

Product Data Sheet
Edition 21/06/2012
Identification no:
02 01 01 05 000 0 000019
Sikafume

SikaFume®

Densified Silica Fume

Product Description SikaFume® is a new generation concrete additive in a fine powder form based on Silica fume technology. SikaFume is used as a high effective additive for the production of high quality concrete. Complies with ASTM C 1240-00.

Uses SikaFume® is used in:

- Structural Concrete
- Precast Elements
- Shotcrete

And other fields of concrete construction where great demands are required on the durability and quality of fresh hardened concrete.

Characteristics / Advantages SikaFume® contains extremely fine (0.15µm) latently reactive silicon dioxide. The presence of this substance gives greatly improved internal cohesion, water retention and increased density when set. The fresh concrete becomes extremely soft and the pumping preorties are substantially improved. In the set concrete, the latently reactive silica fume forms a chemical bond with the free lime.

The additional crystal formation and the fineness of SikaFume® produce a significantly more dense set cement matrix.

When used additionally with Sika ViscoCrete superplasticisers, the concrete will show the following properties:

- Excellent workability
- Increased durability
- High Early Strength
- Increased ultimate strength
- Increased resistance to abrasion
- Increased water tightness
- Reduced chloride diffusion

SikaFume® contains no chlorides or other potentially corrosive substances

Product Data

Form

Appearance / Colour Powder, Greyish

Packaging 900 kg bag

Storage

Storage Conditions / Shelf Life 24 months from date of production if stored in original unopened, undamaged sealed containers, protected from frost at temperatures between +5°C and +30°C.



Technical Data

Chemical Base	■ SiO ₂	>88.9%
	■ Moisture	<1%
	■ Alkalis like Na ₂ O	<0.5%
	■ Free CaO	<0.1%
	■ Free SI	0.14%
	■ Free Cl%	0.02%
	■ SO ₃	<0.25%
	■ L.O.I (incl. carbon)	<4.5%
	■ Moisture	<0.57%
	■ Specific surface	~20m ² /gr
	■ Size	~0.15microns

Accelerated Pozzolanic Activity(7 days) 117

Bulk Density	Densified	350 -650 kg/m ³
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System Information

Application Details

Dosage	The correct dosage must be determined by preliminary testing. 5% - 15% by weight of cement. For optimum results in concrete, always use in conjunction with a retarder or superplasticiser.
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Application Instructions

Mixing (Ratio/Dosage)	In order to achieve proper dispersion of the SikaFume [®] and to maximise the mix consistency and admixture performance, the following dispensing sequence is recommended:
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Dry Mix Plant

1. Before batching, the truck should be checked to ensure no water is in the drum.
2. The required amount of bags of SikaFume[®] should be counted and certified by the S.O. and batched in as the first ingredients.
3. 80% of the required added water should then be dispersed together with the retarder (if needed)
4. The weighed coarse and fine aggregates should be added next and lastly the cement
5. Superplasticisers should then be added
6. The remaining part of the calculated water shall be dispersed gradually until the targeted slump is achieved

Wet Mix Plant

1. SikaFume[®] shall be dispersed together with sand and aggregates
2. 80% of the required added water shall be dispersed together with the retarder (if needed)
3. Super plasticiser is added after the total cement is batched

The remaining part of the calculated water is dispersed gradually until the targeted slump is achieved

Notes on Application / Limitations	<ul style="list-style-type: none"> ■ Due to the fineness of the SikaFume[®], it is important to properly mix all the components. Generally, an additional 2 -3 minutes mixing is necessary to achieve a homogeneous mix. ■ Load sizes shall be limited to not more than 80% of the rated truck or mixer capacity <p>Alternative dispensing methods can be used provided that preliminary trials are carried out to ensure proper mixing is achieved</p>
Concrete Placement	<ul style="list-style-type: none"> ■ Standard good concreteing practice should be observed throughout the placement ■ The concrete temperature at the point of placement shall not exceed +35°C. To reduce the placing temperature, it may be necessary to concrete either early in the morning or late in the evening, or by using chilled water
Value Base	<p>All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.</p>
Local Restrictions	<p>Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.</p>
Health and Safety Information	<p>For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.</p>
Legal Notes	<p>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 or access on the Internet under www.sika.co.za.</p>



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