EC regulations

1. Material after the addition of water – hardened
 - Dispose of the hardened product as concrete waste. It is a non-hazardous material and may be disposed of in an appropriate recycling site.
 - Avoid introduction of this material into sewer systems, waste-water disposal networks and water courses
2. Material – unused residue or dry spillage
 - Pick up dry. Mix with water and allow to harden. Dispose of as in '1' above.

Safety

- A) Wear suitable protective clothing when handling bags and mixing the material.
- B) Wear safety glasses, work gloves and a dust mask.
- C) Avoid spillage from damaged bags.
- D) Avoid breathing the powder.
- E) Avoid raising dust, especially when sweeping. Always add the powder to the water to avoid raising dust.
- F) Avoid skin contact with the wet mortar during the setting reaction.
- G) Discard immediately any clothing which becomes saturated with wet cement.

It is important to read the NATCEM AC Safety Data Sheet (SDS) for full details prior to using the material.

The SDS is available on request from Natural Cement Distribution Ltd or at www.naturalcement.co.uk Contact details are shown below, on page 6 of these instructions.



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