



Concrete Admixtures For Durable & Sustainable Construction

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Pumpable Concrete

The requirement in any type of construction is that concrete should exhibit cohesiveness and the ability to be pumped, irrespective of size of the building.

General purpose, high range water-reducing and retarding admixtures are suitable for obtaining moderate workability retention in concrete containing natural or manufactured sand.

Concrete cohesion is improved due to dispersion of cement particles, thus minimizing segregation and improving surface finish.

Factors governing the pumpability of concrete

- Type of cement and its source
- Admixture compatibility with cement
- Water-cement ratio and grade of concrete
- Vibration during placing

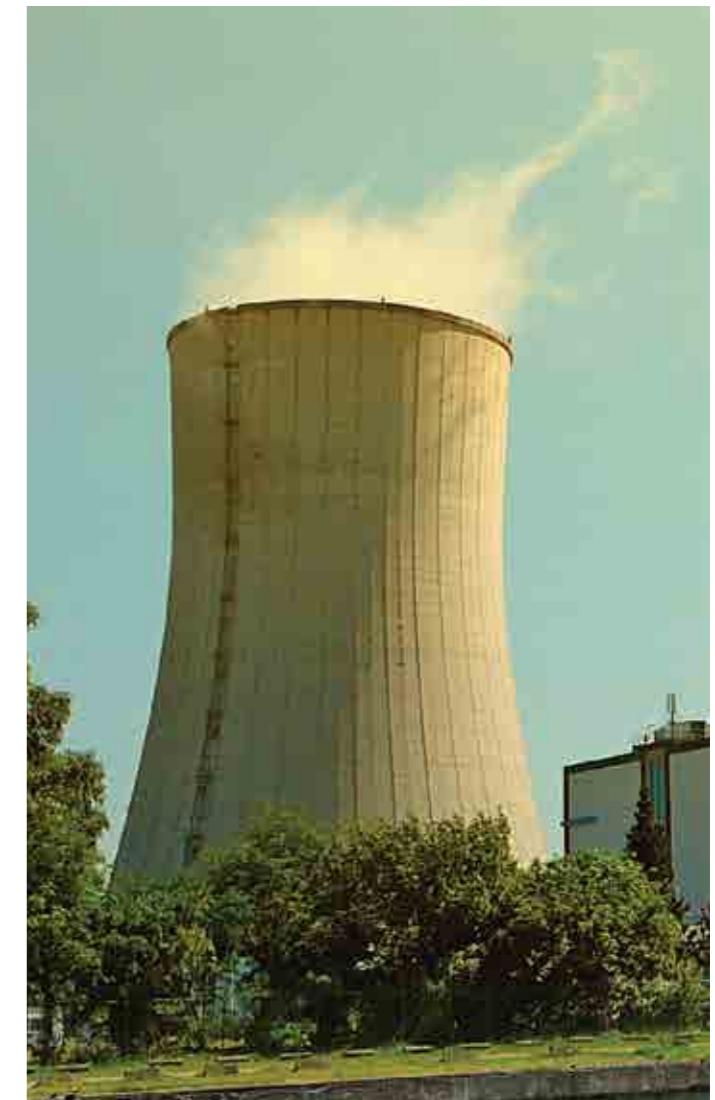
Fosroc offers wide range of configuration under Conplast SP430 Range / Conplast SP500

It is a Sulphonated Naphthalene, polymer-based concrete admixture specially formulated for 25% water reducing capability, resulting in concrete that is pumpable, cohesive and displays moderate workability retention.

- Workable concrete requiring little vibration during placing
- Easier, quicker placing and compaction.
- Denser, close textured concrete with reduced porosity and hence more durable
- Risk of segregation and bleeding minimized; which aids pumping of concrete
- Safe in prestressed concrete and with sulphate resisting cement and marine aggregates

Complies with IS 9103 -1999 and ASTM C 494 Type F and G depending on dosage.

In addition, PCE based admixture **Auramix 300** also used to produce pumpable concrete where water reducing capability require more than 25%.



