

# RLA PENATECH HS GROUT PLUS

High Strength Class C - Cementitious Grout.



## **DESCRIPTION:**

RLA PENATECH HS GROUT PLUS is a high-strength, precision Class C grout. Non-shrink dual expansion compensates for shrinkage in both the plastic and hardened state.

RLA PENATECH HS GROUT PLUS complies with the US Corp of Engineer's Specification of non-shrink grout, CRDC 621-82A and ATSM C1107-91 (Type C).

## **RECOMMENDED USE:**

- Machine base plates where critical grouting application is required.
- Applications subject to dynamic loads and where continuous vibrations are present.
- Bridge bearing pads.
- Crane rail sole plates.
- Pre-cast concrete sections/ panels.
- Anchor bolt fillings.
- Filling in core holes, cavities, gaps and base infills
- High-performance structural grouting.

## **FEATURES AND BENEFITS:**

- High early and ultimate strength.
- Exceptional flow characteristics, good flow retention.
- High ultimate (28-day) strength.
- Shrinkage compensated in both plastic and hardened state.
- Non-metallic wire content eliminates staining.
- Complies with ASTM C1107-91 and CRDC-621
- Good impact and thermal resistance.
- Can be dry-packed.

## **PRECAUTIONS:**

### **Low-Temperature Application:**

At low temperatures below 10°C, the 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 RLA PENATECH HS GROUT PLUS and the water be conditioned to 20°C -25°C overnight or several hours before application. This will assist in strength development.

### **High-Temperature Application:**

At high temperatures greater than 30°C, 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 RLA PENATECH HS GROUT PLUS is kept in a cool environment, and cold water is used for mixing. In instances where the temperature is greater than 30°C, the grouting should be conducted early in the day or late in the evening and sheltered from sunlight and direct heat.

### **MIXING:**

RLA PENATECH HS GROUT PLUS is ready to use, simply requiring the addition of water.

RLA PENATECH HS GROUT PLUS must be mixed with a mechanical mixer with a high shear mixer or a suitable drum mixer that creates a forced action mixing. An electric drill with a spiral mixing paddle is ideal for smaller quantity mixing. The speed drill should be approx. 500-600 rpm.

### **DO NOT MIX BY HAND.**

<b>Dry Pack/Stiff Grout</b>	<b>2.2-2.6 litres /20kg bag</b>
<b>Plastic/Trowellable Grout</b>	<b>2.8-3.2 litres /20kg bag</b>
<b>Flowable/Pourable Grout</b>	<b>3.5-4.0 litres /20kg bag</b>

## **MIXING:**

### **CONTINUED:**

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 consistent homogeneous mix is obtained.

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

**MIXED 4 LITRES OF WATER PER 20KG BAG @ 20 °C**

<b>FLOW PROPERTIES</b>			
<b>GROUT CONSISTENCY</b>	<b>GAP DEPTH (mm)</b>	<b>100mm OF GROUT FLOW DISTANCE (METERS)</b>	<b>250mm OF GROUT FLOW DISTANCE (METERS)</b>
<b>FLUID / FLOWABLE</b>	<b>10</b>	<b>0.950</b>	<b>2.80</b>
	<b>20</b>	<b>2.00</b>	<b>3.30</b>
	<b>30</b>	<b>3.10</b>	<b>3.50</b>
	<b>40</b>	<b>3.40</b>	<b>&gt;3.50</b>
	<b>50</b>	<b>&gt;3.80</b>	<b>&gt;3.80</b>
	<b>100</b>	<b>&gt;4.00</b>	<b>&gt;4.00</b>

Grout's head refers to the headbox required for a continuous pour to avoid air pockets under the base plate and improve flow.

Care must be taken during grouting to ensure the headbox and grout head are always maintained. The grout head nominated (100mm or 250mm) will provide a continuous and consistent flow.

## **SURFACE/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 adhesion bond Bolt holes and anchor points must be clean and free of water.

## **APPLICATION INSTRUCTIONS:**

### **PRESOAKING:**

All prepared areas must be saturated with water for 4 hours before grouting.

This will reduce the porosity of the substrate. Before grouting, ensure all excess water is removed, 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:**

The formwork to be constructed must be leakproof and watertight. To achieve this, it is recommended that foam rubber strips or a suitable sealant such as polyurethane or silicone 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 base plate. The formwork should allow for gravity flow of grout with a suitable grout head allowing for a continuous flow between the base plate and the concrete substrate.

To ensure ease of formwork removal, the formwork should be coated with form oil or released before grouting.

### **PLACEMENT:**

RLA PENATECH HS GROUT PLUS ways can be placed in two different.

#### **1. 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 always maintained.

This will ensure a continuous flow of grout without air entrapment.

