PENATECH HES GROUT

HIGH EARLY STRENGTH GAIN, FLOWABLE, SHRINKAGE COMPENSATED CLASS C GROUT

DESCRIPTION:

RLA PENATECH HES GROUT is a high early strength gain, flowable, shrinkage compensated, Class C grout for use where rapid strength gain is required.

PENATECH HES GROUT comprises a blend of Portland cement, graded fillers, and chemical additives which impart controlled expansion in the plastic and hardened states whilst minimising water demand and maximising early compressive strength gain.

PENATECH HES GROUT is supplied as a ready-to-use powder, requiring only the addition of clean water to produce flowable consistency non-shrink grout.

PENATECH HES GROUT has been tested to, and compliant with AS1012 and AS1478 for Class C grout

RECOMMENDED USE:

- Cementitious grouting when high early strength is required.
- Heavy duty support grout, high load machine base plates.
- Precast grouting applications.
- Anchoring bolt holes.
- Bridge is bearing pads.
- Crane rail plates.
- Cavities, gaps, and recesses.
- Rapid reinstatement of equipment (Minimise downtime).
- Grouting requiring dynamic load bearing and applications subject to continuous vibrations.

FEATURES AND BENEFITS:

- High early strength, even at low temperatures.
- Dual stage expansion compensates for shrinkage in both the plastic and hardened states.
- High ultimate strength (28 days) Exceptional flow characteristics.
- Rapid strength gain and set times.
- Variable consistency obtainable.
- Equipment and machinery can be reinstated after 24 hours.
- Non-metallic iron eliminates staining.
- Good impact and thermal resistance.
- Pre-packaged material requires only the addition of clean water on-site, Grouting from 10mm to 120mm in a single application.

LIMITATIONS:

Low temperature working

When the air or contact surface temperatures are 5°C or below on a falling thermometer, warm water (30-40°C) is recommended to accelerate strength development. For ambient temperatures below 10°C, the formwork should be kept in place for at least 36 hours. Normal precautions for winter working with cementitious materials should then be adopted.

High temperature working

At ambient temperatures above 35°C cool water (below 20°C) should be used for mixing the grout before placement.

Store bags of Penatech HES undercover and keep it as cool as possible.

MIXING:

For best results, a mechanically powered grout mixer should be used when quantities up to 40kg are used.
A slow-speed drill fitted with a high-shear mixer is suitable.
Larger quantities will require a high-shear vane mixer.
Do not use a colloidal impeller mixer.
Sufficient mixing capacity and labour must be available to enable the grouting operation to be carried out continuously.
The use of a grout holding tank with provisions to gently agitate the grout may be required.

Consistency of mixed grout:

The quantity of clean water required to be added to a 20kg bag to achieve the desired consistency
is given below.

Consistency	Flow	Fluid
Water required	2.5-2.8 litres	3.2-3.5 litres

NOTE: These figures are intended to be used as a guide only. Variations in water content and
wastage on-site may cause yields to fluctuate.
The water content should be accurately measured
into the mixer.
The total contents of the RLA PENATECH HES GROUT bag should be slowly added and continuously mixing
should take place for 5 minutes.
This will ensure that the grout has a smooth, even consistency.

APPLICATION INSTRUCTION:

FOUNDATION SURFACE:

The substrate surface must be free from oil, grease, or loosely adherent material. If the concrete surface is defective or has laitance, it must be cut back to a sound base. Scabbling or water blasting can remove laitance and provide a mechanical key.
Bolt holes or fixing pockets must be blown clean of any dirt or debris. Any cracked or weakened concrete should be removed to provide a solid foundation.

PRESOAKING:

The cleaned foundation's area should be flooded with fresh water several hours before grouting.

APPLICATION:

Immediately before grouting, any free water should be removed, with particular care taken to blow out all bolt holes and pockets.

BASE PLATE:

This must be clean and free from grease, oil, or scale.
Air relief holes should be provided to allow venting of any isolated high spots.

LEVELLING SHIMS:

If these are to be removed after the grout has hardened, they should be treated with a suitable release agent.

FORMWORK:

The formwork should be constructed to be leakproof. This can be achieved using foam rubber strips or mastic sealant beneath the constructed formwork and between joints.
Sometimes, it is practical to use sacrificial semi-dry sand and cement formwork.
The formwork should contain outlets for pre-soaking.

UNRESTRAINED SURFACE AREA:

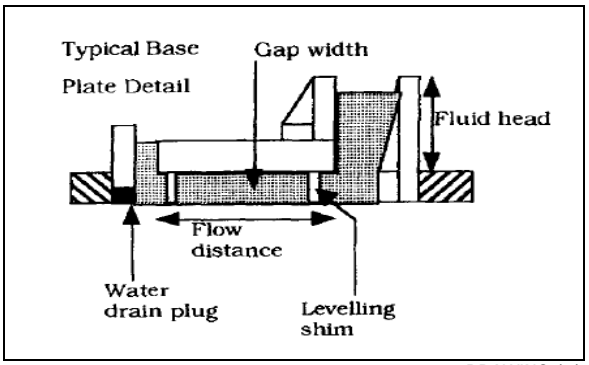
This must be kept to a minimum. Generally, the gap width between the formwork and the plate edge
should be 150mm on the pouring side and 50mm on the opposite side.
It is advisable to have no gap at the flank sides.

