Conplast R

constructive solutions

Retarding water reducing admixture

Uses

- To improve the effectiveness of the water content of a concrete mix.
- To extend the setting time of concrete, extending working times and minimising delay problems.
- To extend the working life of semi-dry concrete screeds
- Particularly suitable for use in mixes having fly ash and also improve the working life of semi dry concrete mixes, specifically RCC (Roller Compacted Concrete) type of mixes.

Advantages

- Water reduction significantly improves compressive strengths at all ages and enhances durability through the production of low permeability concrete
- Controlled retardation extends working life and stiffening time for ease of construction
- Control of stiffening improves slip forming and assists in preventing the formation of cold joints in large pours
- Allows specified strength grades to be met at reduced cement content or increased workability
- Chloride free, safe for use in prestressed and reinforced concrete

Standards compliance

Conplast R complies with BS 5075 Part 1 and with ASTM C494 as Type B and Type D.

Description

Conplast R is a chloride free water reducing admixture based on selected hydroxycarboxylic materials. It is supplied as a brown solution which instantly disperses in water.

Conplast R 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, resulting in a delay in the setting time of the concrete with no adverse effect on subsequent stiffening and strength gain.

Technical support

The company provides a technical advisory service supported by a team of specialists in the field.

Typical dosage

The optimum dosage of Conplast R to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use. This allows the optimisation of admixture dosage and mix design and provides a complete assessment of the concrete mix. A starting point for such trials is to use a dosage within the normal typical range of 0.25 to 0.60 litres / 100 kg of cementitious material, including PFA, GGBFS or microsilica.

Use at other dosages

Dosages outside the typical range quoted above may be used if necessary and suitable to meet particular mix requirements, provided that adequate supervision is available. Compliance with requirements must be assessed through trial mixes. Fosroc shall be contacted for advice in these cases.

Properties

Appearance	:	Brown liquid
Specific gravity	:	Typically 1.250 - 1.270 at 27^0C
Chloride content	:	Nil to IS:456
Air entrainment	:	Typically slightly less air will be entrained than in a normal concrete mix.
Alkali content	:	Typically less than 55.0g Na_2O equivalent /litre of admixture.

Application Instructions

Compatibility

Conplast R is compatible with other Fosroc admixtures used in the same concrete mix. All admixtures should be added to the concrete separately and must not be mixed together prior to addition. The resultant properties of concrete containing more than one admixture should be assessed by the trial mix to ensure that effects such as unwanted excessive retardation do not occur.

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Conplast R is suitable for use with all types of ordinary Porland cements and cement replacement materials such as PFA, GGBFS and silica fume. Further information on such usage is provided elsewhere on this datasheet.

Dispensing

The correct quantity of Conplast 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. Fosroc shall be contacted for advice regarding suitable equipment and its installation.

Effects of overdosing

An overdose of double the intended amount of Conplast 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.

An overdose will tend to increase the plasticising effect of the admixture. As concrete is normally batched to a target workability, increased plasticising will allow an increased water reduction. This will have the effect of increasing ultimate strength and partially or fully offsetting the effect of any increased air entrainment. If no increase in water reduction is taken, and a significant rise is workability is allowed, the chance of segregation may be higher. Increased initial workability will tend to extend the working life of the concrete, which will delay finishing and stiffening times to some extent.

Over dosage may also lead to reduced mix cohesion and may cause segregation and bleeding, particularly in high workability mixes. The degree of this effect will depend on the particular mix design and overdose level.

Curing

As with all structural concrete, good curing practice should be maintained, particularly in situations where an overdose has occurred. Water spray, wet hessian or a Concure spray applied curing membrane should be used.

Estimating

Packaging

Conplast R is available in 200 litre containers.

Storage

Conplast R has a minimum shelf life of 12 months provided the temperature is kept within the range of 2^0C to 50^0C. Should the temperature of the product fall outside this range then Fosroc shall be consulted.

Freezing point : Approximately - 4^0C.

Precautions

Health and safety instructions

Conplast R 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 it shall be rinsed immediately with plenty of water and medical advice sought immediately. If swallowed, medical attention shall be sought immediately. Vomiting should not be used.

Fire

Conplast R is water based and non-flammable.

Cleaning and disposal

Spillages of Conplast R should be absorbed onto sand, earth or vermiculite and transferred to suitable containers.

