

FOSROC



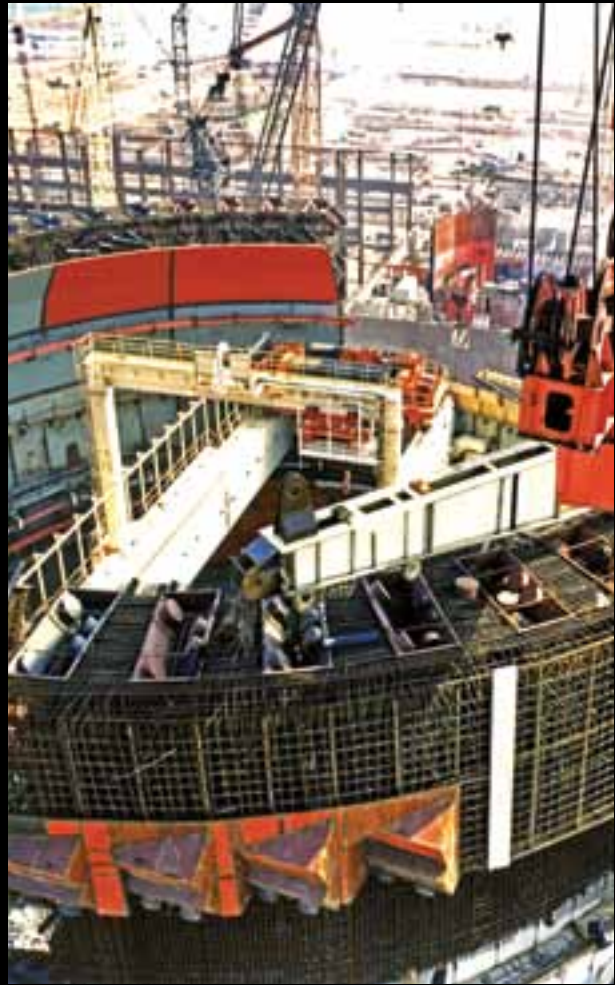
constructive solutions

Fosroc solutions for construction of durable and sustainable nuclear power plants



50 YEARS AND GROWING

For over 50 years, Fosroc has developed intellectual properties in specialised products and services that are acknowledged to be the cutting edge of construction technology. A division of the worldwide **JMH Group**, Fosroc employs over 1700 people through 13 manufacturing companies in Europe, the Gulf and Middle East, India, South Asia, and China. Through FGT, its trading company, Fosroc services a further 70 export markets.



KNOWLEDGE IS POWER



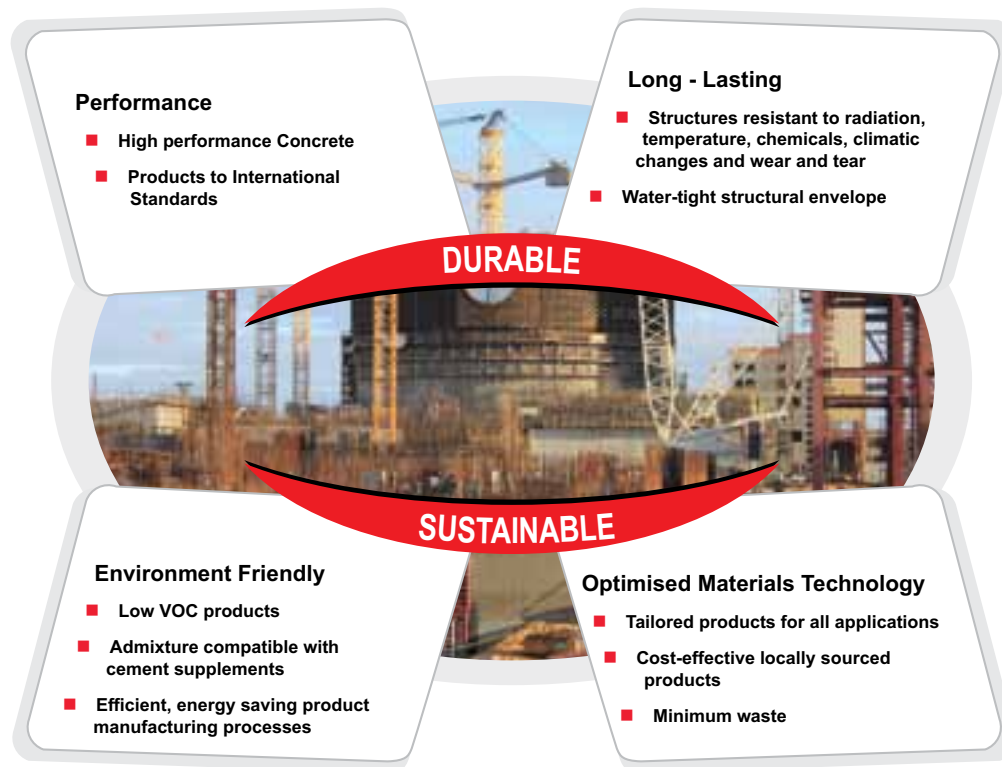
The perfect solution to a customer's problem lies in knowing which material technology works best with specific applications. Fosroc is reputed for identifying and bringing together all the elements necessary to deliver a robust solution. When formulating products, Fosroc focuses on the ease and simplicity of application in addition to performance to prevent costly time-consuming mistakes. Its aim is to partner with its customers to ensure that they grow together and create mutual value.