Applications



Ready Mix



Rail Bridge



Raft Foundation



Concrete Road

Rheological Concrete for Building Segment

Concrete specification for residential and non-residential (Commercial and Institution) buildings may vary depending on its size and facilities provided. Grade of concrete and wet properties will be defined in association with water-cement cement ratio to obtain designed strength and durable concrete.

Our continuous development process has been designed to suit new construction methods and accommodate daily variation in concrete ingredients. Depending on wet properties requirement such as slump retention and strength, SNF and PCE based admixtures have been developed to suit both natural and manufactured sand.

Fosroc offers SNF based Admixture

Fosroc offer Conplast SP430 product range for wide range of concrete grade ranging from M15 and M40, which exhibits rheological concrete to pump to greater heights without altering designed water cement ratio.

Advantages

- High water reducing capability, hence suitable for low water-cement ratio
- Increased workability level to pump concrete for greater heights
- Improved cohesion and eliminates bleeding and segregation
- Complies with IS 9103 -1999 and ASTM C 494 Type F and G depending on dosage
- Normal dosage ranges from 0.6 to 1.5% by weight of cement
- Highly suitable for raft foundation and slabs

Fosroc offers PCE based Admixture

In general load carrying members such as columns and beams are designed with higher grade of concrete ranging from M40 and above.

Fosroc offers Auramix 300 product range to fulfill all the requirements of wet and dry properties of concrete having very low water cement ratio.



Applications



Hospital Buildings



Tech Parks



Residential Towers



Commercial Buildings

Advantages

- Increased slump retention capability and controls the heat of hydration
- Yields high ultimate strength
- Improved adhesion to reinforcing and prestressing steel
- Lower permeability and better resistance to carbonation
- Reduced shrinkage and creep
- Increased durability
- Complies with IS 9103 -1999 and ASTM C 494 Type F and G depending on dosage
- Normal dosage ranges from 0.6 to 2.0% by weight of cement
- Compatibility with 100% crushed sand / manufactured sand / blended cement

Applications

- Residential complex having many tower in compounded community
- Public buildings such as hospitals, schools and hotels
- Medium size industrial and commercial buildings
- Individual residence building or villa



Ready Mix Concrete and Captive Batching Plant Concrete

The most important requirement in Ready Mix Concrete is long workability retention without compromising on water-cement ratio and the properties of the hardened concrete. Also, industry demands a robust single admixture that is suitable for both Normal Slump Concrete (NC) and Free Flow Concrete (FFC), with long workability retention of not less than 4 hours. "Free flow concrete" can be classified as flow concrete for M35 and lower grade of concrete which are required for shear walls and structural elements having congested reinforcement.

The factors influencing workability retention:

- Type of cement and its content in concrete
- Water-cement ratio
- Grade of concrete
- Type of admixture
- Concrete temperature

Fosroc offers Auramix 300 Plus

A state-of-the-art product developed to fulfill the need for concrete with long workability retention of 4 hours plus. The product exhibits high water reducing capability for a given concrete mix design and requires only dosage optimization at site.

- Suitable for high volume replacement of GGBFS or fly ash in concrete mix
- To produce free flow concrete for M35 and lower grade of concrete
- Workability retention of more than 4 hours can be achieved
- Compressive strength - 30% of the characteristic strength in 24 hours
- Single admixture for normal and free flow concrete

Complies with IS 9103 -1999 and ASTM C 494 Type F and G depending on dosage.



Applications



Bridges



High-rise Buildings



Metro Construction



Shear Wall Construction

Advantages

- Compatible with a wide range of cement brands
- Suitable for all types of cement replacement such as fly ash, GGBFS and microsilica
- Single admixture for all grades of concrete irrespective of type of workability
- Presence of built-in VMA, providing improved resistance to bleeding and segregation
- Reduced shrinkage
- Increased durability
- Eliminate stickiness in concrete due to presence of high volume of fines or clay

Applications

Fosroc technology for long workability concrete goes a long way in supporting construction activity across the infrastructure and high-rise building segments.

- Highly suitable for Ready Mix Concrete Industry due to long workability retention
- All infrastructure construction such as metros, road & railway bridges and power plants
- High-rise residential or commercial structures
- Shear wall constructions



Self Compacting Concrete

Self Compacting Concrete (SCC) is a flowing concrete mixture is able to consolidate under its own weight. Suitable for placing concrete in difficult condition and in section with congested reinforcement.

