

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.
Suitable for use in hot and tropical climatic conditions.

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

FEATURES

- 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

Composition	Inorganic aluminium complexes
Packaging	Drums, 1,000 L flowbin or in bulk
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 (optimum temperature for storage and performance +20°C). 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. After prolonged storage or transport we recommend to fully agitate it prior to use.
Appearance and colour	White to beige suspension
Density	~1.43 kg/l (+25 °C)
Viscosity	> 200 mPa.s (+20 °C. Viscosity is dependent on degree of product agitation and temperature)
pH-Value	~2.5
Total chloride ion content	< 0.1 %

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	<p>When Sika® Sigunit®-5460 AFL is used for wet mix spraying, it is advised to have the w/c ratio < 0.45.</p> <p>When targeting extremely high early strength, it is preferable to have w/c ratio ≤ 0.40.</p> <p>The lower w/c ratios provide faster setting, higher early strength, better durability and lower accelerator dosage; moreover, it allow for thicker layers to be applied overhead.</p> <p>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.</p>

APPLICATION INFORMATION

Recommended dosage	<p>3–10 % by weight of binder</p> <p>Dosages by weight of binder depend on the mix design, raw materials, climatic conditions and concrete requirements.</p> <p>Trial mixes must be performed to establish the exact dosage rate required.</p>
Compatibility	<p>Sika® Sigunit®-5460 AFL is compatible with the following Sika products: SikaPump®, Sika® ViscoCrete®, Sikament®, SikaFume®, SikaFiber®, SikaTard®</p> <p>We recommend to perform trial mixes to establish the required performance when combining Sika® Sigunit®-5460 AFL with the above products or other admixtures. Please consult our Sika Technical Department.</p>

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.

IMPORTANT CONSIDERATIONS

- Do not mix or interchange Sika® Sigunit®-5460 AFL with any type of accelerator produced by another manufacturer, as this can cause immediate clogging of dosing pumps and hoses.
- The effect of the accelerator depends on the content, age and type of cement as well as the shotcrete temperature. It is recommended to use only fresh cement. With some cements the setting characteristics can be slower (such as sulphate resistant cements). We recommend the use of Portland cements, which normally give faster setting than blended or sulphate resistant cement types.
- Sika® Sigunit®-5460 AFL also works well with composite cements types (blended cements, fly ash/slag). In all cases, it is strongly recommended to carry out preliminary tests to check setting and the 24 h strength of the cements planned for use in a project.
- Evaluation of setting and 24 h strength should be carried out on a test mortar in accordance with EFN-ARC European Specification for Sprayed Concrete (1996), Appendix 1, Clause 6.3.
- The shotcrete quality is widely affected by the substrate, the applied layer thickness, the spraying process, the dosing, the quality of equipment and the application technique.
- The w/c ratio of the base shotcrete 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.
- Sika® Sigunit®-5460 AFL is not compatible with alkaline shotcrete accelerators.
- Before using Sika® Sigunit®-5460 AFL the accelerator hoses must be cleaned thoroughly.
- Metal parts of the pump and piping that come into direct contact with Sika® Sigunit®-5460 AFL must be made of stainless steel
- Overdosing (> 10% by weight of binder) may result in decreased final strength.

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.

CLEANING OF EQUIPMENT

Before using Sika® Sigunit®-5460 AFL the accelerator hoses must be cleaned thoroughly.

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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ISO 9001, 14001, 45001 – SGS
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- Sika MB Construction Chemicals for Manufacturing LLC
- Master Builders Solutions LLC

All products are supplied under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and ISO 45001.



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