

## *technical data sheet*

# FLOWFILL PANEL GROUT

## General-Purpose Non-shrink Cementitious Grout

### PRODUCT

Flowfill Panel Grout is a general purpose non shrink Class A cementitious grout complying with the requirement of SAA MP20 part 3.

### DESCRIPTION

Flowfill Panel Grout is based on Portland cement, graded aggregate and chemical additives, which impart controlled expansion whilst in the plastic state. The gaseous expansion system compensates for shrinkage and settlement in the plastic state.

### RECOMMENDED USES

- All general purpose grouting.
- Precast and prestressed panels
- Grouting in column based, base infilling.
- Filling core holes, rod holes and defects in concrete.
- Fill in grout for hollow block walls.
- Till slab panels.

### FEATURES & BENEFITS

- Gaseous expansion system compensates for shrinkage and settlement whilst in the plastic state.
- Can be dry packed, rammed, troweled, poured and 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, increases durability and reduces permeability.
- Excellent flow characteristics, when used in fluid consistency, will fill intricate cavities.
- Complete void filling resulting from gaseous expansion in plastic state.

### PERFORMANCE PROPERTIES

#### Mixing consistency

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

	Dry Pack	Trowellable	Flowable
Range	2.5-2.9	3.0-3.4	3.6-4.0
Test levels*	2.9	3.4	4.0

\*Refer to the water content used to carry out performance testing as indicated in the tables below.

### Setting Times

Vicat setting at 20°C

	Dry Pack	Trowellable	Flowable
Initial Set	3.5 hours	5.0 hours	5.5 hours
Final Set	4.5 hours	7.0 hours	8.0 hours
Time for Expansion-Start (plastic state)	-	15-25 minutes	15-30 minutes
Time for Expansion-Finish (plastic State)	-	2-4 hours	2-4 hours
Unrestrained Expansion	-	1.5%	1.1%
Bleeding	0%	0%	0%

Tested at 20°C and 50% RH to AS 1012.18 for setting times, AS2073 for expansions and AS1012.6 for bleeding

### Compressive Strength

Tested in accordance to AS1012.9, AS2073 at 20°C

Age	Dry Pack	Trowellable	Flowable
1 day	32Mpa	28Mpa	20Mpa
3 days	60Mpa	60Mpa	40Mpa
7 days	65Mpa	60Mpa	47Mpa
28 days	75MPa	68MPa	50Mpa

### Flexural Strength

Tested in accordance to ASTM C348-86 at 20°C

Age	Trowellable	Flowable
1 day	2.2Mpa	1.8Mpa
7 days	8.5Mpa	8.0Mpa
28 days	10.5MPa	9.5MPa

### Bond Strength

Tested in accordance to ASTM C882-1987 Slant/Shear method

Age	Consistency	Strength
7 days	Flowable	>5Mpa
28 days	Flowable	>10MPa

### Drying Shrinkage

Tested in accordance to AS1012.13

Time	Consistency	Shrinkage
7 days	Flowable	<350 microstrain
28 days	Flowable	<600 microstrain
56 days	Flowable	<600 microstrain

## Flow Characteristics

Using CRD-C flow cone (Efflux time)

Initial Flow	30-40 seconds
Flow after 15 minutes	35-45 seconds
Flow after 25 minutes	45-55 seconds

## Yields

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

	Dry Pack	Trowellable	Flowable
Litres per 20kg bag	10.0	10.5	11.0
Fresh Wet Density kg/m <sup>3</sup>	2290	2220	2180
Bags Required per cubic metre	100	95	91

Density tested to AS1012.5

## PACKAGING

Flowfill Panel Grout is supplied in a 20kg polylined bag.

## APPLICATION INSTRUCTIONS

### 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 clean the hole.

## PRE-SOAKING

It is essential to pre-soak the concrete substrate prior to application of Flowfill Panel Grout. Pre-soak substrate with water for a minimum of 6 hours prior to grouting. Immediately before pouring 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.

## 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. Foam rubber strips of suitable sealants underneath the formwork are recommended. Formwork should allow gravity flow of grout between the base plate and foundation ensuring grout is kept in full contact with base plate and concrete substrate.

## UNRESTRAINED SURFACE

As Flowfill Panel Grout is an expanding grout, unrestrained areas must be kept to minimum. It is advisable not to have any unrestrained areas.

## 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 Flowfill Panel Grout to 25°C. Do not exceed these temperature.

## MIXING

Flowfill Panel Grout is supplied in a ready to use form requiring only the addition of fresh clean water.

