

# Conplast SP430



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## Super plasticizing, water reducing, strength accelerating admixture

### Uses

**Super plasticizing** : Conplast SP430 can produce highly fluid self-levelling concrete requiring little or no vibration during placing.

**Water reducing** : Conplast SP430 can provide up to 25% reduction in free water without loss of workability, resulting in high quality concrete of reduced permeability with accelerated early strength gain.

### Advantages

- **Speeds construction** : Increased workability reduces placing time, equipment and labour element
- **Self compacting** : When used to super plasticise, the concrete needs little or no compaction during placing
- **Increased strength** : As a water reducer Conplast SP430 provides higher strengths without cement increase or workability loss
- **Economical** : Substantial cement savings are possible without strength or workability loss
- **Acceleration of strength** : When used as a water reducer without cement reduction the early age strength development is increased by up to 70% at 24 hours
- **Reduced permeability** : Reduction of added water increases density and reduces porosity resulting in substantially improved water penetration resistance
- **Reduced segregation** : Better dispersion of cement particles and increased cohesion minimises segregation and bleeding and gives improved surface finish
- **Improved pumpability** : Increased workability and cohesion aids pumping by reducing line friction and "dry packing"
- **Chloride free** : Safe in prestressed, reinforced or marine concrete and compatible with sulphate resistant cement or marine aggregate
- **Extended working life** : Gives a substantially longer working life than melamine based products at elevated temperatures

### Standards compliance

Conplast SP430 complies with BS 5075 part 3 and ASTM C494 type F as a high range water reducing admixture.

### Description

Conplast SP430 is a synthetic plasticiser derived from sulphonated naphthalene. Supplied as a brown liquid it is instantly dispersible in water. Conplast SP430 will, dependent on dosage level and mix design, provide flowing concrete, high strength concrete, accelerated early age strength development and waterproof 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

**Specific gravity :** 1.20 at 20°C.

**Air entrainment:** Less than 1% additional air is entrained.

**Compatibility :** Conplast SP430 can be used with all types of Portland Cements.

Conplast SP430 is generally compatible with all other FOSROC admixtures if added separately to the mix.

**Setting time :** Less than 1 hour retardation at normal dosage.

**Cohesion/segregation :** Improved dispersion of the cement particles will increase cohesion at both the flowing and plastic consistency. The occurrence of bleeding and sand runs is substantially reduced, thus improving the surface finish achieved.

**Durability:** When Conplast SP430 is used for water reduction the increase in density and reduction of permeability improves durability and reduces porosity.

**Workability :** Without reducing the free water content Conplast SP430 will produce free flowing concrete giving a spread value of 51 -62 cm (DIN 1048 Test). Some minor mix amendments may be required to produce a flowing mix without segregation. See Table 1 for typical mix designs.

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Table 1 : Effect of Conplast SP430 on workability

Conplast SP430 dosage level litres/100kg of cement	w/c ratio	Slump BS 1881 mm	Flow table spread DIN 1048 (cms)	Compressive Strength N/mm <sup>2</sup>			Density Kg/m <sup>3</sup>
				1 day	7 days	28 days	
				Nil (control)	0.60	70	
0.60	0.60	120	45	16.5	38.0	49.5	2405
0.80	0.60	190	51	15.5	37.5	48.5	2410
1.00	0.60	collapse	57	15.0	37.0	51	2415

OP Cement 350 kg/m<sup>3</sup>  
 Zone 1/2 sand 630 kg/m<sup>3</sup>  
 20-5mm gravel 1175 kg/m<sup>3</sup>

Table 2 : Effect of Conplast SP430 on compressive strength

Conplast SP430 dosage level litres/100kg of cement	w/c ratio	Slump mm	Water Reduction %	Air Content %	Compressive Strength N/mm <sup>2</sup> (% of control)			Density Kg/m <sup>3</sup>
					1 day	7 days	28 days	
					Nil (control)	0.59	45	
1.40	0.49	45	17	2.9	28 (140)	53 (123)	60 (120)	2440
1.70	0.46	45	23	3.1	33 (165)	58 (135)	64 (128)	2450
2.00	0.44	50	26	3.2	35 (175)	64 (149)	70 (140)	2470

OP Cement 330 kg/m<sup>3</sup>  
 Zone 1/2 sand 540 kg/m<sup>3</sup>  
 20-5mm gravel 1280 kg/m<sup>3</sup>

**Compressive strength/density:** Substantial reductions in water/cement ratio will result in up to a 70% increase in 24 hour compressive strength without the use of other admixtures or the loss of workability. See Table 2 for typical trial mix results.

