

DENKA NATMIC AF-S

Alkali-Free Liquid Accelerator for Shotcrete

Description

DENKA NATMIC AF-S is an alkali-free liquid accelerator for shotcrete used in civil engineering works such as road and railway tunnels, headraces, and mines. The accelerator is applied where initial rock support is needed or where a permanent lining will be placed.

Features

- Quick setting time and high initial strength achieved through initial ettringite formation
- Development of high compressive strength after 28 days and excellent long-term durability
- Very low dust emissions
- Very low rebound
- Alkali free (Alkali ion content is less than 1%)

Applications

- Rock support in tunnels and mines
- Slope stabilization
- TBM tunnel linings

Technical Information (Physical Properties)

Color / Form	White / Suspension
Density (20°C, g/cm ³)	1.30–1.50
pH	2.0–3.0
Viscosity at 20 °C (mPa s)	500–2000
Thermal stability	+5 °C to +40°C
Alkali content (Na ₂ O equiv. %)	<1

Packaging

- 1200kg containers
- 260kg plastic drums

Shelf Life

- 6 months from production date
- Determine the production date by reference to the lot number. A lot number of "1AXXX" corresponds to production in Jan 2001; "2BXXX" to Feb 2002 and so on.

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Dosage and Water to Binder ratio

- Dosage of **DENKA NATMIC AF-S** depends on the temperature, cement reactivity, setting time, strength development, and required thickness of the layers; ranging from 3 to 12 % of the binder weight.
- Dosage of the product should be optimized for the spraying process after spraying trials.
- When **DENKA NATMIC AF-S** is used for wet-mix sprayed concrete, the water to binder (cement or cement plus fly ash and/or silica fume) ratio should be below 0.5 (preferably <0.45).

Handling Precautions

- Refer to Safety Data Sheet (SDS) before use.
- Do not mix with other accelerators or chemical admixtures because chemical reactions may occur that can cause the product to separate or precipitate. Particular care should be taken with nitrites, thiosulfates, and rhodanate compounds which generate poisonous gases when mixed with **DENKA NATMIC AF-S**.
- **DENKA NATMIC AF-S** should not be mixed with concrete containing blast furnace slag (BFS) as this will generate hydrogen sulfide.
- Wear protective clothing and equipment (goggles, mask, gloves, rubber boots etc.) while handling the product.
- Ensure that the dosing pump and other equipment are acid-resistant as **DENKA NATMIC AF-S** is acidic.
- Do not dispose of the product in drains.
- Once opened, the product should be used up completely. Otherwise, reseal for storage.
- For further information, please contact DENKA.

Limitation of Liability

- The information contained in this brochure provides general advice for potential customers of DENKA about the basic properties and characteristics of various DENKA products (hereafter referred to as “the Product Information”). DENKA makes no warranty or representation as to the entire accuracy or completeness of the Product Information in this brochure.
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- DENKA reserves the right to change the Product Information from time to time at its discretion and without notice.

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