



SURE LEVEL

Technical Data Sheet

HS GROUT

High Strength Grout

PRODUCT

HS Grout is a high performance, high strength, non-shrink dual expansion Class C precision grout.

DESCRIPTION

HS Gout is a high performance, high strength, non-shrink Class C cementitious grout. The highly fluid free flowing grout is a blend of Portland cement and graded aggregate and chemical additives. Dual expansion compensates for shrinkage in both plastic and hardened states. It is suitable for grouting gap distances 10mm to 140mm in a single application. HS Grout is supplied as a ready to use dry powder, requiring only the addition of a controlled amount of clean water to produce a free flowing non shrink grout for gap thickness from 10mm to 140mm in a single application.

RECOMMENDED USES

- Precision grouting, where high early strength is required.
- Critical equipment base plates.
- Heavy duty support beneath machine base plates.
- Bridge bearing and crane rails.
- Anchoring bolts, bars and fittings.
- Underpinning.
- Applications subject to continuous vibrations and dynamic loads.

FEATURES & BENEFITS

- Dual expansion compensates for shrinkage in the plastic and hardened state.
- Gaseous expansion system compensates for shrinkage and settlement, whilst in the plastic state. Chemical expansion compensates while in the stiff hardening state.
- Can be trowelled, poured and pumped.
- Economical, low in place cost.
- Ready to use, pre mixed and requires only the addition of water.
- No metallic iron content to cause staining.
- Lower water/cement ratio reduces drying shrinkage and increases durability and reduces permeability.
- Excellent flow characteristics when used in fluid consistency, fills intricate cavities.
- Complete void filling resulting from gaseous expansion in a plastic state.
- Excellent flow retention.

PERFORMANCE PROPERTIES

MIXING CONSISTENCY

The table is a guide to the **typical** water addition requirements for various consistencies.

The applicator should **verify** the consistency and water requirement to match the required strengths and is a guide only.

Litres of water per 20kg bag:

	Flowable (Litre)	Flowing (Litres)
Water Table	2.6 – 2.8	3- 3.5Litres

TYPICAL COMPRESSIVE STRENGTH

Tested in accordance with AS1012.9 at 20°C and AS2073

Age	Flowable	Flowing
1 day	>40 Mpa	>30 Mpa
7 days	>80 Mpa	>65 Mpa
28 days	>90 Mpa	>80 Mpa

Note: Pozzolanic reactivity will considerably continue to increase strength for up to 91 days.

TYPICAL FLEXURAL STRENGTH

Tested in accordance to ASTM C348 at 20°C

Age	Flowing
28 days	>7.5 Mpa

TYPICAL BOND STRENGTH

Tested in accordance to ASTM C882

Age	Consistency	Strength
28 days	Flowing	>7.0 Mpa

FLOW CHARACTERISTICS

Tested in accordance to AS2073

Flow (Flowing)	20 - 35 Seconds
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APPROXIMATE SETTING TIMES

Vicat setting times at 20°C

	Flowable	Flowing
Initial Set	3.0 Hours	5.5 Hours
Final Set	4.0 Hours	8.0 Hours
Time for Expansion- Start	15-30	15 - 30 Minutes

(Plastic State)		
Time for Expansion- Finish (Plastic State)	2-4	2 - 4 Hours
Unrestrained Expansion	1-3%	1 - 3%
Bleeding	0%	0%

DRYING SHRINKAGE

Tested in accordance to AS1012.13

Time	Consistency	Shrinkage
56 days	Flowable	<100 Microstrain
56 days	Flowing	<300 Microstrain

YIELDS

The approximate yields are obtained if mixed in accordance with recommended procedures and accurately measured water content.

	Flowable	Flowing
Litres / 20kg bag	10.0	10.6
Approx. Fresh Wet Density kg/m ³	2260	2170
Approx Bags required per cubic metre	100	94

Density tested to AS1012.5

PACKAGING

HS Grout is supplied in a 20kg polylined bag.

APPLICATION INSTRUCTIONS

SUBSTRATE & SURFACE PREPARATION

The substrate surface must be clean, sound and free from oil, grease, curing compound or any loose materials. It must be mechanically abraded back to a sound concrete. Bolts or anchor holes must be clean and free from dust or loose material. This can be achieved by blowing clean the hole.

PRE SOAKING

It is essential to presoak the concrete substrate prior to application of HS Grout. Presoak the substrates, for a minimum of 1 hour prior to grouting. Immediately before grouting, the excess water should be removed, all water in the anchor and bolt holes must be blown out and no traces of free water should be present whilst grouting.

