

## PRODUCT DATA SHEET

# SikaFiber® Force-48

Synthetic macro fiber for shotcrete and concrete.

### PRODUCT DESCRIPTION

SikaFiber® Force-48 is a 48 mm long macro synthetic fiber for use in structural concrete and shotcrete. Specifically engineered and manufactured in an ISO 9001 certified manufacturing facility.

### USES

SikaFiber® Force-48 is suitable for the use in sprayed concrete and in-situ cast concrete to distribute stresses, increase structural properties and increase abrasion resistance. The main uses for SikaFiber® Force-48 are in the following applications:

- Excavation stabilisation in tunnelling and mining
- Rock and ground stabilisation
- Temporary stabilisation
- Energy absorption
- Replacement of steel reinforcement
- Slab on grade concrete applications / industrial floors based on ground
- Precast concrete elements
- Concrete applications, requiring abrasion resistance

### CHARACTERISTICS / ADVANTAGES

Improves characteristics of hardened concrete

- Highly increased energy absorption for sprayed concrete
- Crack bridging capacity, especially at large crack openings
- Increased durability due to high chemical resistance
- Rust-free surfaces
- Dissipates strains in concrete and prevents structural cracking
- Increases impact and shatter resistance
- Improves load capacity and ductility
- Increases abrasion resistance
- Increases resistance to freeze thaw attack

Replacing rebar/wire mesh in concrete

- Reduces or eliminates the traditional reinforcing
- Easier to handle
- Pumpable Reinforcement
- No cutting, chairing, placing or tying
- Reduction of construction time
- Homogenously mixed throughout concrete - Always in the correct location
- Fills edges, corners and difficult shapes
- Reducing embodied carbon through the replacement of convention steel reinforcement with synthetic structural fibers.

Replacing steel fibers

- Reduced wear on concrete pumps and hoses compared to steel fibers
- No corrosion stains on surface
- Greater energy absorption at higher displacements

### APPROVALS / STANDARDS

Complies with ASTM C 1116/C1116M Type III Fiber Reinforced Concrete, and ASTM D 7508/D7508M

## PRODUCT INFORMATION

<b>Chemical Base</b>	Polyolefin
<b>Packaging</b>	SikaFiber® Force-48 is available in water soluble pucks packed in 8kg boxes.
<b>Appearance / Color</b>	Straight, white embossed fibers
<b>Shelf Life</b>	5 year shelf life from date of production
<b>Storage Conditions</b>	The product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to packaging.
<b>Density</b>	0.901 kg/m <sup>3</sup>
<b>Dimensions</b>	<ul style="list-style-type: none"><li>▪ Length 1.9 in (48 mm )</li><li>▪ Equivalent Diameter 0.033 in (0.84mm)</li></ul>
<b>Melting Point</b>	164 °C (327 °F)

## TECHNICAL INFORMATION

<b>Tensile Strength</b>	550 MPa (ASTM D2256)
<b>Tensile Modulus of Elasticity</b>	8.5 GPa (ASTM D2256)

## APPLICATION INFORMATION

<b>Recommended Dosage</b>	The dosage of the SikaFiber® Force-48 will vary according to the type of application and the performance requirements of the project. Standard recommended dosage rate of SikaFiber® Force-48 is between 5–17 lbs/cu. yd. (3–10 kg/m <sup>3</sup> ) of concrete. Dosages outside the recommended dosage range can be used to meet project specific requirements. If this is the case please contact your Sika representative for technical support.
<b>Mixing</b>	<p>In a truck mixer SikaFiber® Force-48 can be added directly to the concrete mixing system after the batching of the ingredients and mixed for 4 to 5 minutes or 70 revolutions.</p> <p>In a concrete mixer, add the fibers with the dry aggregate taking care to evenly distribute the fibers throughout the mix.</p> <p>The addition of SikaFiber® Force-48 at the recommended dosage rates may decrease the slump; however, additional water should not be added. Only a water reducing or high range water reducing admixture should be used to adjust concrete to the desired workability.</p>

## BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment,

temperature, application methods, test methods, actual site conditions and curing conditions.

## ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

## LIMITATIONS

- Partial or total replacement of steel reinforcement by fibres must be designed by an appropriately qualified Engineer. Contact Sika Technical Services for additional information.
- Fibres will not improve the quality of poor concrete.

## OTHER RESTRICTIONS

See Legal Disclaimer.

## LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates (“SIKA”), the user must always read and follow the warnings and instructions on the product’s most current product label, Product Data Sheet and Safety Data Sheet which are available at [usa.sika.com](http://usa.sika.com) or by calling SIKA’s Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product’s shelf life. User determines suitability of product for intended use and assumes all risks. User’s and/or buyer’s sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

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### Product Data Sheet

SikaFiber® Force-48  
December 2020, Version 01.02  
02140802100000097

SikaFiberForce-48-en-US-(12-2020)-1-2.pdf

