

# Expanplast\* PQC



CONSTRUCTION CHEMISTRY

## High performance superplasticiser for PQC

### Uses

- To significantly improve the workability of Pavement Quality Concrete without increasing water demand.
- Improves cohesion, minimising segregation and improving surface finish.
- To significantly reduce the water demand of concrete mix without reducing workability, allowing greatly increased early and ultimate strengths without additional cement.
- Can be used with concrete containing microsilica and other cement replacements.
- Allows a reduction in water : cement ratio, enhancing durability by producing low permeability concrete with reduced shrinkage cracking potential.
- Especially developed for high quality PQC

### Standards compliance

Expanplast\* PQC conforms with BS 5075 Part 3, ASTM C494 as Type B, D and G

### Description

Expanplast\* PQC is a chloride free high performance superplasticiser admixture based on specially selected and blended organic polymers, it is supplied as brown solution which instantly disperses in water.

Expanplast\* PQC disperses the fine particles in the concrete mix, enabling the water content of the concrete to perform more effectively. The initial hydration of the cement is also delayed; the improved dispersion of cement particles enhances the efficiency of hydration. At higher dosage levels retardation of setting will be obtained.

### Technical support

Epanchem Fospak provides a technical advisory service for on-site assistance and advice on admixture selection, evaluation trials and dispensing equipment.

### Dosage

The optimum dosage of Expanplast\* PQC to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use.

For high strength, water reduced concrete, the normal dosage range is from 0.50 to 1.20 liters/100 kg of cementitious material, including PFA, GGBFS and microsilica, for high workability concrete the normal dosage range is from 0.50 to 1.50 liters/100 kg of cementitious material, including PFA, GGBFS and microsilica.

### Use at other dosages

Dosages outside the typical ranges quoted above may be used to meet particular mix requirements. Contact Epanchem Fospak for advice in these cases.

### Effects of overdosing

An overdose of double the intended amount of Expanplast\* PQC will result in a significant increase in retardation as compared to that normally obtained at the intended dosage.

### Retardation

The level of retardation obtained may be varied by altering the dosage of Expanplast\* PQC used, which will also alter the level of water reduction obtained. Retardation is also affected by factors other than the admixture, depending on the mix details and conditions involved. Major factors include the following:

a) Cement replacement materials and SRC cements will usually give greater levels of retardation than concrete mixes made with ordinary portland cement at the same admixture dosage.

b) High temperatures will require increased dosages to obtain the same change in stiffening time compared to a control mix.

c) Changes in cement content, source or chemistry may lead to variations in the retardation obtained. The amount of tri-calcium aluminate in the cement has been identified as being one of the main contributory factors in this respect, with a lower level leading to greater retardation.

d) The use of a combination of admixtures in the same concrete mix may alter the setting time. Trials should always be conducted to determine such setting times.

### Properties

Appearance : Brown liquid

Specific gravity : Typically 1.165 - 1.175 at 20°C

Air entrainment : Typically less than 2% additional air is entrained at normal dosages.



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## Instructions for use

### Mix design

The addition of the admixture will allow water reduction from the mix whilst maintaining workability. After initial trials, minor modifications to the overall mix design may be made to optimize performance.

Where the primary intention is to provide high workability concrete, the mix design should be suitable for use as a pump mix. Advice on mix design for flowing concrete is available from Epanchem Fospak.

### Compatibility

Expanplast\* PQC is compatible with other Epanchem Fospak admixtures in the same concrete mix. All admixtures should be added to the concrete separately and must not be mixed together prior to addition. The trial mixes should assess the resultant properties of concrete containing more than one admixture.

Expanplast\* PQC is suitable for use with all types of cements OPC, SRC and cement replacement materials such as PFA, GGBFS, and silica fume.

The use of a combination of admixtures in the same concrete mix and or cement replacements may alter the setting time. Trials should always be conducted to determine such setting times.

### Dispensing

The correct quantity of Expanplast\* PQC should be measured by means of a recommended dispenser. The admixture should then be added to the concrete with the mixing water to obtain the best results. Contact Epanchem Fospak for advice regarding suitable equipment and its installation.

### Estimating - packaging

Expanplast\* PQC is available in 210 liter drums and bulk supply for large volume users.

### Storage

Expanplast\* PQC has a minimum shelf life of 12 months provided the temperature is kept within the range of 2°C to 50°C. Should the temperature of the product fall outside this range then contact your local Epanchem Fospak office for advice.

**Freezing point: Approximately -4°C**

### Precautions

### Health and safety

Expanplast\* PQC 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.

For further information consult the Material Safety Data Sheet available for this product.

### Fire

Expanplast\* PQC is water based and non-flammable.

### Cleaning and disposal

Spillages of Expanplast\* PQC should be absorbed onto sand, earth or vermiculite and transferred to suitable containers. Remnants should be hosed down with large quantities of water.

The disposal of excess or waste material should be carried out in accordance with local legislation under the guidance of the local waste regulatory authority.



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\* Denotes the trademark registered.

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