

PRODUCT DATA SHEET

Sika® Sigunit®-5460 AFL

Liquid alkali-free set accelerator for shotcrete

DESCRIPTION

Sika® Sigunit®-5460 AFL is an alkali-free set accelerator for sprayed concrete. It is a liquid admixture whose dosage can be varied to the desired setting and hardening times.

USES

Sika® Sigunit®-5460 AFL is suitable for both dry and wet spraying processes and it is used for:

- Excavation stabilization in tunnelling and mining
- Rock, slope and trench stabilization
- High quality lining shotcrete

CHARACTERISTICS / ADVANTAGES

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

PRODUCT INFORMATION

Chemical base	Inorganic aluminium complexes
Packaging	Bulk supply, IBC
Shelf life	6 months from date of production if stored in original, undamaged and sealed containers
Storage conditions	Storage at temperatures between 5 °C and 35 °C. Application temperature should be 15 °C, preferably 20 °C or higher. Protect from direct sunlight, frost and contamination. Use clean containers when delivered in bulk. In case of separation of Sika® Sigunit®-5460 AFL the suspension has to be homogenised before use. Sika® Sigunit®-5460 AFL must not be stored in standard steel containers.
Appearance / Colour	White to beige suspension
Density	~ 1.43 kg/l
Solid content by weight	~ 53 %
Viscosity	< 400 mPas at 20 °C
pH-value	~ 2.5
Total chloride ion content	< 0.1 %
Equivalent Sodium Oxide	< 1.0 %

TECHNICAL INFORMATION

Specific Advice

Sika® Sigunit®-5460 AFL 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. Flow table spread must be more than 500 mm. High quality shotcrete requires a w/c ratio of less than 0.5, in special cases even 0.4 or below. For good performance a basic mix temperature of at least 15 °C is recommended (EFNARC recommendation).

APPLICATION INFORMATION

Recommended Dosage

The correct dosage must be determined by preliminary testing under site conditions. Changing cement and fresh concrete properties must be considered. Lower temperatures require usually higher accelerator dosages. Depending on the purpose and on the conditions, the recommended dosage is between 3 % and 10 % by weight of binder. Sika® Sigunit®-5460 AFL can be sensitive to the type of cement. With some cements the setting characteristics can be too slow. In all cases, it is strongly recommended to carry out preliminary tests to check setting and the 24 h strength of the concrete planned for use in a project.

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.

IMPORTANT CONSIDERATIONS

The accelerator's effect depends on the content, type and age of cement, as well as on the shotcrete temperature. Furthermore, the shotcrete quality is widely affected by the substrate, the applied layer thickness, the spraying process, the quality of equipment and the application technique. 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 Sika® Sigunit®-5460 AFL. When using sulphate resistant cements strength development can be slower. Sika® Sigunit®-5460 AFL is not compatible with alkaline shotcrete accelerators. Before using Sika® Sigunit®-5460 AFL the accelerator hoses must be cleaned thoroughly. The use of Sika® Sigunit®-5460 AFL requires technically correct dosing and conveying / spraying technology. Metal parts of the pump and piping that come into direct contact with Sika® Sigunit®-5460 AFL must be made of stainless steel. Contact your local Sika company for any additional technical support required.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

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

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 exact product data and uses.

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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