

# Grout HES

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## DESCRIPTION

*Grout HES* is a high strength, non-shrink cement based grout that can be used in a wide variety of situations.

This high performance grout is a blend of cements, graded aggregates and special additives which provide rapid strength development and excellent bonding characteristics.

*Grout HES* is supplied as a ready to use powder which when mixed with water, produces a free flowing and pumpable precision grout. It has also been specifically designed to minimise bleed and segregation.

*Grout HES* can be used for gap thicknesses from 10 - 125mm.

## USES

*Grout HES* can be used for:

- machine base plates
- bridge bearing pads
- anchor bolts
- Crane rail sole plates
- Concrete repair work
- Cavities and recesses
- Anchoring balcony & balustrade supports.

## ADVANTAGES

- Rapid set times and high early strengths.
- High initial flow.
- High 28 day strengths and low permeability ensure durability.
- Will not bleed or segregate.
- Excellent resistance to impact, vibration and thermal variations.
- Chloride free, non-corrosive to steel or iron.
- Ideal for pumping and pouring over a number of applications and environmental conditions.

## PACKAGING

*Grout HES* is available in a 20kg bag.

## STORAGE

If kept dry and stored in original condition, *Grout HES* will keep for up to 12 months. The shelf life of the product may reduce if it is subjected to high temperatures and humidity.

## STANDARDS COMPLIANCE

Conforms to ASTM C1107-02 (Type A) and AS1478.2 – 2005

## APPLICATION GUIDELINES

### SURFACE PREPARATION

All substrates should be sound, clean and free from dust, oil, or any other surface contaminants such as curing compounds and release agents. All bolt holes and fixing pockets must be cleaned out using compressed air. To maximise adhesion, we recommend that surfaces be abraded or roughened, by mechanical means such as needle gun, grit blasting or grinding.

After preparation is complete, saturate the surface with clean water for a minimum of four hours prior to grouting. Care should be taken to remove all surplus water prior to grouting.

### FORMWORK

As *Grout HES* is a free flowing grout, it is important to construct the formwork to be leakproof. Formwork should also be built so that a grout head above the level of the underside of the base plate is maintained. This will allow gravity flow to completely fill the void to be grouted.

To allow easy removal of the forms, coat the formwork with oil and ensure adequate air holes are installed.

## MIXING

*Grout HES* should be mixed using a high speed drill and spiral mixer, mechanical grout mixer, or a suitable high shear drum mixer. **DO NOT MIX MATERIAL BY HAND.**

Because continuous grout flow is essential, ensure that the mixing method and labour is sufficient to enable continuity of the operation.

1. Add the correctly measured water content into the mixing vessel. To achieve the selected consistencies the amount of clean water to be added per **20kg bag** should be:

Consistency	Litres of Water
Trowellable	2.0 – 2.2 litres/20kg bag
Flowable	2.3 - 2.6 litres/20kg bag

2. Slowly add the total dry contents of the *Grout HES* bag and mix continuously for five minutes until a smooth and even consistency is obtained. Allow the mixture to stand so any entrapped air can escape. If a mix has become unworkable because of time delays, do not add additional water to increase flow of the grout – discard the mix and start again.

## PLACEMENT

The mixed grout should be placed **immediately**. *Grout HES* can be placed in thicknesses from 10 to 125mm. Continuous grout flow is essential.

Pour the mixed grout from one side of the void only to eliminate entrapment of air. The pouring side should be raised by means of a hopper or grout box to maintain a grout head at all times.

For larger applications *Grout HES* can be placed by means of pumping.

## TEMPERATURE AND WORKING LIMITATIONS

For maximum performance it is important to maintain the grout, base concrete and steel substrates within a temperature range of 18 – 25°C prior to, during and for 48 hours following placement of the grout.

Grouting should not take place if the temperature is 5°C or lower. Warm water can be used to accelerate strength development during colder weather.

When temperatures exceed 30°C, grouting should be sheltered from the heat or conducted early morning. Where possible, keep materials cool and use cold water in the mix.

## CURING

It is necessary to cure all exposed surfaces. The use of a concrete curing membrane, hessian or continuous water spray is recommended.

## CLEANING

All tools should be rinsed with water immediately after use to remove all traces of *Grout HES*.

## TECHNICAL DATA

<b>Compressive Strength</b> (AS1478.2- 2005 Appendix A – Restrained)	<b>Consistency</b>		
	<b>Age</b>	<b>Trowellable</b> <b>Flowable</b>	
	2 hours	30 Mpa            25 Mpa	
	4 hours	35 Mpa            30 Mpa	
	8 hours	40 Mpa            35 Mpa	
	1 day	42 Mpa            37 Mpa	
	7 days	50 Mpa            42 Mpa	
28 days	60 Mpa            50 Mpa		
<b>Flow Characteristics</b> (AS1478.2 – 2005 Appendix D)	<b>Consistency</b>	<b>Method</b>	<b>Range</b>
	Flowable	Flow Trough	400-600mm
<b>Setting Times at 23 ° C</b> ±2C (AS2350.4 – 1999)	Initial Set: 30 – 45 mins Final Set: 45 – 60 mins		
<b>Working Times at 23 ° C ±2</b>	Plastic State: 15 – 20 mins		
<b>Yield</b> (Approximate number of 20kg bags required for 1m <sup>3</sup> of mixed grout.)	Trowellable 99	Flowable 97	
<b>Plastic Density</b>	Approx. 2200kg/m <sup>3</sup> at flowable consistency.		
<b>Expansion Characteristics</b>	Long term expansion to compensate for drying shrinkage		

## HEALTH AND SAFETY

*Grout HES* contains cement powders which can be harmful to the skin. During use, avoid inhalation of dust and contact with the skin and eyes. Wear suitable clothing, gloves, eye protection and respiratory protective equipment.

If contact with the skin occurs, thoroughly clean the area with plenty of fresh water and soap. In case of contact with the eyes rinse with plenty of fresh water and seek medical advice.

If swallowed, seek medical attention immediately – **Do not** induce vomiting.

For further information consult the **Material Safety Data Sheet** and read the product label carefully before use. **Material Safety Data Sheets** are available by phoning **1800 077 744**.

**Please Note:-** *The information given in this data sheet is based on our current knowledge of the product when properly stored, handled and applied. We cannot guarantee that the product will be suitable, effective or safe when used for any purpose other than its stated uses.*

*To the extent that it is lawful, we exclude warranties implied by law and limit our liability to the cost of replacing the product. We accept no responsibility for loss or injury caused by improper use, incompetent preparation, inexpert or negligent application, or ordinary wear and tear.*

*Service or advice given by our staff should not amount to responsibility for the project - since the owner, or their contractor (and not River Sands), is responsible for procedures relating to the application of the product.*



**Applied Concrete Solutions**  
**A Division of River Sands Pty Ltd**  
683 Beenleigh Redland Bay Rd,  
Carbrook Qld 4130  
Ph: 07 3287 6444 Fax: 07 3287 6445  
Sydney: (02) 9756 1711  
Melb: (03) 9311 9225  
Perth: 0423 023 164  
Toll Free Helpline: 1800 077 744  
[www.appliedconcretesolutions.com.au](http://www.appliedconcretesolutions.com.au)