A concrete mix can only be classified as Self Compacting Concrete if the requirements for filling ability, passing ability and segregation resistance are fulfilled.

- Easier placing
- Improved durability
- Faster construction
- Suitable for thin concrete sections
- Better surface finish
- Used for precast and cast-in-situ concreting

Fosroc offers Auramix 400 to fulfil the requirement of Self Compacting Concrete.

Low viscosity high performance polycarboxylic technology based chemical admixture.

- Able to flow under its own weight and completely fill the formwork
- Improved adhesion to reinforcing and prestressing steel
- Moves effortlessly without vibrator
- Complies with IS 9103 -1999 and ASTM C 494 Type F and G depending on dosage
- Long workability retention
- Segregation resistance
- High strength

Auramix 400 should be used with viscosity modifying agent Auramix V100



SN	METHOD	PROPERTY	TYPICAL VALUE*
1	Slump-flow by Abrams cone	Filling Ability	725mm
2	T50cm slump flow	Filling Ability	4 sec
3	J - Ring	Passing Ability	5mm
4	V-Funnel	Filling Ability	8 Sec
5	V-funnel at T5minutes	Segregation Resistance	+ 3
6	L - Box	Passing Ability	0.9
7	U – Box	Passing Ability	20mm
8	Fill Box	Passing Ability	94%

* For a particular Concrete mix design

Applications



Flow Concrete



Congested Reinforcement



Wall Construction



Highrise Buildings

Advantages

- Bleeding and segregation resistance with built-in VMA
- Compatible with a wide range of cement brands
- Ideal for congested reinforcement concreting
- Suitable for temperature control concrete
- Accommodates cement replacement in concrete mix
- Reduces labour and equipment requirements
- Increases durability

Applications

Self Compacting Concrete is highly suitable for concreting subjected to congested reinforcement and where the possibility of using vibrators for compacting concrete is limited.

- Residential or commercial high-rise towers
- Multi-tower complexes
- Suitable for thin section concreting
- Architectural elements having intricate formwork
- Where concrete requires limited finishing after de-shuttering



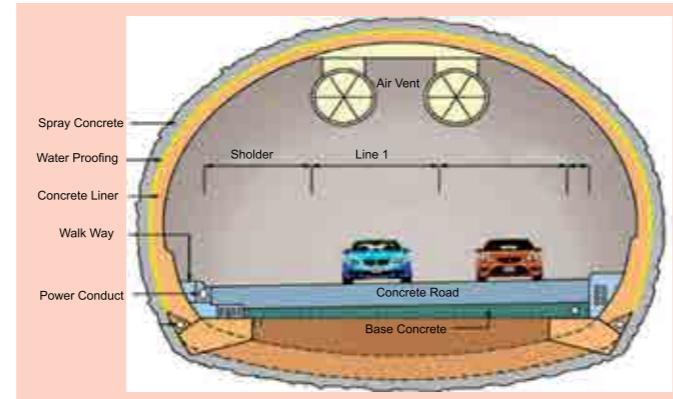
Speeding Progress with Spray Concrete

The New Austrian Tunnel Method (NATM) is to use the geological stress of the surrounding mass to stabilize the tunnel itself. The excavation is immediately protected by a layer of spray concrete (wet) with accelerators that enable quick setting properties, to provide an Initial Setting Time (IST) as low as 5 minutes. Other support includes steel arches, rock bolts and mesh.

Fosroc offers Sprayset HBL an alkali-free shotcrete admixture that provides set acceleration and less rebound loss.

Advantages

- Can be applied up to 300mm in one application to vertical surfaces and up to 200mm overhead, depending on weight / volume of aggregate
- Non-caustic nature for safer handling / operating conditions
- Meets requirement of ACI 506 – 56
- Chloride-free admixture



Tunnel Lining

After tunnel formed by drilling or blasting and spray concreted, the newly formed tunnel surface has to be lined with concrete (M40 grade) lining, using Auramix range, to further strengthen the sprayed concrete.

