

# Arkaz Fiber FF50

Synthetic Polyolefin MacroFibers for Shotcrete and Concrete applications

## DESCRIPTION

**Arkaz Fiber FF50** is Macro synthetic reinforcing fibers to be used as structural support in shotcrete and concrete applications. **Arkaz Fiber FF50** is specifically engineered for use as secondary reinforcement. It is a 100% virgin copolymer fiber designed to provide a high performing reinforcement system for concrete. **Arkaz Fiber FF50** highly increases energy absorption for sprayed concrete and improve the Crack bridging capacity, especially at large crack openings . **Arkaz Fiber FF50** Increases the durability due to high chemical resistance.

## USES

**Arkaz Fiber FF50** structural synthetic fibers are a patented synthetic macro polypropylene fiber successfully used to replace steel fibers and conventional reinforcing bars in a wide variety of applications Sprayed concrete for excavation stabilization in tunnelling and mining. This fiber standard specification for fiber reinforced concrete and shotcrete are specifically designed to provide equivalent tensile and bending moment resistance to conventional reinforcement requirements. Concrete reinforced with **Arkaz Fiber FF50** will have three-dimensional reinforcing with enhanced flexural toughness, impact and abrasion resistance and will also help mitigate the formation of plastic shrinkage cracking in concrete.

## ADVANTAGES

**Arkaz Fiber FF50** uniformly distribute multidimensionally throughout the concrete mixture. The fibers mechanically lock in the fresh concrete matrix providing reinforcement for the mixture while its tensile strength is the weakest. This reinforcement reduces the formation of plastic shrinkage cracking that may otherwise permanently weaken the resulting concrete. The concrete permeability is decreased, while the surface characteristics, impact and toughness properties are improved. Together these effects work synergistically to produce a long-term better quality, more durable and serviceable concrete.

## TYPICAL PROPERTIES

Specific Gravity	0.91
Modulus of elasticity (MPa)	> 4000
Length (mm)	40 – 50
Color/Shape	Trans Gray / Flat
Equivalent diameter (mm)	0.7- 0.8
Melting Point	160 – 170 °C
Ignition Point	570 -590 °C
Alkalis & salt resistance	Strong
Breaking strength (MPa)	> 550
Elongation at break (%)	15 ± 5
RDPT Test @6 Kg/M³ (as per ASTM 1550)	~ 300 Jules

## ADDITION RATES

**Arkaz Fiber FF50** may be added to concrete at any point during the batching or mixing process. **Arkaz Fiber FF50** can be added to the aggregate during weighing or charging, or to the central mixer or truck before, during, or after charging. The load must be mixed at high speed for 5 minutes, or 70 revolutions, after the addition of the **Arkaz Fiber FF50** to ensure uniform distribution. The standard range of addition for **Arkaz Fiber FF50** is 2-10 Kg/M³ of concrete. Higher addition rates may be used to produce concrete when special properties are required. Usually 5-7kg/M³ from **Arkaz Fiber FF50** will produce energy absorption of 700-800 Joules (EFNARC Panel Test) or 280-320 Joules (ASTM 1550) for ≥ 30 MPa Shotcrete applications. However, site trials must be carried out to confirm the performance of the fiber and the sprayed concrete mix.

## COMPATIBILITY

**Arkaz Fiber FF50** are compatible with all Arkaz admixtures. Their action in concrete is purely mechanical and will not affect the hydration process. Each admixture should be added separately.

**Arkaz Fiber FF50** may be used as an alternative to welded wire fabric, depending on the application. **Arkaz Fiber FF50** may be used as a replacement for structural or post-crack control steel reinforcement in some situations as for temperature or shrinkage post crack control.

## SPECIFICATIONS

**Arkaz Fiber FF50** is virgin polyolefin fibers as supplied by Arkaz. Required dosage rate shall be as specified by the design engineer or architect. **Arkaz Fiber FF50** shall be used in strict accordance with the supplier /Designer recommendations. The fibers shall comply with ASTM Designation C1116 Type III 4.1.3 and with applicable building codes. Certification of compliance shall be made available on request. Standard ACI 302 procedures for placing, finishing and curing shall be followed when using **Arkaz Fiber FF50**.

## PACKAGING

**Arkaz Fiber FF50** is packed loose in 6kg water soluble bags or in cardboard boxes to suit dosing into the mixer. Alternative pack sizes are available upon request and should be specified when ordering. to the truck drum or central mixer.

## HEALTH AND SAFETY

For more Safety information you can check Product Material Safety Data Sheet, drop an email to Arkaz Concrete Doctor at [ConcreteDoctor@arkaz.com](mailto:ConcreteDoctor@arkaz.com) or Contact Arkaz Technical Department.

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### TECHNICAL SERVICE

The technical service department of Arkaz is available to assist in the correct and best use of our products, these resources and advice are at your disposal entirely without obligation.

Please contact:  
[concretedoctord@arkaz.com](mailto:concretedoctord@arkaz.com)

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