Fosroc brings to the fore its knowledge and experience of over three decades in providing solutions and products to the construction of nuclear power plants. This vast project experience coupled with innovation has ensured that compatibility and structural durability are not compromised. Fosroc's solutions and products have stood the test of time.

Product portfolio

- Admixtures and Surface Treatments
- Grouts and Anchors
- Industrial Flooring
- Concrete Repair
- Protective Coatings
- Joint Sealant
- Waterproofing and Adhesives
- Cement Grinding Aids

CONSTRUCTIVE SOLUTIONS FOR NUCLEAR POWER PLANTS



THE KEYS TO CREATING DURABLE NUCLEAR STRUCTURES

- High performance concrete
- Barriers to ingress of water
- Protection of the structure
- Grouting of gaps
- Sealing of joints



HIGH PERFORMANCE CONCRETE

Structural elements like 'nuclear islands' and 'non-nuclear sections' need highly durable and sustainable concrete, which demands a minimum water-to-cement ratio, optimum supplement cementitious materials, adequate workability and low permeability.

Transportable Liquid Plants (TLPs) for project sites to provide flexible and effective ways to serve the customers.

Fosroc's response is a range of technically superior and innovative products called **Conplast** super plasticiser series.

Conplast super plasticiser is an advantage in both states:

Fresh state

- Better workability and retention
- Easy compaction
- Increased use of supplementary cementitious materials

Hardened state

- Low permeability
- Higher strength and dense concrete

PCE technology – the new generation of Hyperplasticisers based on Polycarboxylate Ether (PCE) technology range **Structuro, Auramix and Auracast**.

This innovation in designing single premixed formulation eliminates adding VMA separately in both states:

Fresh state

- Very long workability retention without excessive retardation
- Self-compacting concrete
- Low stickiness that's ideal for pumping
- Very high water reduction
- Increased use of supplementary cementitious materials

Hardened state

- High early strength
- Low permeability and dense concrete

Product portfolio

- Fosroc® Conplast series – SNF based
- Fosroc® Structuro series – PCE based
- Fosroc® Auramix and Auracast – New generation PCE based

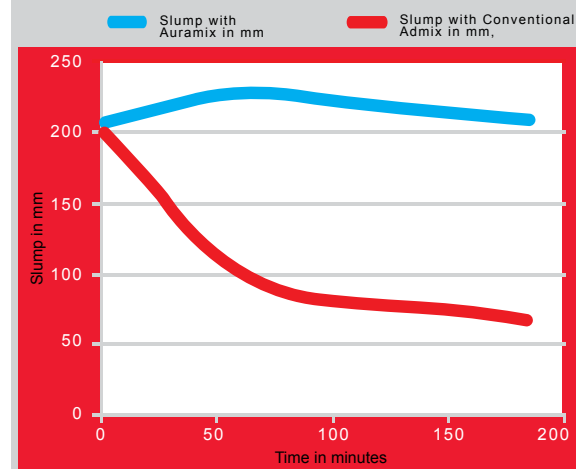
BARRIERS TO INGRESS OF WATER

Barrier for water ingress specifications are considered for 'Below Ground' and 'Above Ground' structural elements.

