

## PRODUCT DATA SHEET

# SikaFiber® Force-60

Synthetic macro fibres for concrete and shotcrete

### DESCRIPTION

SikaFiber® Force-60 is a 60 mm long macro synthetic fibre for use concrete and shotcrete to distribute stresses, increase structural properties or increase abrasion resistance.

### USES

SikaFiber® Force-60 is for use in concrete and suitable for shotcrete.

The main applications for SikaFiber® Force-60 are:

- Shotcrete for excavation protection in tunnelling
- Shotcrete for rock and ground stabilization
- Temporary stabilisation
- Replacement of steel reinforcement
- Industrial floors
- Foundations
- Precast concrete elements
- Concrete elements with high abrasion resistance

### CHARACTERISTICS / ADVANTAGES

With the addition of SikaFiber® Force-60, the following properties of the hardened concrete are improved:

- Significantly increased energy absorption with shotcrete
- Post-cracking tensile strength, especially with large crack openings
- Increased durability through high chemical resistance
- No corrosion stains on surface

### APPROVALS / CERTIFICATES

Corresponds to EN 14889-2, Class II; Fibres for concrete, Polymer fibres

Approval No.: Z-3.73-2149, DIBt-Berlin

### PRODUCT INFORMATION

|                              |  |                                     |
|------------------------------|--|-------------------------------------|
| <b>Composition</b>           | Polypropylene  |                                     |
| <b>Packaging</b>             | 5 kg of fibre in water soluble bags or 400 kg bigbags.                                     |                                     |
| <b>Appearance and colour</b> | Straight white embossed fibres   |                                     |
| <b>Shelf life</b>            | 24 months from date of production in unopened, undamaged packaging.                        |                                     |
| <b>Storage conditions</b>    | Store in dry conditions between 5° and 30°C. Protect from direct sunlight, water and dirt. |                                     |
| <b>Density</b>               | Approx. 0.91 kg/l  |                                     |
| <b>Dimensions</b>            | <u>Diameter</u>  | <u>Approx. 0.84 mm (equivalent)</u> |
|                              | <u>Length</u>  | <u>Approx. 60 mm</u>                |
| <b>Melting point</b>         | Approx. 170 °C   |                                     |

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## TECHNICAL INFORMATION

|   |   |              |
|---|---|--------------|
| <b>Concrete mixing time</b>             | Extend the normal mixing time to ensure a homogeneous distribution of fibres in the concrete mix. This particularly applies to high fibre dosages (>6 kg/m <sup>3</sup> ). Laboratory trials must be carried out before concreting on site, especially when using a new mix design.   |              |
| <b>Modulus of elasticity in tension</b> | Approx. 6 kN/mm <sup>2</sup> (GPa)<br>Tensile strength approx. 430 MPa  | (EN 14889-2) |
| <b>Recommended dosage</b>               | 3–9 kg/m <sup>3</sup>   |              |
| <b>Dispensing</b>                       | In a concrete mixer, add SikaFiber® Force-60 with the dry aggregates taking care to evenly distribute the fibres throughout the mix. In a truck mixer, SikaFiber® Force-60 can be added when all the mix components have been added. Mixing time will need to be increased to ensure a uniform fibre distribution (as a guide add 1 extra minute for every 1m <sup>3</sup> ). |              |

## BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## IMPORTANT CONSIDERATIONS

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

## ECOLOGY, HEALTH AND SAFETY

### REGULATION (EC) NO 1907/2006 - REACH

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in the product data sheet. Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0,1 % (w/w).

## LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

## LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

**Sika Deutschland GmbH**  
Concrete  
Peter-Schuhmacher-Straße 8  
69181 Leimen  
Telefon: +49 06224 988-04  
Telefax: +49 06224 988-522  
EMail: leimen@de.sika.com



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