Recycled Steel Cord Fibres

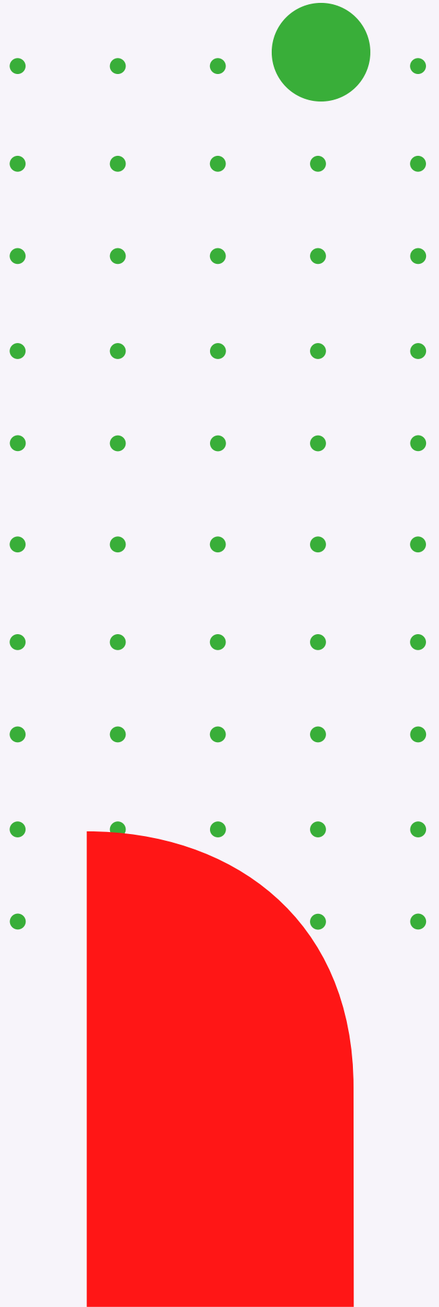
How do they work?

The problem

Steel presents a relatively slippery surface in concrete.

To avoid slip and ensure a complete transmission of a load from the concrete to the fibre an ideal aspect ratio would be in the region of 100-200.

Such load transmission cannot fully occur if the aspect ratio is lower than 50, as is the case of some conventional fibres.



Deformed ends

Conventional fibres overcome the problem by deforming their ends.

In this way a crack developing across a fibre can be controlled even if it is close to the fibre ends.

However, as the stresses increase such fibres debond within their 'sleeves' of surrounding concrete, due to insufficient surface area for the concrete to fully bond on them.

Consequently, the stress is absorbed over the entire length of the fibre in a manner that the developing crack widens more before it is halted.

The Solution

with conventional fibres

Continuous bond

Unlike conventional fibres of relatively low aspect ratio (to avoid agglomeration) RSCF are composed of individual filaments of much higher aspect ratio, in the order of 200-300.

During mixing with concrete or mortars, they behave as a single fibre having an effective aspect ratio similar to that of conventional fibres.

However, as the hydrated cement penetrates around the filaments the net result is that bonding to RSCF is over a significantly larger area than bonding to a conventional fibre of an equivalent aspect ratio.

The improved bond of the RSCF to the matrix causes more rapid mobilisation of the fibre and minimises the strain in the matrix.

The Solution

with Recycled Steel Cord Fibres

Recycled Steel Cord Fibres

High performance recycled fibres

RSCF Competitive Advantages

Inherent flexibility

This enables RSCF to be accommodated much more easily between and around aggregate particles in the concrete, causing less disturbance and voids.

High strength

Up to three times stronger than the cold-drawn wire currently used in normal and high strength concrete.

Rapid mobilisation

RSCF's continuous and effective bond along their full length minimises the strain in the matrix.

Environmental credentials

RSCF require only a fraction of the energy needed to manufacture virgin fibres.

Contact Us

zero waste works

info@zerowasteworks.co.uk

www.zerowasteworks.co.uk