Any combination of function from a dosage as low as 0.30 litres/100 kg to as high as 3.0 litres/100 kg can be used, dependent on the needs and requirements of the concrete involved.

## Application instructions

### Dosage

The optimum dosage for Conplast SP430 should be determined by site trials with the particular concrete mix under prevailing ambient conditions. Site trials should always be compared with and without Conplast SP430 to quantify the true value of increase in workability and/or strength gain.

As a general guide the dosage will fall into one of the two ranges dependent on use.

0.50 - 1.00 litres/100 kg cement, for flowing concrete  
 1.40 - 2.00 litres/100 kg cement, for high strength concrete

### Overdosing

An overdose of double the recommended amount of Conplast SP430 will result in very high workability, some retardation may occur. In the event of an overdose the concrete should be protected from the elements and allowed to cure normally. The ultimate compressive strength of the concrete will not be impaired. If accidental overdose occurs, please contact the Company for technical advice and assistance.

### Dispensing

The correct quantity of Conplast SP430 should be measured by means of a recommended dispenser.

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Suitable equipment and instructions for its installation can be provided after consultation with the FOSROC technical department. The measured quantity of admixture should be added directly to the concrete with the mixing water where possible.

## Mix design

When flowing concrete is to be used the design should be based on high cohesion pump mix technology.

Where maximum economy is required via cement saving and free water content reduction the fines content should always be as low as possible to allow the remaining free water to act more efficiently.

## Curing

As with all structural concrete, normal curing methods apply. Water spray, wet hessian or one of the Concure spray applied surface contact curing membranes should be used in all cases.

## Cleaning

Spillage of Conplast SP430 can be removed with water. All dispensing equipment should be cleaned regularly and not allowed to stand full of admixture for protected periods. Failure to maintain dispenser pumps adequately may result in mechanical damage.

## Estimating

Conplast SP430 is supplied in 20 litre or 210 litre drums. Also in tankers loads. For larger users storage tanks and dispensing equipment can be supplied.

## Storage

Conplast SP430 should be protected from extremes of temperature. Conplast SP430 has a minimum shelf life of 12 months provided the temperature is kept within the range 2°C to 50°C. If this temperature is exceeded in any respect advice should be sought from the supplier.

## Precautions

### Health & safety

Conplast SP430 is non-toxic. Any splashes to the skin should be washed immediately with water. Splashes to the eyes should be washed immediately with water and medical advice should be sought.

**Fire:** Conplast SP430 is non-flammable.

## Additional Information

Conplast SP430 was formerly known as Conplast SP430.

Technical data can be provided on a wide range of admixtures, and concreting aids including accelerators, retarders, waterproofers, mould release agents, surface retarders, workability aids and repair materials.

\* See separate data sheet



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**FOSROC**



**PT. Fosroc  
Indonesia**

Jl. Akasia II Blok A8 No. 1  
Delta Silicon Industrial Park  
Lippo Cikarang  
Bekasi 17550  
Indonesia

[www.fosroc.com](http://www.fosroc.com)

## Important note

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### telephone:

+ 62 21 897 2103  
+ 62 22 520 1308  
+ 62 31 502 9142

### fax:

+ 62 21 897 2107  
+ 62 22 522 2713  
+ 62 31 502 2711

### email:

[indonesia@fosroc.com](mailto:indonesia@fosroc.com)



Registered Office: Jl. Akasia II Blok A8 No. 1, Delta Silicon Industrial Park, Lippo Cikarang, Bekasi 17550, Indonesia

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