'Below Ground' waterproofing specifications are derived mainly by the water table level and basement grade according to BS 8102:2009 guidance.

Primary requirement for 'Below Ground' waterproofing system:

- Fully bonded to structural concrete
- No requirement for blinding concrete and protective layer
- Positive side waterproofing
- No call for special treatment of construction joint
- Gas resistant
- Should not be an application sensitive product
- Should be able to withstand high hydrostatic pressure



Primary requirement for 'Above Ground' waterproofing system:

- Fully bonded
- Highly flexible with the ability to run over all joints
- Elongation and Recovery to accommodate cracks
- UV resistance
- Excellent abrasion resistance
- High impact resistance
- Seamless system

Fosroc's Polyurea and Proofex Engage are innovative waterproofing solutions that add value to the "Below and Above Ground" waterproofing in terms of performance, durability, pace-of-application and overall cost saving.

Product portfolio

- Fosroc® Proofex range – Pre-applied membranes, TPO and PVC membranes, Sheet drains, Torch-on and Self-adhesive membranes
- Fosroc® Polyurea WPE/FLM – Polyurea spray applied membranes
- Fosroc® Supercast SW – Swellable waterstops
- Fosroc® Brushbond – Polymer Elastomeric waterproofing membranes

PROTECTION OF THE STRUCTURE

The protection of concrete externally as well as internally, is one of the most essential requirement for durability of the structure.

Points to consider for external protective coating of concrete:

- Compatibility with the concrete
- Carbon-di-oxide diffusion resistance
- Chloride ion resistance
- Other liquids and water-driven mechanisms
- Breathability
- UV resistance
- Environmentally friendly

Fosroc's Dekguard is designed precisely to meet these needs – keeping out all air- and water-borne corrosive agents while allowing the concrete to breathe out water vapour without weathering itself out.

Product portfolio

- Fosroc® Dekguard Series – Aliphatic Acrylic and Water-based coating
- Fosroc® Nitocote series – Silane siloxane based impregnant sealers and PU-based coatings
- Fosroc® Polyurea – Polyurea based coatings

Points to consider for floor protection in different areas:

- Good abrasion and impact resistance
- Seamless
- Impervious and resistant to chemicals
- Few area needs ESD topping

Fosroc has a wide range of products, which include Epoxy, PU and EPU to find the right solution based on BS 8204 guidelines.

Product portfolio

- Fosroc® Nitoflor Epoxy range
- Fosroc® Polyurea and Fosroc® Polyurethane range



GROUTING OF GAPS

It is extremely important to choose the right precision-engineered grouts to create a complete support for the base of the machine and to transfer the load to the turbine's foundation.

Properties of precision-engineered grouts:

- Dimension stability – EBA >95%
- Dynamic load resistance
- Dual shrinkage compensation
- Compressive strength
- Heat resistance

Fosroc has designed the widest range of precision-engineered grouts in both Cementitious and Epoxy range. Fosroc precision grouts have an excellent track record for more than 35 years in power generation sector all round the world.

Product portfolio

- Fosroc® Conbextra series

SEALING OF JOINTS

It is essential to treat with the right kind of joint sealing to intentionally designed joints and construction joints which are highly vulnerable to ingress of water.

Fosroc offers a full range of solutions for sealing expansion and construction joints that are highly vulnerable to water ingress.

