

# NUGROUT FLOWABLE CONCRETE

## Free Flowing Cementitious Concrete

### Description

A cementitious free flowing concrete based on non-reactive aggregates, low alkali Portland Cements with selected admixtures to produce a chloride free concrete which contains no corrosive metallic additives. Nugrout Flowable Concrete is designed for structural repair situations and complies with the requirements of the Department of Transport Standard BD27/86 Clause 4.

### Applications

- Production of bridge bearing plinths.
- Repairs to insitu bridge decks.
- Repairs of reinforced concrete structures.
- Bedding of precast concrete beams.
- Grouting of machinery and turbines etc.

### Advantages

- Has controlled expansion and is non-shrink.
- Excellent early compressive and flexural strengths.
- Resistant to vibration and impact.
- Material can be poured, vibrated or rodded.
- Excellent bond strengths to both steel and concrete.
- Requires only addition of clean water.
- Resistant to oil and water.
- Excellent flowability and placement characteristics.

### Technical Information

Typical compressive strength at 20°C. Results in N/mm<sup>2</sup> using 100mm cubes tested in accordance with BS1811 Part 116.

24 hrs	3 days	7 days	28 days
12 N/mm <sup>2</sup>	30 N/mm <sup>2</sup>	45 N/mm <sup>2</sup>	60 N/mm <sup>2</sup>

Typical Density: 2150-2250

Cement Content: More than 400kg/M<sup>3</sup>

Free W/C Ratio

@ 3.3 ltrs per 25kg: 0.39

Equivalent Sodium Oxide less than 3kg/M<sup>3</sup>.

Typical expansion is 0.3%-1.0% at 24 hours.

Chloride ion content is less than 0.1% by mass of cement.

Electrical Resistivity = 13412 ohm cm satisfying the requirements of Cathodic Protection.

Portland Cement complying with DTp Specification of Highway Works Part 5.

Aggregate is ASR non reactive aggregate complying with the requirement of DTp Clause 1704.

Maximum nominal aggregate size 6mm.

Flow (DTp flowtrough) in accordance with BD27/86 flowing 750mm in less than 30 seconds.

Non shrink in accordance with Clause 2601.4 (vii) DTp Specification for Highway Works Part 6.

Recommended minimum thickness: 50mm

## **Surface Preparation**

Surfaces should be clean and free from loose and unsound material. Oil and grease should be removed using Desolve. Surfaces should be thoroughly wetted for a minimum period of 2 hours and any surplus water removed before placement. Allow to become surface dry thus obtaining a saturated, surface dry condition.

## **Mixing**

Mixing may be carried out in a standard barrel mixer or pan type mixer of a size suitable for the quantity of mix to be prepared for use at one time. The mixing of part of a bag of materials is not recommended.

The mixer should be of a type that will thoroughly mix the material and water without leaving residual unmixed material or 'balling'. Note: The contents of each bag of Nugrout Flowable Concrete requires mixing with clean water only. No other ingredients are required.

The mixer drum is to be clean and free from remains of previous mixes. Thoroughly wet inside the mixer drum and drain off any excess water.

Measure out the quantity of clean water into a suitable container, 3.3 litres per 25 kg bag, and place approximately two thirds of this in the mixer drum.

With mixer rotating, add full contents of dry mix to drum and allow to mix until a stiff consistency is obtained. This is essential to stop unmixed material being retained in the final mixture.

Add the remainder of the water and allow to mix for a further 1 - 4 minutes depending on the mixer being used. Pour mix in to container(s) and allow to de-aerate for 2 -3 minutes. This will not be necessary if pumping. Use the mix as required.

## **Placing Concrete**

The mixed material should be placed by pouring or pumping as quickly as possible, remembering that flowability decreases with time.

Always mix sufficient material to complete placing in one uninterrupted pour.

Place the product from one side only so as to avoid entrapped air and ensure continual free flow of the material. When pumping, the addition of excess water is not necessary as this could cause segregation of the mix and inhibit pumping.

Concreting should not take place in temperatures of 5°C or lower unless steps have been taken to protect the concreted areas from these conditions. Where formwork is involved it is essential that it is thoroughly sealed to prevent concrete loss and it should be coated with Chemlease to obtain an easier strip.

## **Low Temperature Working**

Concreting should not take place in temperatures below 5°C unless steps have been taken to protect grouted areas in these conditions. At temperatures below 10°C the Nugrout Flowable Concrete should be maintained in a store at 15 - 20°C for a minimum of 24 hours and the mixing water should be between 20 - 25°C.

## **Curing**

The placed concrete must be cured using good concrete practice. Several methods can be employed including applying Nufins Curing Compounds directly onto the concreted area.

## **Packaging**

Nugrout Flowable Concrete is supplied in a 25 kg lined sack, approximate yield 12.7 litres.

## **Storage**

Store in cool dry conditions.

## **Health & Safety**

Nugrout Flowable Concrete does not present any undue hazard and is non toxic, however, as with all cementitious materials it is slightly alkaline, therefore gloves and goggles should be worn and any material should be washed from the skin and eyes before it dries with clean water.

## **Limitations**

Excessive water additions will reduce strengths and can cause segregation within the mix which may limit the flow.

Concreting should not take place in temperatures below 5°C unless steps have been taken to protect concreted areas in these conditions.

## **Technical Support**

Through our technical department and laboratories we can offer a comprehensive service to specifiers and contractors.

Technical representatives are available throughout the UK to provide further information and arrange demonstrations.



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