

Expanplast* R



CONSTRUCTION CHEMISTRY

Retarding and water reducing admixture

Uses

To increase the workability and/or strength of concrete of a given cement content whilst increasing its initial and final setting time. To facilitate the production of high quality concrete of improved durability and water tightness.

Advantages

- Set retardation allows extra placing time for larger pours.
- Increased workability facilitates placing and compaction.
- High strengths without increase in cement content or reduction in workability.
- Strength specifications and workability can be maintained with less cement.
- Set retardation controls stiffening time of concrete in hot weather.

Standards compliance

Expanplast* R conforms with BS 5075 Part 1, ASTM C494 Type D and BSEN 934-2.

Description

Expanplast* R a brown chloride free liquid is based on a hydroxycarboxylic acid derivative which instantly disperses in water.

Expanplast* R disperses the fine particles in the concrete mix, enabling the water content of the concrete to perform more effectively. This effect can be used to improve workability, to increase ultimate strengths or to facilitate a reduction in the cement content.

The retarding properties of Expanplast* R can also be beneficial in concrete where high cement content or high temperatures are involved. Cold joints in continuous pours may be avoided and the use of lower cement contents will reduce heat of hydration.

Expanplast* R is particularly suitable for cohesive and cement rich mixes. For lean mixes which are prone to segregation Expanplast* RP264* may prove more suitable.

Technical support

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

Dosage

The optimum dosage of Expanplast* R to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use. The normal dosage range is 0.3 to 0.6 litres/100 kg of cementitious material, including PFA, GGBFS or microsilica.

Use at other dosages

Dosages outside the normal range quoted above can be used to meet particular mix requirements. Contact Expanchem Fospak for advice in these cases.

Effects of overdosing

An overdose of double the intended amount Expanplast* R will result in a significant increase in retardation as compared to that normally obtained at the intended dosage. Provided that adequate curing is maintained, the ultimate strength of the concrete will not be impaired by increased retardation and will generally be increased.

The effects of overdosing will be further increased if sulphate resisting cement or cement replacement materials are used.

Properties

Appearance : Clear Liquid

Specific gravity (BSEN 934-2) : 1.130 - 1.145 @ 20°C

Instructions for use

Retardation

The level of retardation obtained may be varied by altering the dosage of Expanplast* R used, this 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. Trials need to be conducted to establish the required dosage.



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- 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 and or cement replacements may alter the setting time. Trials should always be conducted to determine such setting times.

Compatibility

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

Expanplast* R is suitable for use with all types of Portland cements and cement replacement materials such as PFA, GGBFS and microsilica.

Dispensing

The correct quantity of Expanplast* R 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* R is available in 210 litre drums and bulk supply. For larger users, storage tanks can be supplied.

Storage

Expanplast* R has a minimum shelf life of 12 months provided the temperature is kept within the range of 2°C to 50°C. Storage of material in metal drum slightly change the color of product from clear to light brown.

Should the temperature of the product fall outside this range then contact Epanchem Fospak for advice.

Freezing point: Approximately -4°C

Precautions

Health and safety

Expanplast* R 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* R is water based and non-flammable.

Cleaning and disposal

Spillages of Expanplast* R 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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