PLACING:

At 20°C, place the grout within 10 minutes of mixing to gain the full benefit of the expansion process.
PENATECH HES GROUT can be placed in thicknesses up to 120mm in a single pour when used as an under-plate grout.
For thicker sections, filling out PENATECH HES GROUT with well-graded, silt-free aggregate is necessary to minimise heat build-up.
Typically, *EPILOX FILLERS F4* is suitable, added at 10kg per 20kg bag of Penatech HES Grout.
Do not add excess aggregate, as this will affect the grout's water requirement and ultimate strength gain.
Consult your RLA representative for advice on the most suitable product. Curing plays a vital role in ultimate grout performance and strength development.

APPLICATION:

Adding aggregate may create a heat sink effect which will retard the grout set. This will slow strength development slightly in the first few hours after the placement of the filled grout.
Any bolt pockets must be grouted before grouting between the substrate and the base plate.
Continuous grout flow is essential. Sufficient grout must be prepared before starting.
The time taken to pour a batch of grout must be regulated to the time to prepare the next one.
Pouring should be from one side of the void to eliminate air or pre-soaking water trapped under the baseplate. It is advisable to pour the grout across the shortest distance of travel.
The grout head must always be maintained to achieve a continuous grout front.
PENATECH HES GROUT may be pumped where large volumes must be placed.
A heavy-duty diaphragm pump is recommended for this purpose. Screw feed and piston pumps may also be suitable.



DRAWING 1.1

CURING:

On completion of the grouting operation, exposed areas should be thoroughly cured. This should be done using an RLA liquid curing membrane, continuous water application, and wet hessian.

CLEAN UP

PENATECH HES GROUT should be removed from tools and equipment immediately after use.
Cured material can only be removed mechanically.

HEALTH AND SAFETY:

For information and advice on the safe handling, first aid, storage and disposal of chemical products, users must refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

TECHNICAL DATA:

PRODUCT INFORMATION:	
Colour	Light grey
Shelf life	12 months
Packaging	20kg Poly-lined Bags
Application Temp	Min 5ºC-Max 30ºC
Coverage (Kg/mˆ2/mm)	2.0
Expansion Characteristics	1-2% Plastic State
Time for Expansion	Start: 5 mins Finish: 25 mins
Bleed	0%

YIELDS		
CONSISTENCY	**FLOW**	**FLUID**
Yield per bag	10.3litres	11litres
No. Bags cast one cubic meter(m^3)	97	91
Fresh Water Density kg/m^3	2220kg/m^3	2220kg/m^3

SETTING TIMES @ 20°C & 50%RH		
HOURS	**FLOW**	**FLUID**
Initial Set	20 minutes	25 minutes
Final Set	35 minutes	40 minutes

FLEXURAL STRENGTH (MPa) @ 20°C TESTED TO AS1012.11		
AGE	**FLOW**	**FLUID**
1 day	39.93	20.32
7 days	70.81	64.29
28 days	87.03	66.32

COMPRESSIVE STRENGTH (MPa) @ 20°C TESTED TO AS1012.9 / AS1478.2		
AGE	**FLOW**	**FLUID**
2hours	>35	>25
4 hours	>45	>30
8 hours	>50	>36
24 hours	>60	>44
3 days	>65	>48
7 days	>75	>50
28 days	>85	>65

BOND STRENGTH ASTM 882-1987 Slant shear method	
FLOW (MPa)	**FLUID (MPa)**
>9.5	>10

WARRANTY STATEMENT:

RLA Polymers guarantees this product against manufacturing defects and guarantees it to be manufactured to our published specification.
We certify that this product is suitable for use when fully cured and will perform as described in our technical data sheet or other published materials.
RLA Polymers will replace the product free of charge when purchased from any legally verifiable source and where a product is proven to have been stored, handled, and install according to instructions published on our packaging and within the stated shelf life. The Installation of all materials must be carried out in accordance with relevant Australian Standards.
Warranty doesn't apply if damage, loss, failure to follow instructions, or other circumstances are out of our control.
Sufficient time and access to investigate any complaint must be accorded to RLA Polymers.
The consumer is responsible for any expenses incurred in making a claim.
A claim form can be requested by:

PHONE: 1800 242 931
EMAIL: info@rlapolymers.com.au
MAIL: 215 Colchester Road Kilsyth Victoria 3137 (Attention Customer Service)
WEBSITE: www.rlapolymers.com.au

AUSTRALIAN CONSUMER LAW:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality, and the failure does not amount to a major failure. The benefits under our warranty are in addition to other rights and remedies available to the consumer under the law in relation to the goods and services to which the warranty relates.

DISCLAIMER:

All statements and technical information contained herein are based on tests we believe to be reliable, but the accuracy thereof is not guaranteed.
Users assume all risk and liability resulting from the use of the product and must confirm the suitability thereof by their own tests. Conditions of Sale contain a limited warranty against manufacturing defects.

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