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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Example 1 : Laboratory testing for normal ready mixed concrete at 27^{0}C

Cement content 305kg/m^3, gravel aggregates, all mixing carried out at equal workability

Mix	Dosage litres/100kg	Stiffening : 0.5N/mm^2 BS5075 initial -	Time to reach penetration values of 3.5N/mm^2 BS5075 Final ASTMC408initial	27.6 N/mm^2 - ASTMC403final	W/C ratio	Compressive strength N/mm^2 3D	7D	28 D
Contol	-	4hr30	8hr00	7hr30	0.68	20.5	28.0	37.5
Conplast R	0.28	6hr30	8hr00	10hr00	0.62	24.5	35.0	46.0
Conplast R	0.42	8hr00	9hr15	11hr30	0.58	27.5	37.5	47.5
Conplast R	0.56	10hr 00	11hr 15	13hr30	0.58	27.5	39.0	49.0

Example 2 : Laboratory testing for normal ready-mixed concrete containing microsilica replacement

Gravel aggregate, mixes carried out with 100% OPC and with 5% microsilica replacement

MIx	OPC/MS kg/m^3	Dosage litres/100kg	W/C ratio	Slump mm	Setting time BS5075 Final	Compressive strength 1day	3day	7day	28day
Control	325	-	0.52	85	3hr 35	21.5	33.0	41.0	53.5
Conplast R	325	0.30	0.48	95	6hr10	22.5	41.0	52.5	67.5
Control	310/15	-	0.63	85	3hr30	22.0	36.0	43.0	80.5
Conplast R	310/15	0.30	0.49	90	6hr05	23.0	42.0	50.0	74.5

Example 3: Laboratory testing for RCC(Roller compacted concrete) containing Fly ash as a supplementary Cementitious material at 20 C

40 MSA, Mixes carried out with 40 % OPC and 60 % Fly ash, replacement.

Mix	OPC/Fly Ash kg/m^3	Dosage % by wt of cement	W/C	VeBe	I.S.T Time (ASTM C 403)	F.S.T	Compressive strength N/mm^2 3 day	7 day	28 days
Control	88/132	-	0.57	21	2 hrs 35	3 hrs 40	5.6	10	15
Conplast R	88/132	0.4	0.57	14	7 hrs 10	8 hrs 35	5.2	10.4	16.8
Conplast R	88/132	0.8	0.57	12	13 hrs 15	15 hrs 05	4.6	9.8	15.2
Conplast R	88/132	1.2	0.57	10	18 hrs 35	20 hrs 45	4.2	8.9	14.8
Conplast R	88/132	1.6	0.57	10	22 hrs 50	25 hrs 20	3.2	8.3	13.5
Conplast R	88/132	2.0	0.57	9	28 hrs 10	31 hrs 35	2.0	7.7	13.0

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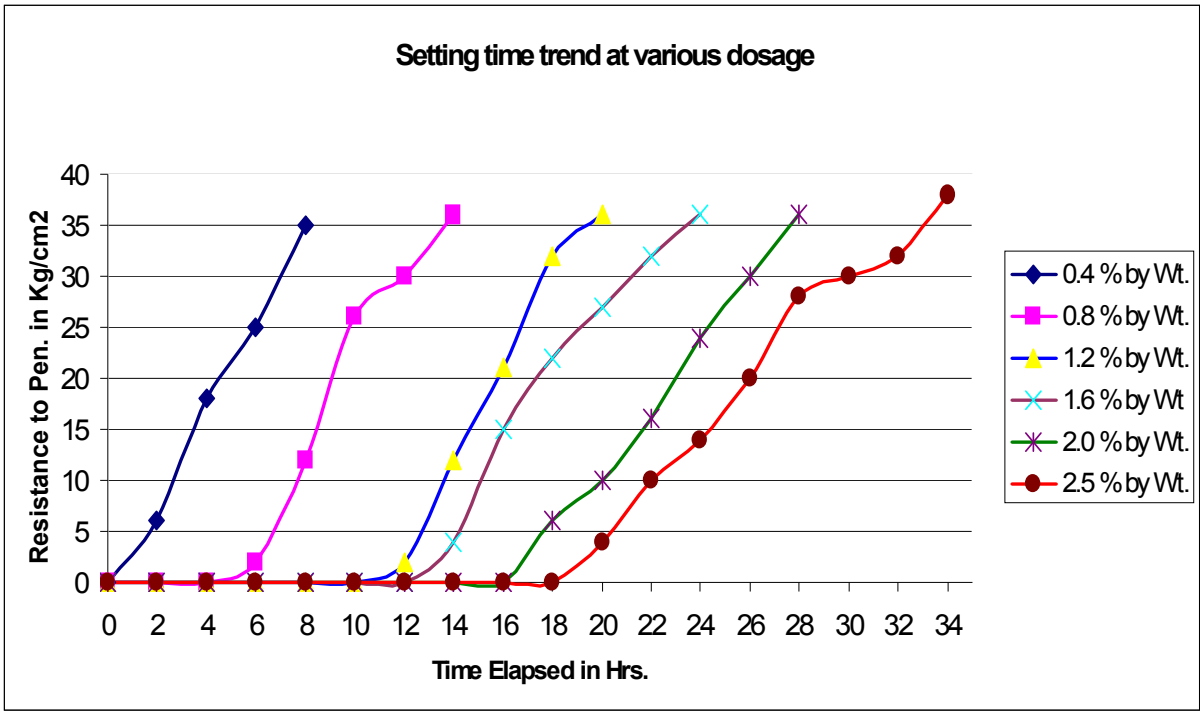

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