

APPROXIMATE SETTING TIMES

Vicat setting times at 20°C

	Trowellable	Flowable
Initial Set	1 hour	1 1/2 hour
Final Set	1 1/2 hours	2 hours
Time for Expansion Start (plastic state)	10-15 minutes	10-15 minutes
Time for Expansion Finish (plastic state)	1-2 hours	1-2 hours
Unrestrained Expansion	1-2%	1-3%
Bleeding	0%	0%

TYPICAL COMPRESSIVE STRENGTH

Tested in accordance to ASTM 109-C and 109-M

Age	Trowellable	Flowable
1 day	>40 Mpa	>35 Mpa
7 days	>50 Mpa	>45 Mpa
28 days	>60 Mpa	>50 Mpa

TYPICAL FLEXURAL STRENGTH

Tested in accordance to ASTM C 348 at 20°C

Age	Trowellable	Flowable
28 days	>8.0 Mpa	>7.5 Mpa

TYPICAL BOND STRENGTH

Tested in accordance to ASTM C 882

Age	Consistency	Strength
28 days	Flowable	>7 Mpa

DRYING SHRINKAGE

Time (Days)	Consistency	Strength
56 days	Flowable	<300 microstrain

FLOW CHARACTERISTICS

ASTM C 190

Flow (Flowable)	20-35 seconds
-----------------	---------------

YIELDS

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

	Trowellable	Flowable
Approx. Liter per 20kg bag	10.2	10.6
Approx. Fresh Wet Density kp/m ³	2100	2050
Approx. Bags required per cubic meter	98	94

PACKAGING

Sure Level HES Grout is supplied in a 20kg polylined bag.

SUBSTRATE AND 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 pre soak the concrete substrate prior to application of Sure Level HES. Pre soak 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 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.

FORM WORK

It is essential that the form work be constructed to facilitate rapid continuous and complete filling at area to be grouted. It is essential that the form work 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 HES is an expanding grout, unrestrained areas must be kept to a minimum.

LOW TEMPERATURE WORKING

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 HES Grout to 30°C. Do not exceed these temperatures as working time will be reduced.

HIGH TEMPERATURE WORKING

At temperature 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 evening.

SURELEVELSAUDIA
P.O. Box 24015
AL AHSA 31982

Phone -966 3 534 0500
E-mail - sales@surelevelsaudia.net
www.surelevelsaudia.net


SURELEVELSAUDIA
our products are a **sure** thing

Technical Data Sheet

HES GROUT

PRODUCT

Sure Level HES Grout is a high performance, high early strength, non-shrink Single expansion Class A grout.

DESCRIPTION

This fluid free flowing grout is a blend of cement and graded aggregate and chemical additives. Sure Level HES Grout is supplied as 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.
- Precast wall panels, beams and columns.
- Anchoring bolts, bars and fittings.
- Underpinning.
- Applicaton subject to continuous vibrations and dynamic loads.

FEATURES AND BENEFITS

- Gaseous expansion system compensates for shrinkage and settlement whilst in the plastic state.
- Can be poured or pumped.
- Economical, low in place cost.
- Ready to use, pre mixed, 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.
- Rapid Strength gain facilitates for installation and operation of plant with matter of hours.
- Excelent Flow Retention.

PERFORMANCE PROPERTIES

MIXING CONSISTENCY

This table is a guide to the typical water addition requirements for various consistencies. Litres of water per 20kg bag.

	Trowellable	Flowable
Range	3 - 3.5	3.5 - 4.0

SURELEVELSAUDIA
Issue - July 2008

Sure Level HES Grout
Page 2 of 3

SURELEVELSAUDIA
Issue - July 2008

Page 1 of 3

MIXING

For optimum results Sure Level HES 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 ensure sufficient labour and mixing capacity is available.

DO NOT MIX BY HAND

The selected water content should be accurately measured into a mixing vessel. Add the total of the Sure Level HES Grout to the water while mixing, continue mixing for a further 3-4 minutes until Grout has reached a uniform smooth consistency. 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 within 15 minutes of mixing and this will ensure the expansion process will be maximised. Flowable Sure Level HES 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 such as the additions of selected aggregate.

This may be added at a rate of between 1.0 - 5 kg per 20kg bag of Sure Level HES Grout with minimal effect on strength.

ADDITION OF GREATER AMOUNTS OF COARSE AGGREGATES WILL PROGRESSIVELY REDUCE STRENGTH UNLESS CONSISTENCY IS ALSO REDUCED

Avoid trapping air and water by placing Grout form on one side only. It is recommended that a suitable head box to 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 Sure Level HES Grout be pumped. Sufficient Grout must be available prior to starting and the time taking to pour a batch must be regulated to the time taking to prepare the next one.

CURING

On completion of grouting exposed area should be covered with wet hessian, plastic sheeting or Sure Level Sure Cure to prevent excessive moisture loss. Keep Grout covered for a minimum of 24 hours. Removed formwork no sooner than 6 hours after completion of grouting and continue to cure with wet hessian, water or Sure Level Surecure curing agent. Lack of sufficient curing could result in plastic cracking and drying shrinkage on the surface. The surface should be protected for at least 7 days with either a curing compound Sure Cure or wet hessian or plastic sheeting.

PRECAUTIONS

Sure Level HES Grout generates a moderate degree of heat when curing. More heat is generated at greater thickness or volume. Greater heat will be generated at higher initial temperatures.

The lower the water content, the faster the heating and cure rate and the shorter the working time (pot life). Especial care should be taken at low water contents.

CLEAN UP

Sure Level HES Grout should be removed from tools and equipment with clean water immediately after use.

STORAGE

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

HEALTH AND SAFETY

Cement products are classified as non-hazardous under General Health and Safety guidelines, and materials containing Portland cement are alkaline in nature.

- 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.

FIRE

Sure Level HES Grout is non flammable.