

Penaflow Panel Grout

General Purpose Non Shrink Class A Cementitious Grout

DESCRIPTION

Astek Penaflow Panel Grout is a Class A construction grout based on a blend of Portland cement; high quality graded aggregates and additives which control experiences whilst the grout is in a plastic state.

RECOMMENDED USES

- General purpose grouting
- Grouting underneath precast panels and concrete sections
- Anchor bolts filling
- Filling in cavities, gaps and loose infills
- Filling core holes created in panels by core drilling
- Suitable for block work core filling

FEATURES & BENEFITS

- Shrinkage compensated
- Gaseous experiences while in plastic state eliminate shrinkage and settlement
- Non metallic iron content eliminates shaving
- Can be dry packed, rended, trowelled and paved
- Pumpable for larger applications
- Grouting from 20mm to 150mm in a single application
- Australian made

APPLICATION INSTRUCTIONS

Surface and Substrate Preparation.

The substrate to be grouted must be clean, sound and free from dust, oil, grease, curing compounds or any foreign matter that will affect the grout adhere bond. Bolt holes and anchor points must be clean.

Pre-Soaking.

All prepared areas must be saturated with water for a minimum of 4 hours prior to grouting. This will reduce the porosity of the substrate. Prior to grouting ensure all excess water is removed and all holes must be free from water and no puddles of water are present.

If grouting under base plates it is imperative that bleed holes or venting holes are provided (this will eliminate pressure build up in a confined area).

Formwork.

It is essential that the formwork be constructed to be leak proof and water tight. In order to achieve this it is recommended that foam rubber strips or a suitable sealant such a polymetane or silicon be used underneath the formwork.

The formwork should be constructed which will allow and ensure a grout head is maintained on the side above the level of the underside at the loose plate. The formwork should allow for gravity flow of grout with a suitable grout head allowing for continuous flow between the base plate and the concrete substrate.

To ensure ease of formwork removal, the formwork should be coated with form oil prior to grouting.

Temperature.

Low Temperature Application:

At low temperatures below 10 degrees Celsius grout setting time is extended and some bleeding may occur. The early strength gain will be dramatically reduced, however ultimate strength will be maintained. It is recommended that the Penaflow Panel Grout and the water be conditioned to 20 to 25 degrees Celsius.

High Temperature Application:

At high temperatures greater than 30 degrees Celsius the grout setting time is reduced and grouting application becomes problematic due to very early setting times and reduced placement times.

It is recommended that Penaflow Panel Grout be kept in a cool environment and the cold water be

used for mixing. It is recommended that in instances where the temperature is greater than 30 degrees Celsius, the grouting be conducted early in the day or late in the evening and sheltered from sunlight and direct heat.

Mixing.

Penaflo Panel Grout is ready to use, only simply requiring the addition of water.

Penaflo Panel Grout must be mixed with a mechanical mixer grout with a high shear mixer or a suitable drum mixer that creates a forced action mixing.

For smaller quantity mixing, an electric drill with a spiral mixing paddle is suitable. The speed drill should be approx 500-600 rpm.

DO NOT MIX BY HAND.

Dry Pack/Stiff Grout: Add 2.7–2.9 litres per 20kg bag.

Plastic/Trowellable Grout: Add 3.2-3.4 litres per 20kg bag.

Flowable/Pourable Grout: Add 3.8-4.0 litres per 20kg bag.

Always add the grout powder to the pre-measured water. **DO NOT ADD ADDITIONAL WATER AS GROUT WILL SEGREGATE AND BLEED AFFECTING PERFORMANCE.**

The selected water level should be accurately measured and added to a suitable mixing container.

Add the powder (grout) to the water and mix for 3-5 minutes until a homogeneous consist mix is obtained.

DO NOT ADD ADDITIONAL WATER THAN SPECIFIED ABOVE. DISCARD ANY GROUT THAT HAS STIFFENED OR IS UNWORKABLE.

Placement.

Penaflo Panel Grout can be placed in three different ways.

- a) Dry Pack/Stiff Grout (2.7-2.9 litres water per bag).
Ensure sufficient water is present to obtain a stiff/dry pack consistency. If the grout is too dry insufficient hydration of the cements will cause low strength gain and inadequate curing. Using a temping rod or a suitable temping tool apply the grout in the required position temping to ensure adequate compaction.

DO NOT ADD ADDITIONAL WATER AS THIS WILL PLASTICISE THE MIX AND MAKE COMPACTION DIFFICULT.

