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NATCEM DW

FAST SETTING MORTAR

INSTRUCTION FOR USE

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NATCEM DW -FAST SETTING and FAST CURING MORTAR

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This Instructions For Use document is prepared specifically for Water Companies for use with drinking water only



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Product Description and Scope of Use

NATCEM DW is a fast setting and curing, rapid strength gain mortar consisting of a blend of natural cement based binder, natural occurring minerals, retarders and specially selected and graded aggregates all passing a 2mm sieve

It is intended for use in drinking water applications primarily for repairs to concrete and waterproof rendering typically to stone and brick works.

Application

a) Packaging

NATCEM DW is packed in a biodegradable polyethylene inner bag complete with a re-sealable tie within a heat sealed biodegradable outer bag.

Bag Weight: 25kg

b) Storage

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

c) Surface Preparation

- NATCEM DW must not be applied to frozen or over heated surfaces i.e. outside the temperature range 7°C to 20°C.
- Prepare the surface in advance to provide an adequate key for the mortar. The surface of glazed brickwork should be texturised with a bush hammer and the joints raked out.
- The surface to which the NATCEM DW will be applied must be clean, free from dust and loose particles and be thoroughly dampened.
- Where necessary, steel or aluminium mesh reinforcement can be used. There is no need to apply surface primer to any reinforcement, but if priming is preferred, any conventional and recognised system may be used.

d) Mixing

- The use of conventional mixing machines is advised to achieve optimum results. Always place water in the mixing container first and then add the NATCEM DW.

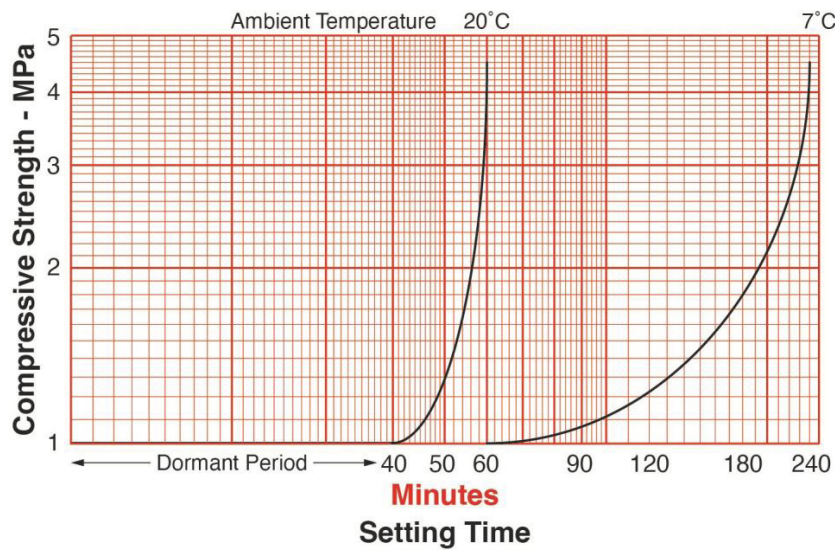
- Add the NATCEM DW gradually to clean water using a ratio of 3.6 litres **maximum** of water per 25kg bag whilst continuously mixing the material.
- If one bag or less is to be used, the NATCEM DW can be mixed with a rosebud type paddle attached to a portable electric drill (900 rpm – 1000W). Mix vigorously for at least 2 minutes after adding all the mixture to the water.
- NATCEM DW is designed to give a fluid mix but this only develops after sufficient mixing. The mix will appear dry at first. Continue mixing until fluidity develops. If greater fluidity is required, more water up to a total of 4 litres may be used.
- Exceeding this ratio will lead to lower strength, longer setting time and the risk of surface cracking. In cold weather the set can be accelerated using 20°C warm water; similarly in warm weather, cold water can be used to slow down the set.

