

Grout HF

DESCRIPTION

Grout HF is a high strength, shrinkage compensated (non-shrink) cement based grout containing a blend of Portland cements, graded fillers and special additives which facilitate controlled expansion in both the plastic and hardened states.

Grout HF is supplied as a ready to use powder which when mixed with water, produces a free flowing and pumpable precision grout. It has been specially designed to minimise bleed and segregation over a large range of applications.

Grout HF can be used for gap thicknesses of up to 125mm.

USES

Grout HF can be used in a wide range of applications, such as:

- Machine base plates.
- Bridge bearing pads.
- Anchor bolts.
- Grouting cable bolts in mining applications (coal and metalliferous).
- Crane rail sole plates.
- Stanchion plates.

ADVANTAGES

- High early strength gain enables limited down time during installation.
- High initial flow and excellent flow retention.
- Dual system compensates for shrinkage in both the plastic and hardened states.
- High 28 day strengths and low permeability ensure durability of the hardened grout.
- Excellent resistance to impact, vibration and thermal variations.
- Chloride free, non-corrosive to steel or iron.
- Pre-packed to ensure batching and blending consistency and on-site convenience.

- Ideal for pumping and pouring over a number of applications and environmental conditions.

PACKAGING

Grout HF is available in a 20kg bag.

STORAGE

If kept dry and stored in its original condition, *Grout HF* will keep for up to 12 months. The shelf life of the product may be reduced if subjected to high temperatures and high humidity.

STANDARDS COMPLIANCE

Grout HF conforms to ASTM C 1107-02 (Type C) Standard Specification for Packaged Dry, Hydraulic Cement Grout (non-shrink) and AS1478.2-2005 Methods of Sampling and Testing Admixtures for concrete, mortar and grout.

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 mechanically abraded or roughened.

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 HF* 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 enable 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 to facilitate removal of bleed water.

MIXING

Grout HF should be mixed using a high speed drill and spiral mixer, mechanical grout mixer, or a suitable high sheer 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	Water Addition per 20kg bag (Litres)
Plastic	2.8 – 3.2
Flowable	3.3 – 3.7
Fluid	3.8 - 4.2

2. Slowly add the total contents of the *Grout HF* bag and mix continuously for three to five minutes until a smooth and even consistency is obtained. Allow to stand so any entrapped air can escape.

PLACEMENT

The mixed grout should be placed within 20 minutes to gain the full benefit of the expansion. *Grout HF* can be placed in thicknesses up to 125mm at a minimum thickness of 10mm. It is essential to maintain a continuous grout flow.

Pour the mixed grout from only one side of the void, to eliminate the entrapment of air. The pouring side should be raised by means of a hopper or grout box to maintain a minimum 150mm head of grout at all times.

For larger applications *Grout HF* 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. 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 HF*.

TECHNICAL DATA

Form:	Grey Powder	
Fresh Wet Density:	2200 kg/m ³ approx. depending on consistency used	
Yield: (Approximate number of 20kg bags required for 1m³ of mixed grout.)	Flowable	Fluid
	96	93
Potlife at 23± 2°C:	20 – 30 minutes	

Flow Characteristics (AS1478.2 – 2005 Appendix C and D; ASTM C230/C230M). The following results were obtained at 23± 2°C.

Consistency	Water Addition /20kg bag (Litres)	Test Method	Range
Plastic	2.8 – 3.2	Flow Table	100 – 125%
Flowable	3.3 – 3.7	Flow Trough	400 – 600 mm
Fluid	3.8 – 4.2	Flow Cone	<30 secs

Compressive Strength (AS1478.2- 2005 Appendix A – Restrained)

Consistency	Water Addition /20kg bag (Litres)	Compressive Strength (Mpa)		
		1 day	7 days	28 days
Plastic	2.8 – 3.2	30	55	75
Flowable	3.3 – 3.7	25	50	65
Fluid	3.8 – 4.2	20	45	60

Flexural Strength (AS 1012.11 – 2000) tested at Flowable Consistency

Age (days)	Flexural Strength (Mpa)
1 day	2.0
3 days	4.0
7 days	8.5
28 days	10.0

Setting Time (AS2350.4 – 1999)

Initial Set	5.0 – 6.0 hours
Final Set	6.5 – 7.5 hours

Expansion Characteristics (AS1248.2 Appendix D and E ; ASTM C1090)

Plastic State	Up to 2% by volume through hydrogen gas generation to overcome plastic settlement.
Hardened State	Long term expansion to compensate for drying shrinkage.

HEALTH AND SAFETY

Grout HF 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