

# TYTRO<sup>®</sup> SA 535

Alkali-free, liquid, high-performance set accelerator for shotcrete

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## Product Description

TYTRO<sup>®</sup>SA 535 is a high-performance, alkali-free set accelerator specifically formulated to provide high early strength at low dosage rates, and improve productivity by shortening the time of setting without compromising long-term strength and durability.

TYTRO<sup>®</sup>SA 535 is an easy flow, ready-to-use, non-alkali set accelerator and is formulated to comply with the requirements ASTM C 1141/C 1141M, Types I/II, Grade 9, Class A.

## Product Advantages

- **Efficient dosage rate** – very highly active formulation for lowest dosages as compared to TYTRO<sup>®</sup> SA 530
- **Reduced excavation downtime** – increased adhesion and faster setting
- **Greater improved strength** – greater increased early age strength development as compared to TYTRO<sup>®</sup> SA 530, without compromising later age strength
- **Reduced cycle times** – quicker setting action and increased layer thickness for overhead work
- **Minimum material waste** – lower rebound and dust
- **Safer and healthier to handle** – non-alkaline formulation
- **Robust and easy to formulate** – liquid product, easily measured and dosed

## Uses

TYTRO<sup>®</sup>SA 535 is used in all shotcrete applications where high early strength is required, and especially in the following applications:

- Temporary and permanent rock support in tunnels
- Underground rock support in mining
- Slope stabilisation

## Addition Rates

The dosage of TYTRO<sup>®</sup>SA 535 can vary based on the type of application, mix design, cement type and content, water-to-cementitious materials ratio, temperature of the concrete, ambient temperature and temperature of the substrate on which the concrete is to be applied.

The dosage of TYTRO<sup>®</sup>SA 535 normally ranges between 3% and 8% by the total weight of cementitious materials. Overdosing (>10%) may result in decreased final strength. Should conditions require using more than the recommended addition rates, please consult your local GCP representative.

GCP recommends that trials be performed before use to assess and optimise dosage rates and shotcrete performance. Predetermined and tested re-entry requirements are to be measured and nominated. If further assistance is required please consult your local GCP representative.

## Properties

Form	Liquid
Colour	Yellow
Density (g / cm <sup>3</sup> )	1.46 ± 0.02
pH (25°C)	3 +/- 1
Chloride content	<0.1%
Thermal stability	5°C to 35°C

## Shelf life

Shelf life is 3 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local GCP representative regarding the suitability for use if the shelf life of TYTRO®SA 535 has been exceeded.

## Health and Safety

Avoid eye and skin contact and wear rubber gloves and goggles. If contact occurs, rinse with plenty of water. In case of eye contact, seek medical advice. For further information, refer to the Material Safety Data Sheet or contact your local GCP representative.

## Mixing

TYTRO®SA 535 is added at the nozzle. TYTRO®SA 535 is a suspension and therefore not all types of dosing pumps will work properly. Advice on dosing pumps is available from GCP on request.

## Storage

### Temperature

TYTRO®SA 535 should be stored at a temperature range of 5°C to 35°C. It is recommended that TYTRO®SA 535 be kept out of direct sunlight.

### Conditions

TYTRO®SA 535 must be kept in closed plastic containers or closed tanks made of polyethylene or PVC. Do not store in steel containers as the pH can cause corrosion which might affect the performance of the product. Containers must be tightly closed every day to avoid contact with air which can cause a chemical reaction (skin building on top and lumps which cause problems with dosing pumps).

After prolonged storage, TYTRO®SA 535 should be vigorously recirculated in the tanks by means of stirring apparatus or through recirculation before use. It can have a settlement that may not be visually detectable.

## Compatibility

TYTRO®SA 535 is compatible with all TYTRO®shotcrete admixtures. GCP recommends that a suitable superplasticiser and slump life controlling admixture be incorporated into the shotcrete mix to achieve extended working life and maintain low water-to-cementitious materials ratio. TYTRO®WR high range water-reducing and TYTRO®HC hydration control admixtures are recommended for this purpose.

Pretesting of the shotcrete mix should be performed before use and as conditions and materials change in order to ensure compatibility with other admixtures.

For use with other shotcrete admixtures systems, we recommend you to contact GCP Applied Technologies for further advice.

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