# Wiking® 4012

**Wiking® 4012 is a monofilament fibre that is extruded, specially oriented, shrunk and subsequently cut so that it forms a synthetic structural fibre.**

**It can be applied especially in high strength concrete. Can be used in shotcrete, vertical and horizontal surfaces, and it will increase the inflectional character and the tensile strength in the concrete.**

## Advantages and properties

- Alternative to crack controlling steel fibres
- Increases the inflectional character
- Increases the impact resistance
- Increases tensile strength

| Specifications - Wiking® 4012 | |
|---|---|
| Material: | 100 % new polypropylene |
| Fibre length: | 3, 6, 12, 18, 24 or as requested |
| Diameter: | 0.4 mm nominal |
| Shrinking frequency: | 5 % |
| Tenacity: | in N at 50cN/tex 89.1 |
| Density: | 0.907 |
| Resistance to alkalis: | Excellent |
| Water absorption: | Zero |
| Design: | Monofilament |
| Colour: | Natural |
| Softening temperature: | 160°C nominal |

## General fields of application

- Outdoor concrete
- Concrete products requiring high strength
- Agricultural construction projects
- Shotcrete

The quality of the polypropylene material that is used in the production of the polypropylene fibres must have a concentration of cadmium, mercury, lead and chromium that is less than 100 ppm (w/w).

Thus the polymere will comply with the US CPNEG legislation limits for heavy metals and the European directive 94/62/EC from 20 December, 1994, concerning packaging and packing waste.

## Mixing instructions

When producing wet mixtures the fibres are to be added in the concrete mixer after all the other ingredients.

In dry mixtures the fibres are to be added as the first ingredient in the truck mixer followed by at least 1/3 of the water, after which the last ingredients are gradually added. It has been proved that the fibres spread evenly in the concrete mix when these prescriptions are followed.

If the fibres cannot be added directly in the mixer with the wet concrete mix, they have, alternatively, to be added directly in the lorry where the fibres are poured over the concrete.

Please note that prior to using the concrete the mixer has to have rotated at least 70 times.

## Packaging and application

The fibres are packed in boxes of 20 kg. Alternative dimensions can be made if requested.

## Storage

The boxes with the fibres should be kept on a clean surface in dry surroundings and covered.

## Mixing information

We advise you to make a test mix prior to using Wiking® 4012 in a project. This is to ensure that any influence that Wiking® 4012 might have on the workability, rheology and strength of the concrete is documented.

Please note that Wiking® 4012 has already been successfully used in self-compressing, zero-energy concrete, pumped concrete and shotcrete.

Besides that it has been used in combination with Wiking® Fibrillated in a mix 2 : 1, which has given excellent, high strength.

## Health and safety

Please read the specific safety data sheet or contact the Danish Fiber technicians.

## Technical consultancy

The Danish Fibres technical division for construction fibres is at your service and will be pleased to give you advice concerning the correct use of our products.

Where formerly 160 kg steel fibres of 12 mm length per cu m concrete has been used, this can now be replaced by 10 kg Wiking® 4012 and 5 kg Wiking® Fibrillated.

A test report on flexional behaviour and residual strength level after the formation of cracks will be launched in the coming year.



Danish Fibres

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