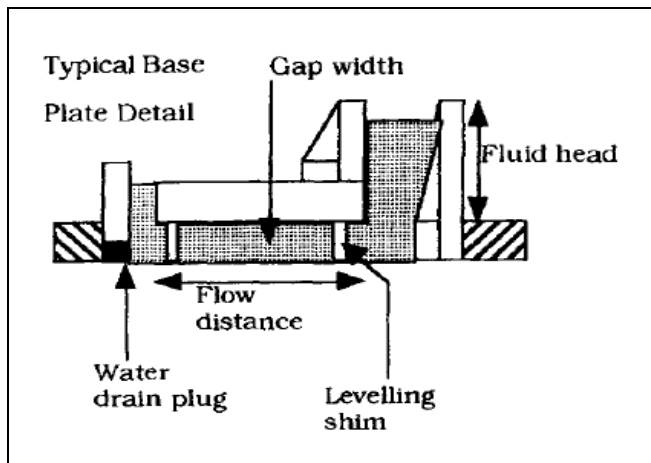
## PLACEMENT:

CONTINUED:

### 2. LARGE-VOLUME PUMPING:

Mix the grout using a forced-action mixer. A positive displacement pump is the recommended pump for large placement applications.

For large grout pours, ensure the grout is pumped from the bottom upwards, as this will minimise any air entrapment and ensure complete void filling. For base plates, pump from one side, providing an air bleeder hole available in the formwork or base plate to give any build hole-up of pressure released from the bleed.



DRAWING 1.1

## CURING:

On completion of grout application, all exposed grouts should be cured by '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 RLA Curing Compounds. Consult your RLA representative for advice on the most suitable product. Curing plays a vital role in ultimate grout performance and strength development.

## CLEAN UP:

Wash all tools and equipment with fresh, clean water immediately after use. RLA PENATECH HS GROUT PLUS can only be removed mechanically.

## TECHNICAL DATA:

PRODUCT INFORMATION:	
Colour	Light Grey Powder, when mixed
Shelf life	9 months
Packaging	20kg Poly-lined Bags
Application Temp	Min 5°C-Max 30°C
Coverage – (Kg/m <sup>2</sup> /mm)	2.0
Time for Expansion	Start 5 mins Finish 25mins
Bleed	0%

Consistency	TROWELLABLE	FLOWABLE
Yield per bag	10.2 litres	11 litres
Litres Water /bag	2.8-3.2	3.5-4.0
No. Bags cast one cubic meter.(m <sup>3</sup> )	98	91
Fresh Water Density	2220kg/m <sup>3</sup>	2220kg/m <sup>3</sup>

SETTING TIMES @ 20°C		
	Trowellable	Flowable
Initial set	2 Hours	2.5 Hours
Final set	3.5 Hours	4 Hours

FLEXURAL STRENGTH (MPa) TESTED TO ASTM C348-86(20°C)		
AGE	Trowellable	Flowable
1 day	>4.0	>3.9
3 days	>5.5	>6.5
7 days	>8.8	>7.0
28 days	>9.8	>9.5

COMPRESSIVE STRENGTH (MPa) TESTED TO AS1012.9-AS2350.11(20°C)		
AGE	Trowellable	Flowable
1 day	>45	>35
3 days	>70	>45
7 days	>80	>65
28 days	>95	>92

BOND STRENGTH ASTM C882-1987 Slant shear method		
AGE (DAYS)	TROWELLABLE (MPa)	FLOWABLE (MPa)
28	>9.5	>10

## **SPECIFICATION CLAUSES:**

### **Performance Specification:**

All grouting shown in Drawing 1.1 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 using a gaseous system.

The compressive strength of the grout must exceed

60 MPa at 7 days and 80 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 shown on the drawing must be carried out using as manufactured by RLA and used by the manufacturer's datasheet.

## **PRECAUTIONS:**

- Unrestrained areas 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 SDS (safety data sheet) before mixing
- Always apply grout in a continuous operation to ensure the grout head is maintained.
- At low temperatures, grout setting time and strength gain will be extended.
- At very high temperatures, grout will set and cure faster, potentially causing cracking and delamination.

## **SAFETY & HANDLING:**

- Do not breathe dust. Wear suitable respiratory protection.
- Use in well-ventilated areas.
- Avoid contact with skin and eyes.
- Wear eye protection and suitable gloves and clothing.
- Do not eat, drink, or smoke while using this product.
- Take off contaminated clothing and wash it before reuse.

**The Safety Data Sheet is available upon request.**

## **FIRST AID:**

- If poisoning occurs, contact a doctor or the Poisons Information Centre.
- If swallowed, DO NOT induce vomiting; give a glass of water and immediately call the Poisons Information Centre and a doctor
- For advice or if you feel unwell, contact a Poisons Information Centre: Australia ph. 131126, New Zealand ph. 0800 764 766 or a doctor at once.
- If on SKIN, remove all contaminated clothing immediately and wash skin with soap and water.
- If in EYES, rinse carefully with water for several minutes. Remove contact lenses; if present, then continue rinsing.
- If eye irritation persists, get medical advice/attention.
- If inhaled, remove them to fresh air, and keep them at rest in a position comfortable for breathing

**WARRANTY STATEMENT:**

RLA Polymers guarantees this product against manufacturing defects and guarantees it to be manufactured to our published specifications. 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 installed according to instructions published on our packaging and within the stated shelf life. The Installation of all materials must be carried out per any applicable Australian Standards.

Warranty doesn't apply if damage, loss, failure to follow instructions, or other circumstances are out of RLA Polymers 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](mailto:info@rlapolymers.com.au)

**MAIL:** 215 Colchester Road Kilsyth Victoria 3137 (Attention Customer Service)

**WEBSITE:** [www.rlapolymers.com.au](http://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 about 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.