



# Emo Grout 410 PHT

**High strength impermeable epoxy grout for pile head water proofing.**

## Uses

Emo Grout 410 PHT is a high performance non-shrink, solvent-free, free flowing epoxy grout where the mechanical properties, low permeability and chemical resistance of the hardened grout are of the highest order. Typical applications include:

- Heavy duty support to large structural elements.
- Supporting dynamic or mobile loads
- Pile head waterproofing

## Advantages

- Very low permeability ensures integrity as part of a waterproofing system
- Simple mixing followed by high early strength allows minimum down time and early commissioning of plant.
- Withstands attack by a wide range of chemicals, acids and alkalis, as well as water and frost.
- High compressive, flexural and tensile strengths ensure durability and long term service life.
- High flexural strength and adhesion to substrate ensures excellent performance under dynamic operating conditions.

## Standard compliance

Tested to variety of International standards. ASTM C 109-90 for compressive strength, BS6319 for tensile and flexural strength and ASTM C 501 for abrasion resistance.

## Description

EmO Grout 410 PHT solvent free epoxy resin grout is designed for grouting of gap widths of 20 – 150 mm. It is supplied as a three component system consisting of epoxy base, epoxy hardener and specially graded aggregate. The components are supplied in the correct mix proportions designed for whole pack mixing on site and no other materials should be added.

## Specification

The epoxy resin, free flow grout shall be EmO Grout 410 PHT by ELMRR. The cured material shall exhibit a minimum compressive strength of 90N/mm<sup>2</sup> in 2 days @ 35<sup>o</sup>c. It shall produce a zero water penetration after 7 days, when tested in accordance with DIN 1048: part 5: 1991.

## Typical Properties

Pot life : 45min @ 25<sup>o</sup>c  
 20min @ 35<sup>o</sup>c

Compressive strength  
 @35<sup>o</sup>C (2 days) : 90N/mm<sup>2</sup>

Flexural strength  
 @35<sup>o</sup>C (2 days) : 25N/mm<sup>2</sup>

Tensile Strength  
 @35<sup>o</sup>C (2 days) : 15N/mm<sup>2</sup>

Water penetration

(DIN 1048 PT5) : Nil

Rapid Chloride (AASHTO T 277 – 83)

Permeability : Negligible

### Chemical resistance

EmO Grout 410 PHT resists non-oxidizing mineral acids and salts, caustics, dilute oxidizing acids and salts, plus some organic acids and solvents.

### Technical Support

ELMRR provides a comprehensive technical support service to specifiers, end users and contractors and is able to offer on-site technical assistance.

### Instructions for Use

#### Preparation

##### Concrete preparation and sealing

With all epoxy applications the quality of surface preparation has a direct effect on the performance and durability of the system. Concrete surfaces should be sound, dimensionally stable, clean, and free from laitance, paint, grease, mold release agent and residual curing compound. The concrete surface should be chipped so that large aggregate is exposed to ensure removal of all laitance and weak surface material. New concrete should have a compressive strength of at least 25MPa; greater strength is preferred. The concrete surface must be clean and dry when the grout is poured. The concrete areas to be grouted should not be primed or sealed.

Do not apply EmO Grout 410 PHT when the contact surfaces are less than 10°C. If the ambient temperature is less than 10°C then artificial heating may be used.

#### Pile top treatment

Pile top surface should be chipped to reach pile cut off level to remove all loose and soft concrete. The chipped/Broken pile top should be re-profiled to a horizontal surface by a suitable non-shrink repair mortar like ELMIERE FC XTRA, before applying EmO Grout 410 PHT

#### Underplate grouting

The unrestrained surface area of the grout must be kept to a minimum. Generally the gap between the perimeter form work and the plate edge should not exceed 75mm on the pouring side and 25mm on the opposite side. Form work on the flank sides should be kept tight to the plate edge. Air pressure relief holes should be provided to allow venting of any isolated high spots.

#### Formwork

The form work should be constructed to be leak proof as EmO Grout 410 PHT is a free flow grout. This can be achieved by using form rubber strip or mastic sealant beneath the constructed formwork and between joints.

#### Foundation surface

This must be free from oil, grease, or any loosely adherent material. If the concrete surface is defective or has laitance, it must be cut back to a sound base. Bolt holes or fixing pockets must be blown clean of any dirt or debris.

#### Mixing

The entire contents of the hardener should be poured in to the base container and mixed until

homogeneous. Place the mixed base and the hardner in to a forced action mixer making sure that the entire volume is poured in. add the aggregate and mix for 2 – 3 minutes or until uniform color is achieved.

### Placing

Place the grout with in the pot life of the material. After this time, unused material will have stiffened and should be discarded.

Continuous grout flow is essential. Sufficient grout must be available prior to starting and the time taken to pour a batch must be regulated to the time taken to prepare the next one.

Pouring should be from one side of the void to eliminate air entrapment. The hydrostatic head must be maintained at all times so that a continuous grout front is achieved.

### High temperature working

For temperature above 35<sup>0</sup>c, special procedures need to be adopted.

### Limitations

Grouts should not be placed in any unrestrained situation, i.e. base plate plinths, etc. failure to comply may lead to crack development in the grout.

### Estimating

#### Supply

EmO Grout 410 PHT : 30 kg pack

#### Yield

30 kg of mixed material will yield 14 litres

### Equipment care

Clean all equipment promptly using **ELMIERE Solvent EP** Cured material will have to be mechanically removed.

### Health & Safety

**EmO Grout 410 PHT** does not fall into the hazard classifications of current regulations. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. If swallowed seek medical attention immediately – do not induce vomiting.

### Important note

ELMRR endeavors to ensure that the technical information contained herein is true, accurate and represents our best knowledge and experience. No warranty is given or implied, as ELMRR has no control over the conditions of use and the competence of any labor involved in the application are beyond our control. As all ELMRR technical data sheets are updated on a regular basis it is the customer's responsibility to check that the product is suitable for the intended application, and that the actual conditions of use are in accordance with those recommended.

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