



# Conplast P211

## Water-reducing concrete admixture

### Uses

Improve effectiveness of water content in concrete mixes, achieve workability without loss of strength, increase strength without loss of workability, reduction in cement without loss of workability and strength, improve durability and water-tightness.

### Advantages

- **Improved workability** : Easier, quicker placing and compaction.
- **Increased strengths** : Higher strengths without increase in cement content or reduction in workability.
- **Cement saving** : Strength specifications and workability can be maintained with less cement.
- **Improved quality** : Denser, close-textured concrete ; improves durability and surface finishes.
- **Higher cohesion** : Risk of segregation and bleeding ; minimised.
- **Chloride free** : Safe in prestressed concrete and ; with sulphate-resisting cements and marine aggregates.

### Standards compliance

Conplast P211 complies with BS 5075: part 1 1974 and ASTM C494 Type A as a normal water-reducing admixture.

### Description

Conplast P211 is based on selected stabilised sugar reduced lignosulphonates. It is supplied as a brown liquid instantly dispersible in water.

When added to concrete mixes, it enables the water content to perform more efficiently by causing the cement particles, which tend to agglomerate, to disperse and expose a larger surface area.

The hydration reaction can proceed more efficiently with less water. This effect is used to either improve workability, increase strength or reduce cement content of concrete.

### Technical Support

Fosroc provides a technical advisory service for on-site assistance and advice on admixture selection, evaluation trials and dispensing equipment. Technical data and guidance can be provided for admixtures and other products for use with fresh and hardened concrete.

### Properties

**Calcium chloride content** : Nil to BS 5075

**Specific gravity** : 1.16 at 20°C.

**Air entrainment** : Less than 2% additional air is entrained at normal dosage.

**Compatibility** : Conplast P211 can be used with all types of portland cement except high alumina cement.

Conplast P211 is generally compatible with all other admixtures, however, the admixtures should be added to the mix separately. Site trials should be carried out to determine the most economical dosage rates.

**Setting times** : Negligible effect at normal dosage rates.

**Workability** : The addition of Conplast P211, without reduction in water content, increase the slump and significantly improves concrete flow characteristics without decrease in concrete strength.

**Compressive strength/density** : Reduction in the water content to maintain original workability reduces water/cement ratio and increase compressive strength up to 20%. Density is also increased.

**Durability** : Increase in density and uniformity also increase durability and resistance of concrete to attack by aggressive agents. Where the water-reducing properties of Conplast P211 are used, recent research indicates that the long-term effects of creep are also reduced.

**Cohesion/segregation** : Improved dispersion of cement particles increases cohesion and reduces possibilities of segregation and the formation of gravel nests increased cohesion helps produce a dense, uniform and close texture surface without sand runs or voids.

**Cement reduction** : Maintenance of original strength specification and workability enables cement content to be reduced. Amount of cement saving varies with aggregate but is typically between 5-8% and savings up to 10% are possible. See Table 1 for typical results.

**Permeability** : Improved workability facilitates placing and compaction. Reduced water: cement ratio increases density and makes the concrete more waterproof.



Table 1. Test results

Mix: Sand zone 2 : 34%. Thames gravel 20-25mm : 66% Cement OPC

Test	Cement content kg/m <sup>3</sup>	Conplast P211		Slump mm	Compressive strength N/mm <sup>2</sup>		Density 28 days kg/m <sup>3</sup>
		per 100 kg cement litres	W/C		7 days	28 days	
Control	297	None	0.62	50	25.0	37.0	2395
Workability increased	297	0.28	0.62	100	26.0	38.0	2392
Strength increased	297	0.28	0.55	50	33.5	45.5	2413
Cement saved (30kg/m <sup>3</sup> )	297	0.28	0.62	50	25.0	37.5	2395

### Application Instructions

#### Dosage

The optimum dosage is best determined by site trials with the particular concrete mix, which enables the effects of workability, strength gain and/or cement reduction to be measured.

As a guide the rate of addition is generally in the range of 0.30 to 0.50 litres per 100 kg cement.

#### Dispensing

The correct quantity of Conplast P211 should be measured by means of a recommended dispenser. Consult your local Fosroc Office or representative for advice regarding suitable equipment and its installation. The measured quantity of Conplast P211 should be added directly to the mixer preferably at the same time as the mixing water.

#### Curing

Normal curing methods such as water spray, wet hessian or a curing membrane of the Concure\* type should be used.

#### Cleaning

Spillage of Conplast P211 can be removed with water.

#### Overdosing

An overdose of double the recommended amount of Conplast P211 can result in slight retardation of the

initial set of the concrete. The ultimate strength of the concrete will not be impaired and will, generally, be increased.

A considerable increases in workability will be achieved.

#### Estimating

Conplast P211 is supplied in 20 and 210 litre drums. Also in tanker loads. For larger users storage tanks and dispensing equipment can be supplied.

#### Storage

Minimum of 12 months provided the temperature range has not exceeded 2°C to 50°C. If these conditions have been exceeded in any respect, the supplier should be contacted for advice.

#### Precautions

##### Health and safety

Conplast P211 is non toxic, any splashes on skin should be washed well with water. If contact with eyes occurs wash well with water immediately and seek medical advice.

Fire : Conplast P211 is non-flammable.

#### Additional information

Conplast P211 was formerly known as Conplast 211.

\* See separate data sheet



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