

SOIL PLUS PROJECTED

Liquid setting accelerator, alkali-free for mortars and shotcrete

DESCRIPTION

Soil Plus Projected is a liquid mineral accelerator, alkali-free, that enables the production of shotcrete with rapid setting and hardening times after a very short curing period. The use of **Soil Plus Projected** allows the application of shotcrete in layers of up to 20 mm in a single application. Concrete mixed with **Soil Plus Projected** adheres better to the surfaces on which it is applied, has a greater capacity to penetrate between the various layers, and reduces application times.

FIELD OF APPLICATION

Thanks to its alkali-free composition, **Soil Plus Projected** reduces the risk of alkaline reactions. It is suitable for grouts and concrete applications, even in the presence of water during tunnel construction operations.

- Ensuring tunnel safety during construction.
- Shotcrete as internal lining.
- Consolidation of rock slopes.
- Shotcrete for structural tunnel repairs.
- Shotcrete applications with high mechanical strength.
- Final tunnel lining using shotcrete with high mechanical strength ($\geq 40 \text{ N / mm}^2$).

TECHNICAL CHARACTERISTICS

Soil Plus Projected is an aqueous solution of aluminum complexes added to the spray nozzle during the shotcrete acceleration phase. The setting time and mechanical performance vary according to the dosage of the mix, the type and amount of cement, the aging of the cement, and the water-binder dosage. The temperature of the shotcrete also influences the setting speed and initial performance. The water-binder ratio (only cement or cement with aggregates, silica fume, slag, limestone, etc.) should be below 0.5 to ensure durability and final mechanical performance. For this reason, adding a superplasticizer is highly recommended.

Using **Soil Plus Projected** allows the application of shotcrete in a single layer of approximately 20 cm. Shotcrete with **Soil Plus Projected** shows better surface adherence, less waste due to reduced rebound, and greater penetration capacity between layers. The compactness of shotcrete mixed with **Soil Plus Projected** is 95% higher than that of a compacted surface sample of concrete without an accelerating agent, clearly demonstrating the additive's properties.

Note: Drying times are strongly influenced by temperature, substrate moisture, and environmental conditions.

RECOMMENDATIONS

Soil Plus Projected should not be mixed with other setting accelerators. If another type of accelerator (especially alkaline-based) is used, all dosing equipment and piping must be cleaned with water.

Note: Do not add **Soil Plus Projected** directly to the mixer.

Soil Plus Projected is compatible with any cement produced in the country.

APPLICATION METHOD

Example of shotcrete preparation:

- 360-500 kg/m³ of cement.
- If necessary, add 3-8% of the cement weight of fine material with pozzolanic action.
- Aggregates with a maximum diameter of 8 to 12 mm.
- Superplasticizer at a dosage of 0.8% - 1.5% by weight of cement to ensure a low water/binder ratio.
- Soil Plus Projected is dosed between 3% and 8% of the cement weight, added at the spray nozzle.
- If necessary, use a retarder, such as Soilretarder, to keep the concrete viable for up to 72 hours, even at high temperatures.

TECHNICAL DATA (characteristic values)

PRODUCT IDENTIFICATION DATA

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|---|----------------------|
| Appearance: | liquid |
| Density (ISO 758) (g/cm³): | 1,38 ± 0,03 a +20°C |
| Percentage of dry substance according to EN 480-8 (%): | 51,5 ± 2,5 |
| pH (ISO 4316): | 2 ± 1 |
| Main action: | setting accelerator |
| Alkalis (% Na₂O) in 480/12: | ≤ 1 |
| Chlorides (EN 480/10 (%): | ≤ 0,1 |
| Dosage (%): | 3-8 of cement weight |

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LABORATORY TESTS

MAPEI's R&D laboratories are available to assess the compatibility and dosage of Soil Plus Projected with the types of cement available on-site. To optimize its use, it is recommended to contact our technical service to verify and adjust the concrete's characteristics according to local conditions.



COMPATIBILITY WITH OTHER PRODUCTS

Soil Plus Projected is compatible with all superplasticizers from the Soil Plus line, which allow for the reduction of the water/cement ratio, increased fluidity, and the production of concrete with extended workability time.

Soil Plus Projected is compatible with all superplasticizers in the **Soil Plus Projected** line, which help reduce the water/cement or water/binder ratio, increase fluidity, and produce concrete with longer workability.

Soil Plus Projected is compatible with curing agents from the Soil Plus line.

Soil Plus Projected is compatible with retarders/set inhibitors from the Soil Retarder line.

Soil Plus Projected mixed with a plasticizer from the Soil Plus line reduces the dosage of the accelerator additive and limits rebound during applications.

CONSUMPTION

Dosage by weight: 3 to 8 kg for every 100 kg of cement.

PACKAGING

Soil Plus Projected is supplied in 274 kg (200 l) drums and 1370 kg (1000 l) containers. Bulk quantities are available upon request.

STORAGE

Store the product in closed containers at temperatures between +5°C and +30°C. For prolonged storage, it is recommended to stir and homogenize the product using mechanical agitators and/or recirculation pumps. Do not agitate the product with compressed air. If used after the expiration date (3 months) or after freezing, please consult technical support.

SAFETY INSTRUCTIONS

Soil Plus Projected contains aluminum complexes that are harmful if ingested and irritating to the skin and eyes. Avoid contact with eyes and skin. In case of contact, wash with plenty of water and consult a doctor. Use protective goggles, gloves, and a mask during product preparation and application. For additional information, consult the Safety Data Sheet.

WARNINGS

The above information, while based on our best experience, should be considered as indicative and subject to practical testing. The user is responsible for any consequences arising from its use.