



Concrete Solutions Datasheet

ADVANCED POLYPROPYLENE FIBRE CONCRETE

With CEMEX Readymix you can be assured of getting the best range of concrete solutions, specifically designed to high specifications for various end uses.

Advanced Polypropylene Fibre Concrete is a pioneering combination of fine and coarse monofilament polypropylene fibres which takes concrete fibre reinforcement to a new level of performance.

The introduction of deformed coarse fibres into the concrete mix allows much higher dosage rates, resulting in increased toughness and ductility of hardened concrete.



Applications

- Internal floors (retail stores, warehouses etc.) including heavy industrial floors
- External slabs (pavements & hard standings)
- Roads & bridges
- Airport taxiways

Features and Benefits

Hardened state advantages

| Feature | Benefits |
|---|--|
| Increases flexural toughness / residual strength. | Increased load bearing capacity of concrete. Potential reduction of concrete slab depth. |
| Provides post-crack performance. | Concrete retains load carrying capability after cracking has occurred. |
| Increased impact and abrasion resistance. | Increased durability and reduced maintenance costs. |

Plastic state advantages

| Feature | Benefits |
|---|--|
| Improves concrete's resistance to plastic shrinkage cracking. | Reduced frequency of plastic cracking. |
| Inhibits formation of micro-cracks due to dimensional change. | Improved durability and reduced permeability. |
| Reduces sedimentation. | Decreases risk of plastic settlement cracking over re-bar. |

Other fibre concrete available from CEMEX:

• Polypropylene Fibre Concrete

• Steel Fibre Concrete

CEMEX UK Materials Ltd

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Features and Benefits (continued)

Working improvements

| Feature | Benefits |
|--|--|
| Increased cohesion of the mix. | Reduced settlement. |
| No requirement for crack control steel mesh. | No need to purchase and store additional material. No delays to fast track schedule. Easier positioning of joints. |
| Concrete placement and crack control in ONE operation. | Reduced site labour requirement for on-site handling and cutting of steel reinforcement. No secondary steel mesh is required and reinforcement is automatically positioned. |
| Reduced bleeding. | Easier finishing of the concrete surface. |
| Cost effective alternative to conventional steel mesh reinforcement. | Reduced project costs. |

NOTES:

1. Effective protection and curing is essential for all concrete slabs - including high strength polypropylene fibre concrete.

Final concrete performance

| Feature | Benefits |
|---|---|
| Reduced plastic cracking means a reduction in surface permeability. | Enhanced durability. |
| Controls cracking which occurs in the hardened state. | Enhanced load bearing capability. |
| Bleed water control inhibits migration of cement fines and sand to the surface. | Harder, more durable surface with better abrasion resistance. |
| Even distribution of fibres throughout the concrete. | Improved flexural properties. |
| A tougher surface with fewer bleed holes. | Reduced absorption of water, chemicals etc. |
| Non Magnetic / Corrosion free reinforcement. | No rusting of reinforcement. |

Cost benefit analysis

- Cost savings in secondary reinforcement steel mesh for ground supported slabs
- Faster construction (removes the need to lay mesh and spacers etc.)

Health and Safety

Contact with concrete may cause irritation, dermatitis or severe alkali burns. There is serious risk of damage to the eyes. Wear suitable waterproof protective clothing, gloves and eye/face protection. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. After contact with skin, wash immediately with plenty of clean water. Keep out of reach of children. Contains Chromium (VI), may cause allergic reaction.

For a detailed datasheet please visit the health & safety section of our website www.cemex.co.uk.

Specifications and Standards

All CEMEX Readymix products meet or exceed the relevant British and European standards.

FAQ's

Q. Can advanced polypropylene fibres be used in structural concrete?

A. Yes. High performance polypropylene fibres will enhance both plastic and hardened state properties of structural concrete. Additionally they are often used to replace or supplement structural reinforcement. Advice should be sought when considering replacement of structural reinforcement.

Q. Is it more cost-effective to use advanced polypropylene fibre instead of crack control steel mesh?

A. Generally, Yes. However, savings will be greater when heavier types of crack control steel mesh are being replaced. There is also a saving in handling and an increase in the site productivity, as the mixer can reverse right up to the point of placing.

Q. Are any special finishing techniques required?

A. No, the concrete can be compacted and finished normally. Trowelling will help to embed the fibres into the concrete surface. Some fibres may be exposed but these can be easily removed on completion of finishing operations.

Q. Can concrete with advanced polypropylene fibres be pumped?

A. Yes, although some adjustments to the mix design may be necessary depending on fibre dosage requirements.

Q. Are movement joints necessary?

A. Yes, contraction joints are necessary and should be spaced at intervals no greater than 8 metres. Bays should be kept as square as possible.

Q. What is the dosage rate for advanced polypropylene fibres?

A. Dosages are typically in the range of 2-7kg/m³. This will depend upon project loadings and types of steel mesh which are being replaced.

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