

# **INSTRUCTIONS FOR USE**

## **DRY PRE-BLENDED GROUT**

**NATCEM D**

**ISSUE 1**

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## Supplier Details

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

## 1 Product Description and Scope of Use

NATCEM D is a natural cement in the form of a dry pre-blended fine powder grout, consisting of a blend of natural cement based binder and retarders resistant to chloride penetration.

It is intended for use in drinking water system applications as a void filling and ground stabilising waterproof grout.

## 2 Application

### Packaging

a) NATCEM D is packaged in a polythene inner bag with a re-sealable pull tie within a stitch sealed woven polypropylene outer bag.

Bag Weight: 25kg

### b) Storage

NATCEM D should be stored in dry conditions and an unopened bag will last for at least twelve months.

A part used bag will also last twelve months provided it is re-sealed using the pull tie.

### c) Surface Preparation

- NATCEM D must not be applied to frozen or overheated surfaces i.e. outside the temperature range 0°C to 30°C.
- The surface to which the NATCEM D will be applied must be thoroughly dampened.

### 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 D.
- Add the NATCEM D gradually to fresh clean water. Mixed with 40% water, a 25kg bag will produce approximately 10 litres of finished grout.
- NATCEM D 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.

The minimum mixing time is 2 minutes to ensure the correct fluidity.

When fully mixed the product has a consistency of thin paste.

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 warm water at approximately 20°; similarly in warm weather, cold water can be used to slow down the set.

**e) Using NATCEM D**

- Apply the mixed NATCEM D as quickly as possible after mixing using traditional tools.
- Once setting has started, DO NOT attempt to re-mix because this will impair the mechanical properties and in particular, cause the strength and adhesion to be lost.

**f) Setting times**

Setting time is the time from mixing of the products to its set condition.

After application, NATCEM D is designed to commence setting at 35 minutes and to finish setting at 45 minutes at a temperature of 20°C. At temperatures higher than 20°C the setting time will be shorter.

These setting times are based on a 40% water mix. It is not recommended to use less than 40% water otherwise mixing will be more difficult; it will set faster and the strength gain will commence earlier making the material more stiff and the material may be more difficult to apply.

After completion of the setting, there is a 30 minute curing time.

**Setting time & strength gain at 50% relative humidity**

	Start Set Minutes	End Set Minutes
5°C	60	75
15°C	40	50
20°C	35	40

**Based on a water cement ratio of 40%**

Start Set	35 Minutes	at 20°C
End Set	45 Minutes	at 20°C
	Flexible Strength (mPa)	Flexible Strength (mPa)
7 Days	0.8	4
21 Days	1	4.5
Strength continues to develop thereafter		

**g) Disinfection**

Disinfection of NATCEMD is not necessary therefore after the 30 minute curing period, the material may be returned to service without further attention.

**h) Cleaning**

NATCEMD should be removed from tools and equipment with water immediately after use.

**3 Waste Disposal**

**a) Empty bags**

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

Alternatively they can be disposed into a skip destined for landfill.

**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 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.

## **4 Safety**

- a) Wear suitable protective clothing when handling bags and mixing the material.
- b) Wear safety glasses, work gloves and dust mask.
- c) Avoid spillage from damaged bags
- d) Avoid breathing the powder
- e) Avoid raising dust especially when sweeping. When mixing, always add the powder to the water to avoid raising dust.
- f) Avoid skin contact with the wet cement during the setting reaction.
- g) Discard immediately any clothing which becomes saturated with wet cement.

**It is important to read the NATCEM D 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.**