BUILDING TRUST

PRODUCT DATA SHEET

SikaFume®-920

Silica fume powder for high performance concrete

DESCRIPTION

SikaFume®-920 is a dry powder microsilica admixture for high-performing concrete. SikaFume®-920 is available in two main forms: Undensified and Densified. SikaFume®-920 contains a minimum of 92% silicone dioxide (SiO_2)

USES

SikaFume®-920 is recommended for all high-performance, high-strength applications, concrete required to resist water and chemical ingress and to resist mechanical abrasion.

FEATURES

SikaFume®-920 produces concrete that has dramatically increased compressive and flexural strength, which allows greater design flexibility and structural design economies, combined with reduced permeability to increase the service life of the concrete.

- Compressive strengths are dramatically increased for high-performance concrete.
- Excellent abrasion and erosion resistance increases concrete durability in high-traffic areas.
- Permeability is dramatically reduced, which makes microsilica ideal for applications where concrete will be required to resist chemical attack.
- Corrosion resistance is increased because concrete is more resistant to water ingress. It also gives resistance to corrosion caused by sulfates and waterborne chlorides such as deicing salts.
- Decreased permeability gives microsilica concrete excellent freeze-thaw resistance because less water is trapped inside the cement paste.

SikaFume®-920 does not contain calcium chloride nor any other intentionally added chloride-containing ingredients.

PRODUCT INFORMATION

Packaging	1. Undensified package is: ▪ 600 kg jumbo bags ▪ 25 kg paper or plastic bags 2. Densified package is: ▪ 1,000 kg jumbo bags ▪ 25 kg paper or plastic bags
Shelf life	3 years from the date of production
Storage conditions	Should be kept in dry storage. Keep away from sunshine, water, and moisture. Products that have been exposed to moisture and allowed to dry again may exhibit inferior performance.

Bulk density	Forms	Density (kg/m³)
	Undensified	200-350
	Densified	500-700
Total chloride ion content	Nill	

APPLICATION INFORMATION

Recommended dosage

Dosage rates are typically specified between 5% and 15% by weight of cement. Sika strongly recommends that trial batches be performed using project materials in order to determine the optimum dosage for specified project requirements but as guidance, the following principles can be applied:

1. Concrete Engineering

Common Dosage: Generally 5%–10% of the total cementitious material mass. Within this range, the improvement in concrete strength, impermeability, and durability is most significant.

Proportioning Methods:

- *Internal Addition:* Replaces a portion of the cement. Typically, 1 part SikaFume®-920 can replace 3–5 parts cement to maintain strength while improving other properties.
- *External Addition:* Adds SikaFume®-920 directly without changing the cement content. Primarily used to significantly improve the early and later strength of high-grade concrete (such as C60 and above).

2. Refractory Materials

SikaFume®-920 significantly improves fluidity and reduces water content in refractory materials (especially castables).

Common Proportion: Typically 5%–15% of the overall formulation.

Water-reducing effect: After adding SikaFume®-920, the water content of castables can be reduced from over 12% to 4%-7%, thereby improving the medium- and high-temperature strength and density of the material.

3. Cement Products and Mortar

Cement products (e.g., utility poles, pipe piles): The dosage is usually 5%-7%, aiming to improve compressive strength and surface abrasion resistance.

Special mortars (e.g., high-strength grouting materials): The recommended dosage is 5%-10%, to enhance adhesion and reduce bleeding.

SYSTEM INFORMATION

Compatibility

SikaFume®-920 is compatible with all known portland cements manufactured under ASTM specifications. The low water-cement ratios typically specified for concrete containing microsilica make the use of a high-range water reducer, such as a ViscoCrete® or Sikament® product, essential in most applications. Sika recommends the use of Sika® air-entraining admixtures where air-entrained concrete is required.

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

SikaFume®-920 will significantly reduce the bleeding of concrete, so early spraying or covering curing should be carried out immediately after construction to prevent plastic shrinkage cracks.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

MIXING

SikaFume®-920 should be added after the aggregate is mixed. The mixing time is usually 30-60 seconds longer than that for ordinary concrete to ensure that the product is fully dispersed and to avoid clumping.

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.

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