e) Using NATCEM DW

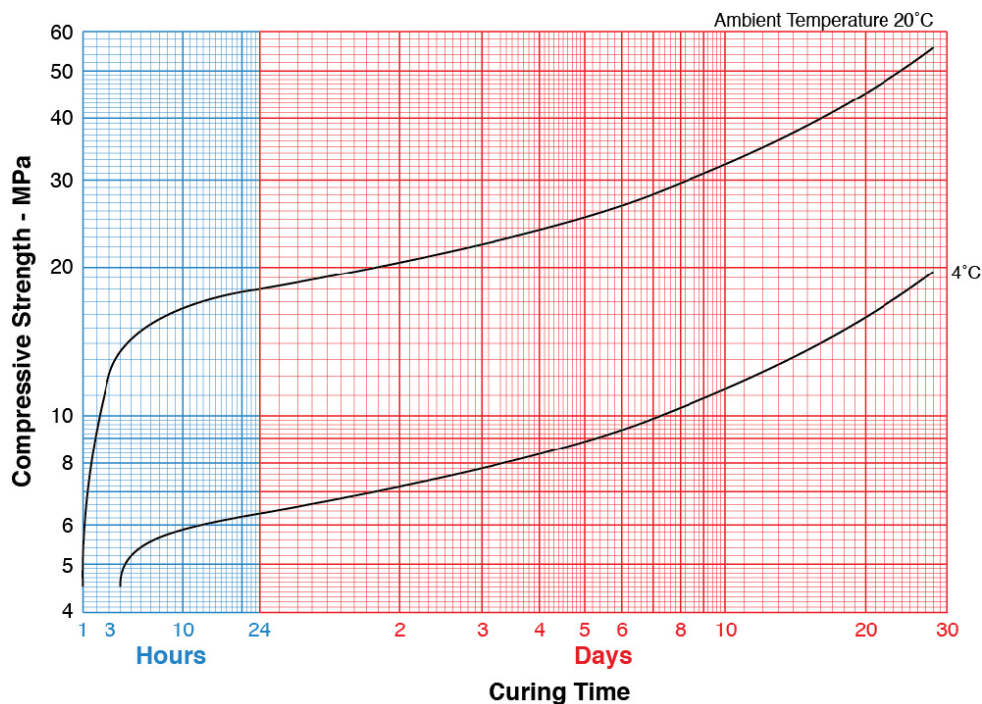
- Apply the NATCEM DW as quickly as possible after mixing using traditional tools. A 10mm minimum thickness of NATCEM DW is always necessary. **Do not apply additional water** to the surface during finishing as this may cause surface cracking.
- Once setting has started, **DO NOT** attempt to re-mix or to smooth the surface because this will impair the mechanical properties and in particular, cause the strength and adhesion to be lost.
- ***Repairs to Concrete***
 - i Remove all loose material from the concrete and from any reinforcement. It is only necessary to remove any loose rust from the reinforcement. Prepare the surface as previously described. Fix any necessary replacement reinforcement and formwork.
 - ii Thoroughly dampen the surface with water, ensuring there is no standing water.
 - iii Mix the material, dampen the surface again and then apply the NATCEM DW as previously described ensuring that the NATCEM DW is worked around the reinforcement and also ensuring a **minimum 10mm thickness of material** at all times.
 - iv Protect the finished surface from direct sunlight or wind until setting is complete. Once the NATCEM DW has set, allow at least 1 hour before applying any surface coating or covering.

f) Setting Times

Setting time is the time from mixing of the products to its set condition. After application, NATCEM DW is designed to commence setting at 40 minutes and to finish setting at 1 hr at a temperature of 20°C. See the Setting Time curve below which also shows the set and cure at 7°C.



After the product has set, a minimum curing time of 1 hr must elapse before returning to service. At 20°C the product can be returned to service in a total of 2 hours. At 7°C the product can be returned to service in a total of 4 hours. The strength of the material will continue to increase with time as shown in the Curing Time curve below.



g) Disinfection

Disinfection of NATCEM DW is not necessary, the material may be returned to service without further attention. The water utility may, however, wish to introduce a disinfection procedure and further testing prior to return to service at its own discretion

h) Cleaning

NATCEM DW should be removed from tools with water immediately after use.

Waste Disposal

a) Empty bags

Empty polyethylene inner bags and polypropylene outer bags can be returned to the user's stores for recycling.

Alternatively, they can be disposed into a skip destined for recycling.

b) Waste material

Dispose of waste material in compliance with local by-laws, national legislation and or EC regulations

i 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 appropriate landfill sites.

Avoid introduction of this material into sewer systems, waste water disposal networks and water courses.

ii Material – slurry

Leave to harden and dispose of as in 3 b) i above

iii Material – unused residue or dry spillage

Pick up dry. Mix with water and allow to harden. Dispose of as in 3 b) i above.

Safety

Wear suitable protective clothing when handling bags and mixing the material.

Wear safety glasses, work gloves and dust mask.

Avoid spillage from damaged bags

Avoid breathing the powder

Avoid raising dust especially when sweeping. Always add the powder to the water to avoid raising dust.

Avoid skin contact with the wet concrete during the setting reaction.

*Discard immediately any clothing which becomes saturated with wet cement
It is important to read the NATCEM DW Material Safety Data Sheet (MSDS) for full details
prior to using the material.*

The MSDS is available on request from Natural Cement Distribution Ltd.

Contact details are shown on Page 2 of these Instructions **Page 7 of 8**