Applications

- Road and rail tunnel construction
- Irrigation tunnels
- Hydroelectric power plants
- Concrete spray on embankment

Applications



Tunnel Lining

Tunnel Spray Concrete

Railway Tunnel

Concrete Spray on Embankment

Moving Ahead with Pavement Quality Concrete

Pavement quality concrete, used for road-laying requires compaction of a very specific concrete design at a consistency level that allows the form to move continuously. It is essential that the concrete is able to support itself in the shape moulded and hence concrete for pavement quality applications tends to be of very low consistency (slump) level. The grade of PQC will be decided by various traffic studies, need for trouble-free service life and the modulus of sub-grade reaction, etc. The flexural strength of concrete is first fixed and then the thickness of pavements.

Fosroc offers Conplast SP430 ITPQ/Auramix Range is an exclusively designed for pavement quality concrete.

Advantages

- Improved workability - Easier, quicker placing and compaction
- Improved quality - Denser, close textured concrete with reduced porosity and hence more durable
- Higher cohesion - Risk of segregation and bleeding minimized; thus aids pumping of concrete
- Chloride-free - Safe in prestressed concrete and with sulphate resisting cement and marine aggregates

Applications

All types of concrete road laying using paver machine.

Complies with IS 9103 -1999 and ASTM C 494
Type F and G depending on dosage.



Roller Compacted Concrete

The development of roller compacted concrete caused a major shift in the construction practice of massive concrete dams and locks. Properties of hardened RCC can be similar to those of conventionally placed concrete.

For effective consolidation, the concrete must be dry enough to prevent sinking of vibratory roller equipment, but wet enough to permit adequate distribution of the binder mortar throughout the material during the mixing, placing and vibratory compaction.

Fosroc offers Conplast R water-reducing and retarding admixture has proven to be beneficial for extending workability of RCC and increasing the initial and final times of setting.

Conplast AEA

In association with Conplast R, air entraining agent Conplast AEA shall be used to produce air entrained concrete for increase durability and resistance to entrained by frost and decaying salts. Conplast AEA also improve cohesion and workability of concrete eliminating bleeding and segregation.

Advantages

- Reduced cement consumption
- Pipe cooling not required because of low temperature rise
- Extended workability during hot weather conditions

Applications

- Irrigation dam construction
- Hydroelectric stations

Complies with IS 9103 -1999 and ASTM C 260.



Applications



Irrigation Dam



Irrigation Dam



Hydel Dam



Irrigation Dam

Waterproof Concrete

Concrete becomes saturated when a water body comes in contact with it and water flows slowly under pressure due to interconnecting capillaries. The Integral system works with the matrix of concrete or mortar, giving the concrete itself a waterproof quality.

Fosroc offers Conplast Crystalline is an integral waterproofing admixture based on crystalline formation to produce water tight concrete. Crystalline chemicals react with water in concrete to form crystals structure in the tiny capillaries.

Advantages

- Crack filling ability up to 0.5mm width
- Reduces shrinkage and creep
- Exhibits 50% better resistance over control concrete at 10 bar pressure
- Compatible with all cement including pozzolanic cement
- Increase durability of concrete

Applications:

- All types of Concrete foundation below ground
- Water Reservoir
- Tunnel concreting
- Retaining walls and subways
- Water tanks and swimming pools
- Precast unit



Fosroc offers Conplast WL is an integral waterproofing admixture based on a hydrophobic system that makes use of fatty acids to block pores within the concrete structure to prevent water from passing.

- **Liquid admixture:** Instant and complete dispersion throughout the mix. Uniform waterproofing throughout concrete matrix
- **High efficiency:** Reduction in permeability of concrete/mortar
- **Improved workability:** Improves compaction of concrete and mortar, even where harsh sands or aggregates are used
- **Improved concrete quality:** Minimizes porosity and honey-combing to produce dense concrete



Applications

- Roof slab concrete
- Basement concrete
- Screed and plasters
- Concrete water tanks, sumps and drains



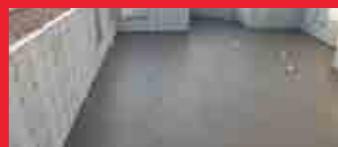
Water Tank



Screed & Plaster



Roof Slabs



Basement



Precast Concrete

Precast concrete is a construction product resulting from casting concrete in a reusable mould or "form" which is then cured in a controlled environment. The precast products are then transported to the construction site and lifted into place. In contrast, standard concrete is poured into site specific forms and cured on site.

