

# PRODUCT DATA SHEET

## Sika® Sigunit® P-1 AF

### ACCELERATING SHOTCRETE ADMIXTURE POWDER

#### DESCRIPTION

Sika® Sigunit® P-1 AF is a readily soluble powder. Sika® 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

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

- Support at the face whilst advancing tunnel and mines
- Rock and slope stabilization
- High quality lining shotcrete

#### CHARACTERISTICS / ADVANTAGES

Sika® 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 rock and concrete thus facilitating overhead spraying
- 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

<b>Chemical Base</b>	Special inorganic materials.
<b>Packaging</b>	25 kg bag
<b>Appearance / Colour</b>	Fine powder / white
<b>Shelf Life</b>	12 months from date of production if stored properly in original unopened, sealed and undamaged packaging in dry conditions.
<b>Storage Conditions</b>	Protect from humidity, direct sunlight, preferably at temperatures between +5°C and +30°C.
<b>Bulk Density</b>	~ 0.75 kg/L
<b>pH-Value</b>	~ 3.0 dissolved in water

#### TECHNICAL INFORMATION

<b>Specific Advice</b>	Dissolved Sika® Sigunit® P-1 AF is added at the nozzle. Accurate and constant dosing into the concrete flow is essential. Dissolving: Please, consult Method Statement of Sigunit-P1 AF /-P10 AF
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## 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 0.48 and a flow table spread of more than >45 cm. Temperature of basic mix must be higher than 15°C.

- 8 mm aggregate size
- use of appropriate superplasticizer (viscocrete)

## Substrate

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

## APPLICATION INFORMATION

### Recommended Dosage

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 15 cm applied in one pass, dosage of solution is between 3% and 6% of weight of binder. Lower ambient and basic mix temperatures require higher dosage of accelerator.

## 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 Sika® Sigunit® P-1 AF powder.

When using sulphate resistant cements strength development can be slower.

Solutions from Sika® Sigunit® P-1 AF are not compatible with alkaline shotcrete accelerators. Before using Sika® 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 Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## LOCAL RESTRICTIONS

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.

## 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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