

HYCHEM PF-7

Underwater epoxy grout

DATA SHEET



HYCHEM

INFRASTRUCTURE SOLUTIONS

HYCHEM PF-7 is a 100% solids, mineral filled, epoxy based grout for use in conjunction with fibreglass jackets in the rehabilitation of concrete and timber wharf piles.

It may be used neat or in conjunction with coarse packed aggregate.

FEATURES AND BENEFITS

- Low exotherm formulation reducing problems of heat build up in the jacket
- Very high compressive strength
- Tolerant mix ratio, can be used between 3-4:1 by volume
- Long working life, good pumpability
- Excellent flow properties
- Solventless, non-flammable
- High density, excellent water displacement
- Good adhesion to concrete and timber

PROJECT HISTORY

- Walsh Bay Wharves – Sydney Harbour, N.S.W.
- Pyrmont Wharf – Sydney Harbour N.S.W.
- Coffs Harbour Jetty – Coffs Harbour, N.S.W.
- Tathra Wharf – Tathra
- Patrick Ports – Hastings, Victoria
- Jetty Wharf – Hastings, Victoria
- Esso Wharf – Hastings, Victoria
- Refinery Wharf – Port Of Geelong, Victoria
- Corio Quay – Port Of Geelong, Victoria

PHYSICAL PROPERTIES

Appearance	Part A – Dense, thick fluid Part B – Clear yellow liquid
Mix ratio	9-10:1 by wt 4:1 by volume
Mixed viscosity	
Gel time	1 kg mix
Compressive strength	7 days, 120 MPa
Mixed density	2.12
Coverage	1 x 15 litre kit, yields 0.15 cubic metre
Water absorption	

APPLICATION GUIDELINES

Surface Preparation

- Remove marine growth, deteriorated timber, broken concrete, coating, surface contaminants and protrusion by mechanical means such as scraping, wire brushing and high pressure water blasting. This operation shall be carried out no sooner than 7 days prior to the application of HYCHEM PF7.
- Repeat cleaning operation to remove any traces of micro-organism growths if the cleaned surface has been left more than 48 hours from the initial cleaning process.
- The resulted surface should have a minimum bond strength of 0.7 MPa.
- Where HYCHEM PF7 is to be used for the full length of the pile, the sea bed should be excavated to provide a minimum of 300mm cover below the sea bed. Back fill the excavation on completion of encapsulation.

Pre-conditioning product

It is important to note that even when the application environment is warm, products which have been stored in cold or cooler conditions should always be pre-conditioned ideally to 20–25°C to ease mixing, application and help avoid other potential issues such as amine bloom or blushing.

Applying a cold product in a warm environment is not recommended.

Mixing

- In a clean container, mix HYCHEM PF7 liquid components (Resin and Hardener @ 4:1 by vol.) using a helical mixer at a speed of 500 rpm until the mix becomes homogeneous (1 to 2 minutes).
- Add quartz sand (cleaned and kiln dried) if necessary to suit application requirement gradually to the mix whilst still mixing.
- Move the mixer around from side to side and top to bottom and scrap the sides of the mixing vessel to ensure thorough mixing.

Applying

Injection

HYCHEM PF7 can be applied through injection ports.

- Injection ports should be properly installed into the encapsulation jacket.
- Jacket assembly should be positioned appropriately to avoid damage to stand-offs and/or set screws and movement of the joints while any joint adhesive if used has not fully cured.
- Jacket assembly should be properly secured by temporary bracing to prevent it from moving and distorting during the injection and curing of HYCHEM PF7.
- It is important to maintain a minimum annular space of 10mm between pile and jacket through out the entire encapsulation process.

Gravity Pour

HYCHEM PF7 can be applied by gravity pour.

- Insert a tremie to the bottom of the fully sealed form work or jacket assembly.
- Pour HYCHEM PF7 through the tremie at a height to provide a suitable pressure head for rapid displacement of water to avoid break up of HYCHEM PF7 due to wave action.
- Withdraw the tremie at a speed in sync with the rise of HYCHEM PF7 maintaining to keep the spout of the tremie below the surface of HYCHEM PF7 through out the pouring operation.

- For large volume pour (thickness greater than 40mm), pre-fill the void with coarse, round aggregate of diameter 10mm or greater to avoid excessive exotherm during curing of HYCHEM PF7 and also for cost effectiveness.

PACKAGING

15 Litre kit

12 litre part A resin, 3 litre part B hardener

100 Litre kit

80 litre part A resin, 20 litre part B hardener

SHELF LIFE

12 months from date of manufacture, stored under shelter at 25°C in original un-opened container.

Note: Product may settle and need to be remixed prior to adding hardener.

SAFETY PRECAUTIONS

Epoxy products may cause skin rash and are dangerous when in contact with the eyes. Care needs to be taken to wear appropriate protective clothing.

WARNING - ENVIRONMENTAL CONDITIONS

Temperature and the surrounding atmospheric conditions will play a part in the curing process of all epoxy products. Under conditions of low temperatures and high humidity the final cured surface finish can be adversely affected potentially resulting in poor gloss retention, discolouration over time, poor overcoatability and intercoat adhesion. Quite often these conditions will result in the formation of a white film over the surface often evident after contact with water. This chemical reaction with the atmosphere is commonly referred to as “amine bloom” or “amine blush”.

If this occurs then the existing coating will need to be abraded to completely remove the affected surface to ensure the adhesion of subsequent applications. In some cases partial or complete re-priming may be necessary.

Attention also needs to be paid to the substrate temperature which should be at least 3°C and preferably 5°C above the dew point during the curing phase.

Industry standards recommend the accurate recording of times and dates, batch numbers, consumption rates and environmental conditions including substrate and air temperatures, humidity levels and dew point readings during both the application and curing processes. Full material warranties cannot be provided unless all the relevant data has been recorded accurately.

If in doubt consult the Hychem technical department for advice.

NOTE: Customer responsibility

The technical information and application advice given here is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the products suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation.

Field support, where provided, does not constitute supervisory responsibility. Suggestions made by HYCHEM either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not HYCHEM are responsible for carrying out procedures appropriate to a specific application.

If unsure contact Hychem for further technical advice before proceeding.