Governing factors in precast concrete

- Low water-cement ratio
- Medium workability
- Need for high early strength for early de-moulding to increase productivity
- Compatibility with cement replacements
- Compatibility with 100% crushed sand / manufactured sand

Fosroc offers Auracast product range to suit current requirements

Auracast 100 is a low-viscosity, single component PCE based admixture for low slump concrete that enables obtaining 50% of the characteristic strength in 24 hours. This makes it an ideal admixture for precast segments such as underground metro rings and precast walls and slabs for buildings.

Auracast 270M is a low-viscosity, single component PCE-based admixture for normal slump concrete with slump retention and enables obtaining 50% of the characteristic strength in 24 hours. This makes it ideal for large volume of concreting in precast industries.

Auracast 405 is a low-viscosity, single component PCE-based admixture for flow concrete with slump retention. It enables obtaining 50% of the characteristic strength in 24 hours. This makes it an ideal choice for concrete poured in structures having congested reinforcement.

All Product complies with IS 9103--1999 and ASTM C 494 Type F.



Applications



High Early Strength Concrete



Precast Element for Building



Metro Segment



Precast Element

Service

Concrete Laboratory:

- Concrete laboratory facility established in strategic regions
- Expertise of concrete technologist, chemist and formulators for product development and testing
- Laboratory equipped with all testing equipment
- Product demonstration and training for customers
- Confirmatory concrete trials in presence of Clients and Consultants
- Trouble shooting & product modifications

Packing

- Fosroc admixture are supplied in 200kg, 250kg and Bulk
- Conplast WL packed in 125 ml pouch, 1 litre, 5 litre, 20 litre and 100 litre container. Also packed in 1000 litre bulk
- Conplast Crystalline packed on 30kg bags

