



OCV™ Reinforcements

Anti-Crak®

ANTI-CRAK®



Solutions for Concrete Reinforcement

WHY FIBRES IN CONCRETE?

It is widely accepted within the concrete industry that traditional concrete mixes are prone to plastic shrinkage during the setting phase and this can often lead to cracking.

The addition of relatively small amounts of fibre reinforcement can effectively reduce this problem by controlling this early-age plastic shrinkage cracking.

It also avoids the need for using light steel mesh for crack control with its attendant disadvantages of handling and positioning.

Fibre reinforced concrete is easy and cost effective and and it also enables you to produce a hardened concrete which has:

- Improved surface quality
- Greater impact resistance
- Increased durability



WHY ANTI-CRAK[®]?

Anti-Crak[®] fibres are alkali resistant glass fibres, especially developed for the reinforcement of cementitious mortars and concrete mixes.

They can be easily introduced into a conventional concrete mix giving millions of dispersed fibres per cubic metre of concrete, providing a highly uniform and effective reinforcement.

Anti-Crak[®] fibres give you:

- High modulus of elasticity for effective long-term reinforcement, even in the hardened concrete.
- A reinforcing material which does not rust nor corrode and requires no minimum cover.
- Ideal aspect ratio (i.e. relationship between fibre diameter and length) which makes them excellent for early-age performance.
- A fibre which is safe and easy to handle and does not protrude through the finished surface nor sink.



ANTI-CRAK® HD (High Dispersion)

These fibres are designed to be used with normal concrete mixes at very low addition levels – typically 0.6kg/m³ (1lb/yd³) of concrete. Added directly to the mixer or ready mix truck, they disperse instantly within the concrete. This complete uniform dispersion ensures a three dimensional reinforcement throughout the matrix and thus an effective suppression of cracking during the plastic shrinkage period. The large number of filaments gives a very small distance between fibres whilst the high aspect ratio gives maximum effect in the setting period.

Anti-Crak® High Dispersion fibres can be simply added to the mix either on site or at the mixing plant without the need of a special equipment.

Standard concrete mix designs are used. Extended mixing times are not necessary.



ANTI-CRAK® HP (High Performance)

These fibres are normally used at higher addition levels - usually from 3-10kg/m³ (5-17lb/yd³) of concrete. Anti-Crak® High Performance fibre is a highly integral product which is resistant to fibre bundle breakdown in concrete mixing - useful when mixing time and conditions are variable.

This physical form enables a higher rate of addition to be achieved without adversely affecting workability, although conventional superplasticisers may be used to improve workability.

Ideal for improving performance of both in situ and precast concrete as well as renders Anti-Crak® High Performance fibres give:

- Greater retained toughness in conventional concrete mixes
- Increased impact strength and abrasion resistance
- Higher flexural strength, depending on addition rate



Anti-Crak[®]

Applications

FLOOR SCREEDS / SLABS ON GROUND

Floor screeds/Slabs on ground are used in various forms, ranging from very thin 10 mm (3/8in) final floor toppings to layers of greater thickness up to 80 mm (3in) which may be used for encapsulating heating elements.

In all cases the superior impact and crack resistance of fibre reinforced screeds enables them to be laid more thinly than conventional screeds whilst giving better performance.

Anti-Crak[®] fibre content may be relatively high (1%) in the thinnest screeds, and less than 1kg/m³ (2lb/yd³) in thicker forms.



READY MIX CONCRETE

For control of early plastic shrinkage cracking and general improvement of concrete, Anti-Crak[®] fibre is effective at any addition rate as low as 0.6kg/m³ (1lb/yd³) and is added to normal concrete mixes without any change in formulation.

A particular benefit of glass fibre, however, is that its easy mixing characteristics allow addition of higher dosages, for example up to 10kg/m³ (17lb/yd³) and at these levels of addition the hardened, long-term properties of the concrete are usefully improved.



PRECAST CONCRETE

Small additions of Anti-Crak[®] fibres can be used in precast concrete components to effect useful improvements. For example, in conventional steel reinforced precast cladding panels or civil engineering elements, the addition of only 2-4 kg/m³ (4-7lb/yd³) of Anti-Crak[®] in concrete, can give benefits of avoidance of cracking, elimination of edge or demoulding damage, and an improvement in surface finish and appearance. At higher addition rates, for example 18kg/m³ (30lb/yd³) of concrete, Anti-Crak[®] HP fibres can be the sole reinforcement, without the need for conventional steel mesh, in small precast items such as channels and boxes.



RENDERS / STUCCO

Anti-Crak fibre, with an addition rate of 0.05% of HD up to 1.5% of HP contributes to a highly successful render/stucco system. Applied by either spraying or trowelling to a thickness of 4-10 mm (1/8-3/8in), the finished render has superior resistance to impact and shrinkage cracking and is less permeable to water than normal sand-cement render. Fibre reinforced render/stucco is also used in dry blockwall construction and external insulation systems.

In many cases Anti-Crack[®] fibre is dry-blended with other mix components and the whole supplied to the site in bagged form.



Anti-Crak[®]

Applications

GUNITE / SHOTCRETE

Anti-Crak[®] fibre at up to 1% by weight of total mix can be added to normal sprayed concrete mixes, giving a crack resistant and impact resistant lining from a relatively thin layer compared with normal sprayed concrete. Both dry guniting and wet sprayed concrete process can utilise Anti-Crak[®] fibre reinforcement.

Major benefits of Anti-Crak[®] glass fibre compared with other fibre types are reduced rebound and wastage, and a non-hazardous surface which does not need a final protective coat.



ANTI-CRAK[®] FIBRES

High Tensile Strength (1700 MPa)

3-4 times higher than that of steel.

High Elastic Modulus

10 times that of polypropylene.

Excellent Corrosion Resistance

Alkali and acid resistant. Do not rust.

Easy to Incorporate

Do not protrude or spring back from the surface.

Disperse instantly in the concrete.

Safe to use

Inorganic, incombustible, with no health risk.

Technical Data

Elastic Modulus

Filament Diameter

Specific Gravity

Lengths

Zirconia content

USA

10.4×10^6 psi

5.5×10^{-4} in.

2.68

¼" - ½" - ¾"
other lengths upon request

16.7%

Europe

72 GPa

14 microns

2.68

6 - 12 - 18 mm
other lengths upon request

16.7%

ANTI-CRAK[®] HD (High Dispersion) (values related to 12 mm. length)



Product form:

Monofilament as a result of dispersal of fibres bundles on contact with moisture

Numbers of fibres:

>100 million/lb

>200 million/Kg

Aspect Ratio:

857:1

857:1

Specific surface area:

518 ft²/lb

105 m²/kg

Typical addition rate:

1 lb/yd³ of concrete

0.6 kg/m³ of concrete

ANTI-CRAK[®] HP (High Performance) (values related to 12 mm. length)



Product form:

Multi-fibre strand of 100 filaments bonded together

Numbers of fibres:

>1 million/lb

>2 million/kg

Typical addition rate:

1.5 to 17 lb/yd³ of concrete

0.9 to 10 kg/m³ of concrete

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