For optimum results a Flowfill Panel 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. Slowly add the dry powder (Flowfill Panel Grout) while mixing. The mixing should continue for a maximum of 5 minutes until a uniform homogenous 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 within 25 minutes of mixing and this will ensure the expansion process will be maximized. Flowfill Panel Grout can be placed in thickness ranging from 20mm to 120mm in one single application. Where thickness is greater than 120mm, special procedures may be necessary.

Consult your local Bostik office for advice.

Avoid trapping air and water by placing grout form on 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 Flowfill Panel Grout be pumped. Contact your local Bostik office for further information.

## Curing

On completion of grouting exposed area should be covered with wet hessian, plastic sheeting or Bostik Bond N Cure 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 Bostik Bond N Cure 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 (Bond N Cure) or wet hessian or plastic sheeting.

## PRECAUTION

- Do not add additional water other than specified
- For large areas apply grout in a continuous operation
- Do not apply in areas less than 20mm depth
- Unrestrained areas must be kept to a minimum
- Cure time and set will be extended when applied at temperatures lower than 5°C.

## P.A.T.S (Pretested Adhesion To Substrate) Programme

Bostik offer a service in which a program has been established to eliminate potential field problems by pre-testing Bostik adhesives with samples of building materials to which the adhesive will be applied. This service is available on large projects where pre-application testing will aid in determining the proper surface preparation method to achieve optimum adhesion. Consult a Bostik representative for further information.

## HEALTH AND SAFETY

Cement products are classified as hazardous under General Health and Safety guidelines, and materials containing Portland cement are alkaline in nature and 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 Poison Information Centre of consult medical adviser.

Refer Material Safety Data Sheets (MSDS) which are available on request from the Bostik. Read the MSDS and product data sheet carefully before using any product.

## STORAGE

Flowfill Panel Grout has a shelf life of approximately 12 months if kept in a dry environment completely away from moisture.

## HEALTH AND SAFETY

### HAZARDOUS

Risk: Irritating to eyes, respiratory system and skin. Risk of serious damage to eyes. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

**SAFETY DIRECTIONS:** Avoid contact with skin and eyes. Avoid breathing dust. Wear overalls, safety shoes, impervious gloves and chemical goggles. Use only in well ventilated areas. If inhalation risk exists wear dust respirator. Avoid contact with foodstuffs. Wash hands thoroughly after use. Store in a cool place and out of direct sunlight. Keep containers closed when not in use. Do not empty into drains.

**FOR FIRE:** Non-combustible, however, if involved in a fire use water fog, foam or dry agents. Avoid breathing products of combustion

**FOR SPILLS:** Clear area of all unprotected personnel. Slippery when spilt. Wear protective equipment. Collect and seal in properly labelled drums. Refer to State/Territory Land Waste Management Authority for disposal.

**FIRST AID:** If poisoning occurs, contact a Doctor or Poisons Information Centre (Phone Australia 131 126; New Zealand 0800 764 766).

**SWALLOWED:** If swallowed, do NOT induce vomiting. Give a glass of water. Seek medical assistance.

**EYE:** If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

**SKIN:** If skin contact occurs, remove contaminated clothing and wash skin thoroughly. If irritation occurs seek medical advice.

**INHALED:** Remove from contaminated area. Seek medical advice.

**DO NOT REUSE CONTAINER UNLESS THOROUGHLY DECONTAMINATED.**

**SEE THE MATERIAL SAFETY DATA SHEET FOR ADDITIONAL INFORMATION.**

**EMERGENCY INFORMATION: 1800 033 111 (ALL HOURS)**

## CLEAN-UP

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

## FLOWFILL PANEL GROUT

ITEM NO.	STOCK SIZE
299294	20kg

## TECHFLOW GROUT HS

ITEM NO.	STOCK SIZE
267775	20kg

## TECHFLOW GROUT HES

ITEM NO.	STOCK SIZE
267767	20kg

## TECHFLOW EPOXY GROUT

ITEM NO.	STOCK SIZE
267783	4 litre kit
267791	16 litre kit

*The representations and recommendations regarding the products are based on tests which we believe to be reliable. However, no guarantee of their accuracy can be made because of the great range of field conditions and variations encountered in raw materials, manufacturing equipment and methods. Thus, the products are sold with a limited warranty only, and on the condition that purchasers will make their own tests to determine the suitability of the product for their particular purposes. Under no circumstances will Bostik Findley Australia Pty Ltd be liable to anyone except for replacement of the products or refund of the purchase price.*

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Product:	Flowfill Panel Grout
Issue Date:	25 <sup>th</sup> May 2006
Issue No:	2
Division:	Building Products
Total Pages:	3