

# TYTRO<sup>®</sup> RC 430

Pozzolanic-based rheology controlling admixture

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## Product Description

TYTRO<sup>®</sup>RC 430 is a rheology-controlling admixture specifically formulated to improve sprayability and pumpability characteristics of shotcrete by increasing cohesion, provide superior bond to rock substrate, faster strength development, and minimum rebound and dust to tunnels and underground mining shotcrete applications.

Featuring the latest in nanotechnology, TYTRO<sup>®</sup>RC 430 contains a liquid dispersion of discrete, spherical, uniformly distributed nanometric particles of amorphous silica for use in shotcrete.

Manufactured to the highest possible standards, GCP Applied Technologies' TYTRO<sup>®</sup>RC 430 ensures strong adhesive and cohesive bonds with the concrete matrix and effective binder effect. TYTRO<sup>®</sup>RC 430 is formulated to comply with specifications for Chemical Admixtures for Concrete, ASTM C494 Type S Specific Performance Admixtures.

## Product Advantages

- Efficient dosage rate – Highly active formulation requiring very low dosage rates
- Enhanced sprayability – Improved cohesion
- Lower rebound and dust – Minimum material waste
- Reduced cycle times – Larger layer thickness in a single pass
- Lower installed material cost vs. traditional silica fume mixes
- Reduced excavation downtime – Faster strength development
- Superior and predictable early and later age strength
- Improved durability – High resistance to water penetration due to reduced permeability
- Safer and healthier to handle
- Robust and easy to formulate and dose
- More consistent quality
- Easier to store

## Uses

TYTRO<sup>®</sup>RC 430 is used as a replacement for silica fume and other pozzolanic additives, and is suitable for all shotcrete applications where the highest technical and safety standards are required, especially in the following applications:

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

## Addition Rates

The dosage of TYTRO<sup>®</sup>RC 430 can vary based on the type of application, mix design, cementitious materials content and aggregate gradations, but will normally range between 0.5% and 1.5% by weight of total cementitious materials content. Should conditions require using more than the recommended addition rates, please consult your GCP Applied Technologies representative.

In most instances, at a given slump required for placement, TYTRO<sup>®</sup>RC 430 may require to vary the addition rate of high-range water-reducing admixture.

GCP Applied Technologies recommends that trials be performed with cement and aggregates under local conditions before use to assess and optimize dosage rates, addition times in the batch sequencing, and shotcrete performance.

## Mixing

In general, it is recommended that TYTRO<sup>®</sup>RC 430 be added to the mixer as the last component of the batch sequence with the tail water.

It is preferable that TYTRO<sup>®</sup>RC 430 is introduced into the mixer by means of automatic dispensing equipment. A range of equipment is available, and advice on supply and fitting is available from GCP Applied Technologies on request.

## Packaging

TYTRO<sup>®</sup>RC 430 is available in 205 liter polyethylene drums and 1,100 liter totes. In North America, TYTRO<sup>®</sup>RC 430 is also available in bulk, delivered by metered tank trucks.

## Storage

TYTRO<sup>®</sup>RC 430 should be stored where temperatures remain above 2 °C (35 °F). Freezing temperatures cause irreversible precipitation of the silica.

Continuous exposure to high temperatures will shorten the shelf life. Avoid storing the product in areas where the temperature routinely goes above 43 °C (110 °F).

GCP Applied Technologies recommends storage inside a temperature-controlled building.

**Shelf life:** 12 months.

## 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 Applied Technologies representative.

## Compatibility

TYTRO<sup>®</sup>RC 430 is compatible with all TYTRO<sup>®</sup>shotcrete admixtures. Reduced time of setting and increased early age strength can be achieved when used with TYTRO<sup>®</sup>SA series of alkali-free set accelerator due to their synergetic effect.

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 sales representative for further advice.

## Properties

Form	Liquid
Color	Transparent
Density (g/cm <sup>3</sup> )	1.21 ± 0.02
pH (25 °C / 77 °F)	10.0 ± 1

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GCP Applied Technologies Inc., 2325 Lakeview Parkway, Suite 450, Alpharetta, GA 30009, USA

GCP Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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