SMART NS GROUT
Non- Shrink Grout

SMART NS GROUT is formulated to suit all type of grouting needs. It contains only graded sand, cement & an expansive agent. It has been formulated for critical use where positive expansion, high early strength & Nan-staining characteristics are required. **SMART NS GROUT** is extremely flowable for gap widths of 10 to 100mm. When cured, it is similar in appearance for concrete.

ADVANTAGES

- Positive expansion
- High early strength
- Long-term durability
- Excellent initial flow & flow retention
- Non-staining natural aggregate
- Chloride free
- No segregation

USES

SMART NS GROUT is used for free-flow, positive expansion grouting in a wide range of application.

- Structural building members such as precast wall panels, beams, columns, post-tensioned girders
- Hand rails
- Anchor bolts
- Base plates
- Bridge bearing plates
- Machine bases
- Pressure grouting
- Concrete repairs

PROPERTIES (Typical Results)

Different consistencies can be obtained by adding different amounts of water to **SMART NS GROUT:**

- "Fluid" mixture has a flow of 10 to 30s (When tested in accordance with **ASTM C 939)**
- "Flowable" mixture has a flow of 125% to 145% (When tested in accordance with **ASTM C 827** at five drops**)**
- "Plastic" mixture has a flow of 100% to 125% (When tested in accordance with **ASTM C 827** at five drops**)**
- "Stiff Plastic" mixture has a flow less than 100% (When tested in accordance with **ASTM C 827** at five drops**)**

Consistency	Compressive Strength (N/m^2)m (ASTM C 942 : 86)			
	1 Day	3 Day	7 Day	28 Day
Fluid	25	35	50	55
Flowable	35	45	55	60
Plastic	40	50	60	65
Stiff Plastic	50	60	75	80
Consistency	Setting Time at 25C (ASTM C 953 : 87)			
	Initial Set		Final Set	
Fluid	4 – 7 hr		5 – 7 hr	
Consistency	Flow Consistency (ASTM C 939 : 94)			
Fluid	30 Sec			
Consistency	Slant Shear Bond Strength			
Fluid	18 N/mm^2			

DIRECTION FOR USE
Preparation

Please refer to *Application Guidelines – Grouting & Anchoring* for detailed guidance.

Mixing

- **SMART NS GROUT** should be mixed in a mechanically powered mixer. For quantities up to 50kg, a slow speed drill fitted with a high shear paddle is suitable. Large quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.

- Place the specified amount of water in the mixer.
- Slowly add all the **SMART NS GROUT** from the bag in to the revolving mixer & mix for 5 minutes until a smooth, even mix is achieved.
- Do not mix large amount of grout if it can't be placed quickly. Grout should be placed within 20 minutes after mixing to gain full benefits from the expansion process. Do not add extra water to the mix.

Placing
For Fluid Consistency
- Place **SMART NS GROUT** quickly & continuously. Placing should be from one side of the void to prevent air or pre-soaking water being trapped.
- A grout head must be maintained at all times so that a continuous grout front is achieved. It is advisable to use a hopper for this purpose.
- The flow distance is based on gap width & fluid head. Longer flow distance can be obtained with a larger gap width & a larger grout head.

For Stiff Plastic Consistency
- Hand placing or "dry packing" must be done with sufficient water to produce a stiff plastic consistency & ensure hydration & strength development of the grout.

Curing
- All exposed areas should be thoroughly cured after the placement6 of the grout is completed.
- This should be done by continuous application of water and/or wet hessian until the grout shoulders are ready to be finished.

- After finishing has been completed, all exposed grout should be coated with a quality curing compound or by continuous application of water and/or wet hessian.

COVERAGE/YIELD
1 bag of **SMART NS GROUT** (25 kg) will produce different yields when mixed with different amounts of water as table below.

Consistency	Mixing water	Yield
Fluid	5.7 lit	13.4 lit
Flowable	4.9 lit	13.1 lit
Plastic	4.6 lit	12.7 lit
Stiff Plastic	3.8 lit	12.0 lit

PRECAUTION
- Avoid eye contact & unnecessary skin contact as the product is alkaline.
- Gloves, goggles & dust mask should be worn.
- Avoid inhalation of dust during mixing.
- Wash thoroughly after handling.
- In case of eye contact, flush with plenty of clean water. Seek medical help immediately.

PACKAGING & STORAGE
SMART NS GROUT is supplied in 25kg bags & has a shelf life of about 6 months if kept in a cool, dry place in sealed bags.

TECHNICAL SERVICE
The company provides good servicing from a team of dedicated specialist in the field. When used in accordance with its current published directions, the product will perform as described in this catalogue. Millennium Concrete Technologies will not be responsible for difficulties caused by other materials, conditions or inferior workmanship and quality control. We reserve the right to determine the true cause of any difficulty by accepted test methods.

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