

PRODUCT DATA SHEET

Sigunit® P-1 AF

INSTANT SHOTCRETE ACCELERATOR

DESCRIPTION

Sigunit® P-1 AF is a readily soluble powder. Sigunit® P-1 AF dissolved in water is a high performance liquid, alkali-free set accelerator for shotcrete. Its effectiveness depends on its mixing ratio between powder and water.

USES

Sigunit® P-1 AF dissolved in water is suitable for both dry and wet spraying processes and it is used for:

- Excavation stabilisation in tunnelling and mining
- Rock and slope stabilisation
- High quality lining shotcrete

CHARACTERISTICS / ADVANTAGES

Sigunit® P-1 AF dissolved in water as a shotcrete set accelerator has the following characteristics and advantages:

- High early strength development
- Alkali-free
- Minimal strength loss of the accelerated concrete
- No pollution of groundwater by leached out alkalis
- Distinct reduction of rebound and dust
- Improves bond of shotcrete to substrate
- Chloride-free, no negative affect on reinforcement steel

The supply in powder form has the following additional advantages:

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

PRODUCT INFORMATION

Chemical base	Special inorganic materials.
Packaging	10 kg bag One way big bag
Appearance / Colour	Fine powder / white
Shelf life	24 months from date of production if stored properly in original unopened, sealed and undamaged packaging in dry conditions. Solution: At a concentration of 55 %, the liquid product mixed from Sigunit® P-1 AF has a shelf life of 2 weeks.
Storage conditions	Protected from humidity, direct sunlight and frost, preferably at temperatures between 5° C and 30° C. The liquid product mixed from Sigunit® P-1 AF must be stored in suitable containers made of plastic or stainless steel.
Bulk Density	~ 0.85 kg/L (bulk density)
pH-Value	~ 3.0 dissolved in water

TECHNICAL INFORMATION

Specific Advice	Dissolved Sigunit® P-1 AF is added at the nozzle. Accurate and constant dosing into the concrete flow is essential.
Concrete Mix Design	The suitability of the proposed mix design must be tested in field trials before commencement of the project. High quality shotcrete requires a w/c ratio of less than 0.5 and a flow table spread of more than 500 mm. Temperature of basic mix must be higher than 15° C.
Substrate	The substrate must be clean, free of loose stones and free of water under hydrostatic pressure.

APPLICATION INFORMATION

Recommended Dosage	<p>The correct dosage of the liquid accelerator has to be determined by preliminary testing and depends on the concentration of the liquid. For layer thicknesses of up to 10 cm applied in one pass, dosage of a 55 % solution is between 4 % and 8 % of weight of binder. Lower ambient and basic mix temperatures require higher dosage of accelerator.</p> <p>Depending on the required performance Sigunit® P-1 AF is dissolved in water with a powder/water ratio of 45/55 M-% to 55/45 M-%. It has to be mixed in minimum for 45 minutes. Please consult the Method Statement of Sigunit-P1 AF.</p> <p>Dosage of liquid product mixed from Sigunit® P-1 AF is preferably achieved by a peristaltic pump, e.g. Sika® Aliva-403 pump.</p> <p>An optimised mixing with the concrete mix is also essential. The following Sika® Products are generally used for the basic shotcrete mix:</p> <ul style="list-style-type: none">▪ Sika® ViscoCrete® SC▪ SikaTard®-930▪ SikaPump®▪ SikaFume®
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LIMITATIONS

The accelerator's effect depends on the cement content, the age and type of cement, on the substrate and the shotcrete temperature as well as on the layer thickness and spraying process. The w/c ratio of the basic concrete mix in the wet spraying process, and the quantity of gauging water in the dry spraying process are also parameters influencing the acceleration effect of dissolved Sigunit® P-1 AF powder.

When using sulphate resistant cements strength development can be slower.

Solutions from Sigunit® P-1 AF are not compatible with alkaline shotcrete accelerators. Before using Sigunit® P-1 AF based liquids the accelerator hoses must be cleaned thoroughly. The use of the liquid accelerator requires technically correct dosing and conveying / spraying technology. Metal parts of the pump that come into direct contact with alkali free accelerators should be made out of stainless steel.

Contact your local Sika company for any additional technical support 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.

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.

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.

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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