



CONSTRUCTION CHEMISTRY

# Expanplast\* SP491

**Superior high range water reducer for high quality rheoplastic concrete**

## Uses

- Specifically developed for use in high quality concrete for workability retention at low water content.
- Provides good pumpable concrete
- To provide early and ultimate strength gain by significantly reducing water content in a concrete mix.
- Recommended for piling and mass concrete pours with improved cohesion.
- To significantly improve the workability and retention of site mixed concrete without increasing water demand.

## Advantages

- High range water reducing property allows the production of high quality concrete without excessive cement contents ensures improved durability
- Higher workability levels are maintained for longer than with sulphonated melamine and naphthalene base admixtures.
- Improved cohesion and particle dispersion minimizes segregation and bleeding and improves pumpability.
- Chloride free, safe for use in precast, pre-stressed and reinforced concrete

## Standards compliance

Expanplast\* SP491 conforms with ASTM C494 as

Type A, B, D, F & G, BSEN 934-2, 2000

## Description

Expanplast SP491 is a chloride free, superplasticising admixture based on selected polymer modified naphthalene sulphonate dispersive.

Expanplast SP491 disperses by electro kinetic action in the concrete mix, enabling the water phase of the concrete to perform more effectively.

## Dosage

The optimum dosage of Expanplast\* SP491 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 from 0.50 to 2.50 liters/100 kg of cementitious material, including PFA, GGBFS and microsilica.

Dosages at the higher end of the ranges recommended will give significant retardation and may only be suitable for use in warmer climates.

## Use at other dosages

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

## Properties

Appearance : Brown liquid

Specific gravity : Typically 1.185 1.195 at 25°C

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

## Effects of overdosing

An overdose of double the intended amount of Expanplast\* SP491 will result in a significant increase in retardation as compared to that normally obtained at the intended dosage.

This effect is found with most water reducing admixtures, although the degree may vary. 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 sulphates resisting cement or cement replacement materials are used.

An overdose will increase core workability and increased initial workability will tend to extend the working life of the concrete, which will delay finishing and stiffening times to some extent.

## Instructions for use

### Mix design

Where the main requirement is to improve strengths, initial trials should be made with normal concrete mix designs. The addition of the admixture will allow the removal of water 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 Fospak.

### Compatibility

Expanplast\* SP491 is compatible with other 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\* SP491 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\* SP491 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 Fospak for advice regarding suitable equipment and its installation.

## Estimating – packaging

Expanplast\* SP491 is available in 210 liter drums and bulk supply for large user.

### Storage

Expanplast\* 491 has a minimum shelf life of 12 months provided the temperature is kept within the range of 2°C to 40°C. Should the temperature of the product fall outside this range then contact your local Fospak office for advice.

**Freezing point: Approximately - 6°C**

### Precautions

#### Health and safety

Expanplast\* SP491 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\* SP491 is water based and non-flammable.

#### Cleaning and disposal

Spillages of Expanplast\* SP491 should be absorbed into 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.

**\* Denotes the trademark registered.**

## REGIONAL SALES OFFICES IN PAKISTAN:

### Fospak (Pvt) Ltd. Head Office

702, Business Avenue,  
Block-6, PECHS.  
Shahra-e-Faisal,  
Karachi, Pakistan  
Tel # +92-21- 34528477, 34529859  
Fax # +92-21- 34522436  
Email [info.khi@fospak.com.pk](mailto:info.khi@fospak.com.pk)

### Lahore Sales Office

2<sup>nd</sup> Floor Sarwar Shaheed Plaza,  
Cavalry Ground,  
Main Boulevard,  
Lahore Cantt, Lahore.  
Tel # +92-42- 36675773  
Fax # +92-42-36675838  
Email [info.lhr@fospak.com.pk](mailto:info.lhr@fospak.com.pk)

### Rawalpindi Sales Office

1<sup>st</sup> Floor, Al-Harman Plaza,  
Main Murree Road,  
Rawalpindi  
Tel # +92-51-4575746  
Fax # +92-51-9290590  
Email [info.isb@fospak.com.pk](mailto:info.isb@fospak.com.pk)

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