Product portfolio

- Fosroc® Supercast SW – Swellable waterstops
- Fosroc® Expoband One – Hypalon membrane system
- Fosroc® Nitoseal MS – Single part Polyether sealant range
- Fosroc® Predimax – Re-injectable Hose system
- Fosroc® Thioflex – Polysulphide sealant
- Fosroc® Supercast PVC – PVC water stoppers
- Fosroc® Nitoseal HP – Single part PU range sealant



PRODUCT SELECTION GUIDE



Usage	Product	Description of Product	Reactor Building	Turbine Building	Auxiliary Buildings	Cooling Towers
Standard Concrete	Fosroc® Conplast Series	High Range superplasticer Type F and Type G			■	
High-performance concrete	Fosroc® Structuro and Aura Series	High Range superplasticer Type F and Type G	■	■	■	■
East stripping of form work and Moulds for high-quality smooth finish	Fosroc® Reebol Series	Mould Release Agent	■	■	■	■
	Fosroc® Auramol Series					
Concrete Curing	Fosroc® Concure Series	Resin- and Wax- based compounds	■	■		■
Below Ground Waterproofing	Fosroc® Proofex Series	Pre-applied membrane TPO membrane Torch on and Self-adhesive membrane	■	■	■	
Above Ground Waterproofing	Fosroc® Polyurea WPE	Spray Applied Polyurea	■	■	■	
	Fosroc® Brushbond	Polymer Elastomeric Waterproofing Membrane		■	■	■
Joint Sealing Above Ground level structures	Fosroc® Nitoseal MS	Single part MS based		■	■	
	Fosroc® Nitoseal HP	Single part PU based		■	■	
	Fosroc® Expoband One	Hypalon Membrane system		■	■	
	Fosroc® Thioflex	2 part Polysulphide sealant		■	■	
Construction Joint Sealing Below Ground level structures	Fosroc® Supercast SW Series	High-performance Swellable Polymeric Waterstop	■	■	■	
	Fosroc® Supercast PVC Series	Centrally and externally placed PVC waterstops for all kinds of joints	■	■	■	
Protective coating for foundations	Fosroc® Nitocote	Polyester resin and non-tar epoxy range	■			■
Protective coating for external surface	Fosroc® Dekguard	Acrylic- and Water- based range	■			■
Protective coating for internal surface	Fosroc® Nitocote	Solvent free epoxy and PU range		■		■
Protection for Floor surfaces	Fosroc® Nitoflor	PU, Epoxy range and High range floor hardeners	■	■	■	■
Turbine foundation grouting and Pump Grouting	Fosroc® Conbextra	High-performance epoxy resin grout		■		■
Equipment foundation grouting	Fosroc® Conbextra	Cementitious Precision grout		■	■	■
Repair products						
Anti corrosion primer for steel	Fosroc® Nitoprime Zinc rich	Single component zinc-rich epoxy primer	■	■	■	■
Bonding Agent for Old and New concrete	Fosroc® Nitobond EP	Epoxy-based bonding agent	■	■	■	■
Patching compounding for structural member	Fosroc® Renderoc range	Shrinkage controlled, polymer modified, cementitious, high specification repair mortar system	■	■	■	■
Spray applied patch repair mortar	Fosroc® Renderoc range	Shrinkage controlled, polymer modified, cementitious repair mortar, specifically designed for spraying for larger areas	■	■	■	■
Cementitious microconcrete	Fosroc® Renderoc range	Dual Shrinkage controlled, polymer modified, fluid microconcrete for structural repairs of all types	■	■	■	■

www.fosroc.com



Fosroc Chemicals (India) Pvt. Limited

Bangalore

Sapthagiri Palace
No. 38, II and III Floor
12th Cross, CBI Road
Ganganagar North
Bangalore 560 032
Tel: 080 23551500
Fax: 080 23551510

Mumbai

1401/1402, 14 Floor
A-Wing, The Great
Eastern Summit
Sector-15, CBD
Belapur
Navi Mumbai 400 614
Tel: 022 43406800/04

Noida

D-166 Sector 10
Noida
UP 201 301
Tel: 0120 4270620

Kolkatta

304, Jodhpur Park
Kolkatta 700 068
Tel: 033 65343188
Fax: 033 24990280



Important Note

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www.fosroc.com



Fosroc (Guangzhou) Limited

Guangzhou

No.7 Hong Yuan Road,
Eastern section of GETDD,
Guangzhou, 510760
China



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