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Product Name: Ultra-High Strength Grout (ULTRA HS GROUT)

Product Description:

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

Product Description:

Ultra HS Gout is a high performance, high strength, non-shrink Class C cementitious grout. The fluid or flowing grout is a blend of Portland cement and graded fine 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. Ultra 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 Applications:

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

Features & Benefits:

- Dual expansion compensates for shrinkage in the plastic and hardened state.
- Can be trowelled, poured and pumped.
- Economical, low in place cost.
- Ready to use, premixed 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.
- Gaseous expansion system compensates for shrinkage and settlement, whilst in the plastic state. Chemical expansion compensates while in the stiff hardening state.

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.

	Flowable	Flowing
Water Table	2.6-2.8 Litres	3.0 - 3.5 Litres

Approximate Setting Times

Vicat setting times at 20°C

	Flowable	Flowing
Initial Set	4.0 Hours	5.5 Hours
Final Set	6.0 Hours	8.0 Hours
Initial Expansion	15 - 30 Minutes	15 - 30 Minutes
Time for Final Expansion -Finish approx	5/ 10 Days	2 - 5/ 10 Days
Unrestrained Expansion	1 - 3%	1 - 3%
Bleeding	0%	0%

YIELDS

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

	Flowable	Flowing
Approx. Litres per 20kg bag	10.6	10.6
Approx. Fresh Wet Density kg/m3	2260	2170
Approx. Bags required per cubic metre	100	94

Packaging: HES Plus Grout is supplied in a 20kg polylined bag.

Typical Bond Strength

Tested in accordance to ASTM C882

Age	Consistency	Strength
28 days	Flowing	>8.0 Mpa

Typical Flexural Strength

Tested in accordance to ASTM C348 at 20°C

Age	Flowing
28 days	>8.5 Mpa

Drying Shrinkage

Tested in accordance to AS1012.13

Time (Days)	Consistency	Shrinkage
56 days	Flowable	<100 Microstrain
56 days	Flowing	<300 Microstrain

Typical Compressive Strength

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

Age	Flowable	Flowing
1 day	>45 Mpa	>35 Mpa
7 days	>85 Mpa	>75 Mpa
28 days	>100 Mpa	>90 Mpa

FLOW CHARACTERISTICS

Tested in accordance to AS2073

Flow (Flowing)	20 - 35 Seconds

Density tested to AS1012.5

Applications 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 Ultra 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 watertight. 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 Ultra 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 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 work area to be sectioned off shaded by erecting shade screens. If ambient temperatures are excessive, perform grouting in early morning or late evenings.

Mixing: For optimum results, Sure Level Ultra 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 Ultra 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 placedwithin 10 minutes of mixing, and this will ensure the expansion process will be maximised. Flowable Sure Level Ultra 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 may cause segregation of aggregate. For large areas it is recommended that Ultra 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: Ultra HS Grout should be removed from tools and equipment with clean water immediately after use.

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

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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.

Fire: Ultra HS Grout is nonflammable.

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: Normal Set 40 is non flammable.

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