BASE PLATE

All traces of rust, oil or grease must be removed. It is essential to provide air pressure relief holes for venting.

FORMWORK

It is essential that the formwork be constructed to facilitate rapid, continuous and complete filling at area to be grouted. It is essential that the formwork be constructed to be leak proof and water tight. Use methods of forming that will allow grout to flow by gravity, between

the base plate and foundation, ensuring grout is kept in full contact with these surfaces until it has hardened.

UNRESTRAINED SURFACES

As Sure level HS Grout is an expanding grout, unrestrained areas must be kept to a minimum.

LOW TEMPERATURE WORKING

Normal precautions for winter working with cementitious materials should then be adopted. At temperatures below 5°C, the cure rate and strength development rate will be dramatically reduced. If early strength is required, it is advisable to use heated water and condition Sure Level HS Grout up to 30°C. Do not exceed these temperatures.

HIGH TEMPERATURE WORKING

At temperatures above 30°C, it is advisable to use water below 20°C when mixing grout. All materials must be kept cool and away from direct sunlight, and area to be section shaded by erecting shade screens. If ambient temperatures are excessive, perform grouting in early morning or late evenings.

MIXING

For optimum results, Sure Level HS Grout must be mixed with a mechanical forced action mixer, with a high shear stirrer. It is essential that the grouting operation is continuous, hence ensuring sufficient labour and mixing capacity is available.
DO NOT MIX BY HAND.

The selected water content should be accurately measured into a mixing vessel. Slowly, add the dry powder (Sure Level HS Grout) while mixing. The mixing should continue for a maximum of 4 minutes, until a uniform homogeneous consistency is obtained.

DO NOT ADD ADDITIONAL WATER.

Discard any unused grout that has stiffened or hardened.

PLACING

It is essential that, at ambient temperatures (approximately 20°C), the grout is placed less than 10 minutes of mixing, and this will ensure the expansion process will be maximised. Sure Level HS Grout can be placed in thickness ranging from 10mm to 140mm, in one single application. Where thickness is greater than 140mm, special procedures may be necessary. (Consult the Sure Level office for advice).

Avoid trapping air and water, by placing grout from one side only. It is recommended that a suitable head box be used to ensure continuous flow of grout. Ensure entire area to be grouted is filled, by bringing level to above underside of machine base plate and remain at this level throughout grout placement. The grout head must be maintained at all times so that a continuous grout front is achieved. Do not use mechanical vibrators to assist in flow, as this will cause segregation of aggregate. For large areas it is recommended that HS Grout be pumped. Contact the Sure Level office for further information.

CURING

On completion of grouting, the exposed area should be covered with wet hessian, plastic sheeting or Sure Level 644 Primer to prevent excessive moisture loss. Keep grout covered for a minimum of 24 hours. Remove formwork, no sooner than 24 hours after completion of grouting and continue to cure with wet hessian, plastic sheeting, water or Sure Level 644 Primer, which can be used as a curing agent. Lack of sufficient curing could result in plastic cracking and drying shrinkage on surface. The surface should be protected for at least 7 days with either a curing compound (Sure Level 644 Primer) or wet hessian or plastic sheeting.

CLEAN UP

HS Grout should be removed from tools and equipment with clean water immediately after use.

STORAGE

Sure Level HS Grout has a shelf life of approximately 8 months, if kept in a dry environment completely away from moisture.

HEALTH & SAFETY

This product is classified as hazardous according to criteria of Work Safe Australia. Material containing Portland Cement and sand now fall into this category.

Continuous or extended contact with this product may cause irritation as well as respiratory issues such as bronchitis or silicosis.

- During use avoid inhalation of dust, contact with skin and eyes.
- Suitable protective clothing, dust masks, gloves and eye protection should be worn.
- Continual or extended contact with cement products can cause skin irritation.
- If skin irritation occurs, remove contaminated clothing and flush skin thoroughly with water for a minimum of 15 minutes. Contact Poisons Information Centre or consult medical adviser.
- Material Safety Data Sheets (MSDS) are available on request from the office. Read the MSDS and product data sheet carefully before using any product.

DISCLAIMER

Please Note: Recommendation and advice regarding the use of this product is to be taken as a guide only and Sure Level shall not be liable for any inaccuracy in the information or for any loss, injury or damage whatsoever resulting from its use. To the full extent permitted by law, Sure Level liability is limited at its discretion, to the replacement of the goods or the supply of equivalent goods.

FIRE

HS Grout is nonflammable.

PART NUMBER

HS Grout

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CONTACT DETAILS

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