

PRODUCT DATA SHEET

Sika® Sigunit®-49 AF

Powdered, alkali-free set accelerator for shotcrete

DESCRIPTION

Sika® Sigunit®-49 AF is a powdered, alkali and chloride-free shotcrete set accelerator based on inorganic aluminium complexes. It is used for producing shotcrete with high early strength and dry-mix shotcrete for tunnel and soil stabilisation. It is especially suitable for Portland cement mortars and concrete.

USES

Sika® Sigunit®-49 AF is used for:

- Dry spraying
- Thin-flow spraying
- Stabilising excavation in tunnelling and mining
- Stabilising rock, slopes and trenches
- Producing high-performance lining shotcrete

FEATURES

- High flexibility in use
- Low cost of logistics
- Extended shelf life

- High early strength development
- Alkali-free
- Minimal strength loss
- Reduces rebound and dust
- Improves adhesion of shotcrete to the substrate
- Free from chlorides and other corrosion-promoting ingredients, making it suitable for use in reinforced and prestressed concrete structures

SUSTAINABILITY

- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU)

CERTIFICATES AND TEST REPORTS

- CE marking and declaration of performance based on EN 934-5:2007 Admixtures for concrete, mortar and grout — Admixtures for sprayed concrete

PRODUCT INFORMATION

Composition	Inorganic aluminium complexes
Packaging	25 kg bag Refer to the current price list for available packaging variations.
Colour	Beige
Shelf life	12 months from date of production
Storage conditions	The Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +30 °C. Protect from direct sunlight, frost and contamination. Always refer to the packaging. Refer to the current Safety Data Sheet for information on safe handling and storage.

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Product declaration	Conforms to EN 934-5, Table 2 (Non-alkaline sprayed concrete accelerator)		
Bulk density	(1.1 ± 0.1) g/cm ³		(ISO 697)
pH-Value	4 ± 1		(ISO 4316)
Total chloride ion content	Method 1, by mass	≤ 0.1 %	(EN 480-10)
Equivalent sodium oxide	By mass	≤ 1.0 %	(EN 480-12)
Appearance	Powder		

APPLICATION INFORMATION

Recommended dosage	By mass of cement (clinker + additions) 4–7 % Note The correct dosage must be determined by preliminary tests under site conditions. Changing properties of cement and fresh concrete must be taken into account. Low ambient air and base mix temperatures require higher accelerator dosage. Contact Sika Technical Services for additional information.		
Compatibility	Sika® Sigunit®-49 AF can be combined with other Sika products such as Sika® ViscoCrete®, SikaTard® and SikaFume®. IMPORTANT Unwanted effects caused by combining unsuitable products Combining unsuitable products can result in unwanted effects on the end product. 1. Contact your local Sika Technical Services for information. 2. Always carry out trials when combining different products.		

BASIS OF PRODUCT DATA

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.

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

SUBSTRATE PREPARATION

The substrate must be clean, free of loose stones, and free of water under hydrostatic pressure.

CLEANING OF EQUIPMENT

Clean all tools and application equipment with water immediately after use. Hardened material can only be removed mechanically.

DISPENSING

1. Add Sika® Sigunit®-49 AF to the dry mix in the dry-mix mortar plant.
2. Alternatively, add Sika® Sigunit®-49 AF to the dry or earth-moist mortar or concrete premix at the construction site before feeding the spray equipment (rotor machine).

Contact Sika Technical Services for additional information.

CONCRETE MIX DESIGN

The following parameters are essential for a suitable mix design:

- High-quality shotcrete requires a w/c ratio of less than 0.5, in special cases even 0.4 or below, and a flow table spread of more than 500 mm.
- If applied in dry-mix shotcrete, the addition of powdery water-reducing additives such as Sika® ViscoCrete® powders is recommended.
- If applied in earth-moist concrete, Sika® additives and admixtures such as SikaTard® and SikaFume® are recommended for improving the concrete base mix.
- The temperature of the base mix must be above 15 °C. For lower ambient air and base mix temperatures, the accelerator must be dosed higher.
- The Product can be sensitive to the type of cement. Some cements may set too slowly. When sulphate-resistant cements are used, strength development may be slower.

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The following additional parameters influence the Product performance and the shotcrete quality:

- Cement content, age and type
- Shotcrete temperature
- w/c ratio of the concrete base mix (wet spraying)
- Quantity of mixing water (dry spraying)
- Substrate
- Applied layer thickness
- Spraying process
- Quality of equipment
- Application technique

Note: The suitability of the proposed mix design must be tested in field trials prior to project start. Contact Sika Technical Services for additional information.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data.

LEGAL NOTES

Any information or suggestions for use concerning Sika's products, which we either in writing or orally have given buyers or end-users of the product, have been given in good faith based on our own experiences and based on approved praxis and the technological and scientific knowledge on the time of giving such suggestions and information, which are given without any type of guarantees, and which do not lead to any further responsibility from Sika Danmark A/S, besides what is stated in the sales agreement in question. The buyer or end-user should themselves investigate or otherwise make sure, that our products are suitable for the use in question and further make sure that the products are kept and used correct and in agreement with the published rules and considering the actual conditions in order to avoid damages or less satisfactory results. Any order is accepted and any deliverance is affected according to the general terms of sales and delivery from Sika Danmark A/S, which are considered known and accepted, and which could be handed out when asked for. Our catalogues are not up-dated automatically. The present product data sheet is only for use in Denmark. Values stated in the present product data sheet should be seen as recommended, unless stated otherwise.

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SikaSigunit-49AF-en-DK-(09-2026)-3-1.pdf

