

Product Data Sheet

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Sika® Sigunit® P-1 AF

Sika® Sigunit® P-1 AF**Water-soluble and Alkali-free Set Accelerating Admixture for Wet Sprayed Shotcrete**

Description Sika® Sigunit® P-1 AF is a water-soluble, alkali free and high-performance shotcrete accelerator in powder form. When dissolved in water, it produces an alkali-free set accelerator for wet sprayed shotcrete.

Where to Use

- High quality and high initial strength shotcrete for general construction work.
- Support at the face and securing of rock in tunnel and mine construction.
- Rock and slope stabilisation along highways and transportation routes.

Advantages

- Alkali-free, avoiding additional leaching and pollution of alkalis and pollution of ground and surface water.
- When correctly used, marginal reduction of shotcrete strength.
- Reduction of rebound.
- Easier overhead spraying by improved bond of shotcrete to rock and concrete.
- Reduction of dust formation.
- Chloride-free, suitable for steel reinforced shotcrete and substrates.
- Easy to dissolve on site in time for shotcreting.
- Conversion of powder to liquid on site raises temperature to approx. 40°C (104°F); increasing accelerator effect considerably.
- Lower cost of logistics

Typical Data

Packaging	25 kg (55 lb) bag 900 kg (1984 lb) bulk bag
Colour and Form	White powder
Shelf Life and Storage	1 year in original, unopened and undamaged packaging. Store dry at between 5 - 30°C (41 - 86°F) and protect from moisture.
Application Temperatures	Concrete temperatures should not be lower than 15°C (59°F) (especially in cases of thick shotcrete layers). Lower temperatures will require higher dosages.
Properties	
Dry matter content in solution	45%
Density (of solution)	1.45 kg/L
pH	~ 3.0
Alkali content (Eqv. Na₂O), weight - %	< 0.80
Water soluble chloride (Cl), weight - %	< 0.15
Dosage - % by weight of cement	2 - 8 (when in 45% solution)

How to Use**Dosage**

The exact dosage must be determined by preliminary testing. For shotcrete layers up to 15 cm (6 in) thickness in one pass, the dosage of Sika® Sigunit® P-1 AF liquid, should be between 2 - 8% by weight of the cement. Lower temperatures will require higher dosages.

Sika® Sigunit® P-1 AF is dosed by means of a peristaltic pump, such as Aliva AL-403 or similar. Optimal atomisation of Sika® Sigunit® P-1 AF liquid and its mixing with the shotcrete mix must be ensured.

The set-accelerating effect depends on cement content, cement age, cement type, temperature of shotcrete and substrate as well as the layer thickness and shotcreting method.



Powder to Liquid Conversion	Powder to water ratio is 1 kg (2.2 lb) Sika® Sigunit® P-1 AF powder to 1.23 L (1.29 US qt.) water. Add the predetermined mix water to a mixing vessel. The water temperature must be at least 15°C (59°F). Start the mixer and add slowly the Sika® Sigunit® P-1 AF until dissolved. Mix for another 60 minutes. Note: The temperature of the liquid will rise to approximately 40°C (104°F) during mixing.
Application	The concrete mix to be sprayed is usually prepared with the following: <ul style="list-style-type: none"> ■ 8 - 16 mm (1/3 - 2/3 in) aggregates ■ SikaTard® 930 set control admixture ■ Sika® Viscocrete® 2100 superplasticizer admixture ■ Sikacrete® 950 DP silica fume <p>Concrete temperatures should not be lower than 15°C (59°F) (especially in cases of thick shotcrete layers). Lower temperatures will require higher dosages.</p>
Clean up	Rebound and other shotcrete waste accelerated with Sika® Sigunit® P-1 AF can be disposed of in the same way as non-accelerated shotcrete waste. Neat accelerator must be disposed of as special waste according to local regulations.
Limitation	<ul style="list-style-type: none"> ■ When using sulphate-resistant types of cement, strength development may be slower. ■ Sika® Sigunit® P-1 AF is not compatible with other Sigunit® accelerators. ■ The conveyance hose for the accelerator must be thoroughly cleaned before using Sika® Sigunit® P-1 AF. ■ Metal parts of the dosage equipment and/or pump coming into direct contact with Sika® Sigunit® P-1 AF must be of stainless steel. ■ The use of Sika® Sigunit® P-1 AF requires skilled and technically correct installation of dosing and conveying equipment. Please consult your Sika Canada Technical Sales Representative for further information
Health and Safety Information	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>KEEP OUT OF REACH OF CHILDREN FOR INDUSTRIAL USE ONLY</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, within their shelf life. 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 recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request or can be accessed in the Internet under www.sika.ca.

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