- b) Gravity flow using header box.
Mix the grout to a flowable consistency and pour grout from one side to avoid air entrapment. Ensure a grout head box is used and the grout head is maintained at all times. This will ensure continuous flow of grout without the possibility of air entrapment.
- c) Large volume pumping.
Mix the grout using a forced action mixer. A positive displacement pump is the recommended pump for large placement application. For large grout pours ensure the grout is pumped from the bottom upwards as this will minimise any air entrapment. For base plates pump from one side ensuring an air bleeder hole is available in the formwork or base plate to ensure any build up of pressure is exerted from the bleeder hole.

DO NOT VIBRATE OR USE MECHANICAL VIBRATOR TO ASSIST FLOW.

For special grout application and placement contact an Aftek office for further information.

Curing.

On completion of grout application all exposed grout should be cured in accordance to 'good practices' in concrete curing. The exposed grout should be covered with plastic sheeting, wet hessian or wet liquid curing compounds such as the Curecon range at Aftek Curing Compounds. Consult your Aftek representative for advice on the most suitable product. Curing plays a vital role in ultimate grout performance and strength development.

TYPICAL PROPERTIES

Appearance	Grey powder (grey when mixed)
Fresh wet density	Approx 2190kg/m ³ (flowable/pourable)
Application Temp	Minimum 10 degrees Celsius Maximum 30 degrees Celsius
Expansion characteristics	Expansion 1-2% Plastic slate
Time for Expansion	Start 15 min Finish 3 hrs (plastic slate)
Bleed	0%
Youngs Modulin	25 GPG

SETTING TIMES

	Dry Pack	Trowellable	Flowable
Initial Set	1.5	3.0	4.5
Final Set	2.5	4.5	6.5
Litres per bag water requirement	2.7-2.9	3.2-3.4	3.8-4.0
Tested at 25 degrees Celsius 50% RM Tested to AS 1012.18 for setting times			

COMPRESSURE STRENGTH

Age Days	Compressure Strength MPA	Fierwal Strength MPA
1	>20	>1.5
3	>30	>3.5
7	>40	>8.5
28	>55	>9.5
Tested AS 1012.9 and AS2073 at 20 degrees Celsius for compressure strength Tested to ASTM C348-86 at 20 degrees for flexural strength. Tested at flowable consistency.		

BOND STRENGTH

Age Days	Strength
7	>5mpa
28	>10mpa

Tested to ASM C882-1987

Slant shear method.

YIELDS

Consistency	Dry Pack	Trowellable	Flowable
Litres water per 20kg Bag	2.7-2.9	3.2-3.4	3.8-4.0
Yield per bag	10.3 litres	10.6 litres	11.0-1.4
Fresh wet density	2250	2220	2190
Bags required per cubic metre (m ³)	97	94	91

SPECIFICATION CLAUSES**Performance specification**

All grouting shown on the drawing must be carried out with a pre-packaged cement based grout which is chloride free.

It shall be mixed with clean water to the required consistency. The plastic grout must not bleed or segregate.

A positive volumetric expansion shall occur while the grout is plastic by means of a gaseous system.

The compressive strength of the grout must exceed 40 MPa at 7 days and 55 MPa at 28 days.

The storage and placement of the grout must be in strict accordance with the manufacturer's instructions.

Supplier's specification

All grouting where shown on the drawing must be carried out using as manufactured by Aftek and used in accordance with the manufacturer's data sheet.

PACKAGING

Penaflow Panel Grout is supplied in 20kg bags

STORAGE-SHELF LIFE

Penaflow Panel Grout has shelf life of 9 months if stored in the original sealed packaging in dry, low humid environments.

HEALTH AND SAFETY

Avoid contact with skin, protective gloves and clothing are recommended when mixing or using this product. Please refer to full MSDS (material safety data sheet) for this product, available from Afttek upon request or available through www.afttek.com.au

CLEAN UP

Wash all tools and equipment with fresh clean water immediately after use. Penaflow Panel Grout can only be removed mechanically.

PRECAUTIONS

- Unrestrained area must be kept to a minimum

- Do not add additional water other than what is specified
- Never apply mixed grout to a dry porous substance
- Refer to MSDS (material safety data sheet) prior to mixing
- Always apply grout in a continuous operation ensure grout head is maintained
- At low temperature grout setting time and strength gain will be extended
- At very high temperatures grout will set and cure faster potentially causing cracking and delamination

For more detailed information, please read the MSDS for this product.

TECHNICAL SUPPORT

Afttek manufactures a comprehensive range of high quality, high performance construction products. In addition, ITLS offers technical support and on-site advice to specifiers, end users and contractors.

Please contact your ITLS sales representative or ITLS Head Office for this service

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PLEASE CONSULT OUR TECHNICAL DEPARTMENT FOR FURTHER INFORMATION.



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