

## Non-shrink Grout

**ST-NSG**

**General purpose polymer modified cementitious grouting material with superior flowability, high compressive strength and non-shrink properties.**



### PRODUCT DESCRIPTION

ST-NSG is a dry packed proprietary premixed shrinkage compensating cementitious precision grout. It is specially designed for the use of grouting at gaps, holes and base plates, etc. where excessive shrinkage is prohibited for the filling material. It can also be used, when mixed to a lower workability, as a patching material for minor repairs for honeycombs or for filling up tie-holes in concrete. ST-NSG is composed of Ordinary Portland cement, graded sand and non-shrink additives, which impart controlled expansion in both the plastic and hardened states.

### SUBSTRATE PREPARATION

The substrate surface must be free from oil, grease, or any kind of loose particles. Interfaces must be patched up to avoid scales, coatings, recessives, pockets, etc. to avoid hindrance of the flow/spread of grout. Bolt holes or fixing pockets must be blown clean to get rid of any dirt or debris. Pressure relief holes/exit should be provided to allow venting of isolated high spots. At appropriate time before grouting, normally several hours, interfaces must be pre-soaked with fresh water and clear up all free water on surfaces thereafter. When leveling shims are used and are to be removed after the grout goes hardened, they should be treated with a thin layer of grease before installation. Formwork should be leak-proof. Rubber/polystyrene stoppers or sealants can be used at joints or bolt holes.

### FEATURES & BENEFITS

- ◆ Expansion at early stage and shrinkage compensated at ultimate stage
- ◆ High early strength and ultimate strength
- ◆ Can be mixed to plastic, flowable and fluid states with different water addition
- ◆ Free from chlorides, nitrates and sulphates
- ◆ High ultimate strength & low permeability
- ◆ Hydrogen free gaseous expansion
- ◆ No bleeding or segregation
- ◆ Non-toxic to human beings when contact with potable water

### AREAS OF APPLICATION

- ◆ Filling up gaps between reinforced concrete and/or precast concrete elements
- ◆ Grouting U-channel of glass balustrade
- ◆ Patching material for concrete repairs
- ◆ Structural concrete repair by grouting
- ◆ Filling up tie-holes in concrete
- ◆ Suitable for using in water retaining/water tight structures without hazardous effect to human beings e.g. water tank, swimming pool, etc.
- ◆ Bridge bearings
- ◆ Machine base plates, etc.
- ◆ Applying underwater or in tidal zone
- ◆ Consult Score Tech's staff for other suitable applications

## MIXING & INSTALLATION

1. For concrete repair/filling up tie bolt hole, mix ST-NSG with electric hand drill in bucket until the required consistency is achieved.
2. When mixing with electric hand drill for grouting purpose, mix the material with ~80% of the recommended quantity of water for at least 3-4 minutes, then add the remaining water and mix for another 1 minutes to achieve the best effect of flowability.
3. Sufficient grout must be made available in order to ensure continuous grouting operation. The mixed grout should be poured only from one side to the other side to reduce entrapment of air.
4. For large volume of grouting, ST-NSG can be applied by pump such as heavy-duty diaphragm pump, screw feed pump, all-in-one grouting pump or piston pump, etc.
5. Please refer to the method statement provided by Score Tech for details.

## CURING

Under normal circumstances, natural air curing is proved adequate for ST-NSG. However, water mist curing is beneficial to ensure the best performance of ST-NSG under dry or windy condition.

## PACKAGE

30 kg bag

## SHELF LIFE

ST-NSG has a shelf life of 12 months if well kept in dry condition on lifted floor.

## HEALTH & SAFETY

Wear NIOSH approved face mask or equivalent personal protective equipment when handling the material. ST-NSG contains cement which may cause an allergic effect or irritation to eyes and skin. When contact with eyes, flush immediately with large quantity of water.

## REFERENCE STANDARDS

- ◆ British Standard: BS 6319; BS 1881;
- ◆ American Standard: ASTM C827; ASTM C1090; ASTM C939
- ◆ Hong Kong Standard: ArchSD General Specification; HKHA MTS Spec. Part D; CS1:2010; Product Certificate PCCS-RM (Class S)
- ◆ Water Regulation Advisory Scheme (WRAS)
- ◆ General Acceptance issued by Hong Kong Water Supplies Department (WSD GA)

## PRODUCT INFORMATION

Colour	Grey		
Maximum Grain Size	1.8mm		
Consistency	Plastic (for concrete repair / filling up tie holes)	Flowable (for filling bearing plates)	Fluid (for grouting)
Water Demand	4.2 - 5.28 litre	5.4 - 5.88 litre	6.0 - 6.6 litre
Wet Density	~ 2200 kg/m <sup>3</sup>	~ 2150 kg/m <sup>3</sup>	~ 2050 kg/m <sup>3</sup>
Yield (1 m <sup>3</sup> )	~ 62 bags	~ 60 bags	~ 56 bags
Pot Life at 27 °C	~ 30 minutes		

## PRODUCT PERFORMANCE

Compressive Strength at 28 days	CS1:2010-12	≥ 70 N/mm <sup>2</sup>	≥ 65 N/mm <sup>2</sup>	≥ 60 N/mm <sup>2</sup>
Expansion between 3 to 28 days	ASTM C1090	No drying shrinkage is measured at age of 28 days		
Expansion within 24 hours	ASTM C827	The applied material will slightly expand at the initial 24 hours		
Figg Air Permeability	HKHA MTS Spec. Part D Cl.2.1.7	> 250 seconds		
Chloride Content	CS1:2010-21	Nil		
Suitability for Use in Contact with Potable Water	WSD GA	Proven non-toxic and suitable for use in potable water tank		

\* Note: The test standards for the product performance stated above refer to laboratory test only.

## DISCLAIMER

Note: As the application condition may vary from site to site and may not be identical to the same condition under which the parameters in the brochure are drawn, the information provided on this Technical Data Sheet is for general guidance only. Warranty will not be given to the ultimate performance and application results of this material when the material is not kept, mixed, applied or cured strictly in accordance with the requirements and/or instructions listed out in this brochure or in other supplementary document.

**SCORETECH**  
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Tel: 852-2165 0900  
 Fax: 852-2590 0511  
 Email: enquiry@scoretech.com.hk  
 Website: www.scoretech.com.hk

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