



## Concrete Solutions Datasheet

# 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. Polypropylene Fibre Concrete is versatile and can be used in most applications.

Polypropylene fibre (short-cut strands of very fine denier monofilament\*) is added to the concrete during batching. Thousands of individual fibres are then evenly dispersed throughout the concrete during the mixing process creating a matrix-like structure.

\*fibrillated fibres can also be supplied on request.



### Applications

- Most small builder, cash sales and DIY applications
- Internal floor-slabs (retail stores, warehouses, etc.)
- External slabs (driveways, yards, etc.)
- Agricultural applications
- Roads, pavements, driveways, kerbs
- Shotcrete; thin section walling
- Overlays, patch repair
- Water retaining structures, marine applications
- Security applications such as safes and strongrooms
- Deep lift walls

### Features and Benefits

#### Plastic state advantages

The addition of fibres helps to maximise the intrinsic early strength of the concrete and specifically:

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.

#### NOTE:

Polypropylene fibres actually help inhibit the formation of cracks in concrete, whereas steel mesh only has functional value after the concrete has cracked.

**Other fibre concrete available from CEMEX:**

• Advanced Polypropylene Fibre Concrete

• Steel Fibre Concrete

#### CEMEX UK Materials Ltd

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## Features and Benefits (continued)

### Working improvements

Polypropylene fibres offer many installation advantages, enabling a better job to be achieved in less time:

Feature	Benefits
Increased cohesion of the mix.	Reduced settlement. Easier finishing.
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. No secondary steel mesh is required and reinforcement is automatically positioned.
Reduced bleeding.	Easier finishing of the concrete surface.
Less expensive (per m <sup>2</sup> ) than conventional steel mesh reinforcement.	Reduced project costs.

### NOTES:

1. Effective protection and curing is essential for all concrete slabs - including polypropylene fibre concrete.
2. Polypropylene fibre concrete CANNOT be used as a substitute for structural steel reinforcement.

### Final concrete performance

The effects of polypropylene fibre concrete in its plastic state lead to other advantages in its hardened state:

Feature	Benefits
Reduced plastic cracking means a reduction in surface permeability.	Enhanced durability.
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. Increased resistance to spalling at higher temperatures and so.... better fire resistance.
A tougher surface with fewer bleed holes.	Reduced absorption of water, chemicals and dirt.

## 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](http://www.cemex.co.uk).

## Specifications and Standards

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

## FAQ's

### Q. Can fibre be used in structural concrete?

A. Yes, but it cannot be used to replace or supplement structural reinforcement. However, it can be used in conjunction with the steel to help reduce settlement cracking over structural reinforcement, particularly in deep sections such as walls and columns.

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

A. Yes, polypropylene fibre is about half the cost of A142 steel mesh per square metre of slab. There is also a saving in handling and an increase in 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 totally embeds the fibres in the concrete surface. Some fibres may be exposed where a textured finish is applied, but these quickly disappear.

### Q. Can concrete with fibre be pumped?

A. Yes, fibre actually improves the pumping characteristics.

### Q. Are movement joints necessary?

A. Yes, contraction joints are necessary and should be spaced at the normal intervals prescribed for an 'unreinforced slab design'.

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

A. Normally 0.9kg/m<sup>3</sup> for most applications.

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