Concrete Solutions Datasheet

STEEL 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.

Steel Fibre Concrete utilises steel fibres designed to provide ultimate performance under intense loading conditions.

This fibre system provides superior resistance to cracking in hardened state concrete, as well as maximum resistance to damage from heavy impact and dynamic loading.

Applications

- Heavy duty flooring applications – internal & external
- Civil engineering applications
- Composite metal decks
- Jointless floors

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.

Other fibre concrete available from CEMEX: • Polypropylene Fibre Concrete • Advanced Polypropylene Fibre Concrete

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Features and Benefits (continued)

Working improvements

Feature	Benefits
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.
Cost effective alternative to conventional steel mesh reinforcement.	Reduced project costs.

NOTES:

1. Effective protection and curing is essential for all concrete slabs - including steel fibre concrete.

Final concrete performance

Feature	Benefits
Controls cracking which occurs in the hardened state.	Enhanced load bearing capability.
Even distribution of fibres throughout the concrete.	Improved flexural properties.
A tougher surface with fewer bleed holes.	Reduced absorption of water, chemicals etc.

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 steel fibres be used in structural concrete?

A. Yes. Steel fibres will enhance 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 steel 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 steel fibres be pumped?

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

Q. Are movement joints necessary?

A. Yes, contraction joints are necessary. However, when using steel fibre reinforcement there is an opportunity to use so called "Jointless Floor" techniques. (Joints will be spaced at a maximum of 40-50 metres).

Q. What is the dosage rate for steel fibres?

A. Dosages are typically in the range of 20-30kg/m^3 for jointed floors and 40-50kg/m^3 for jointless floors. Fibre dosage will depend upon project loadings and types of steel mesh which are being replaced.

Q. Can steel fibres be used together with polypropylene fibres?

A. Yes, please seek advice on application and suitability.

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