Logistics

- Shipment in barrel, IBC and bulk tank in accordance with customer requirement



Applications



Laboratory Equipment



Concrete Lab



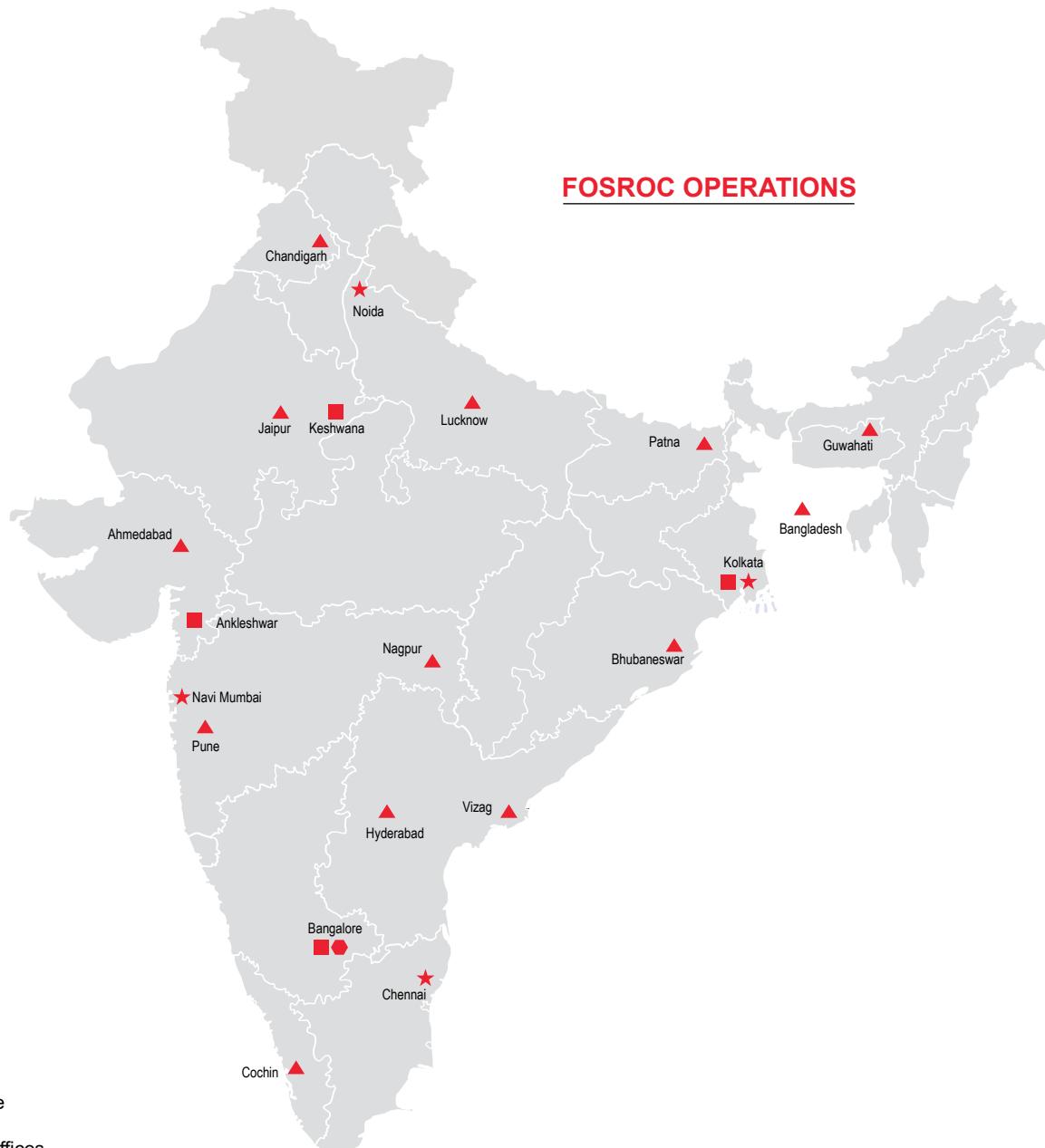
Barrel



IBC - 1000 litre pack

Product Selection Chart

Name of the Products	Normal Plasticizer M20 grade Concrete	Normal Plasticizer with Retarder M20 Grade	M25 to M40 Slump Retention Concrete	M25 to M40 grade Flow Concrete with Retention	M40 to M50 Grade Slump Retention Concrete	M40 to M50 grade SCC / Flow Concrete with retention	Grade M60 and Above Slump retention Concrete	Accelerator for Normal Concrete	Accelerator for Spray Concrete	Non Caustic Powder Accelerator	Silicate based Chloride free Accelerator	Foaming agent to Produce Light Weight Concrete	Under Water Admixture	Surface Retarder	Solid Block Admixture	Air Entraining Agent	Plasticizing and Air Entraining	Waterproofing Admixture	Roller Compacted Concrete Admixture	PQC Concrete	High Early Strength Concrete with Normal Slump	High Strength Concrete - SCC with Retention	Precast Concrete-with Retention	Mortar Plaster
	Product Selection Chart																							
Conplast P211																								
Conplast P505																								
Conlast PA21S																								
Conplast R																								
Conplast RP264																								
Normal Plasticizer																								
Conplast SP430																								
Conplast SP430 G8																								
Conplast SP430 ES2																								
Conplast SP430 SRV																								
Conplast SP500KL																								
Conplast SP600																								
Conplast SP430 KRM6																								
Conplast SP430 ITPQ																								
Super Plasticizer - SNF based																								
Auramix 400																								
Auramix 350																								
Auramix 300																								
Auramix 300 Plus																								
Auramix 200																								
Auracast 100																								
Auracast 270M																								
Auracast 405																								
Super Plasticizer - PCE based Admixture																								
Conplast NC																								
Sprayset HBL																								
Sprayset SL																								
Conplast UW																								
Sprayset HBP																								
Concrete Accelerator																								
Cebex 112																								
Mortar Plasticizer																								
Conplast SD110																								
Block Admixture																								
Conplast WL																								
Conplast crystalline																								
Waterproofing Admixture																								
Conplast AEA																								
Air Entraining Agent																								
Conplast F297																								
Light Weight Concrete																								
Conplast SR																								



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