

# FastRock™ 500

A Calcium Sulfoaluminate Mineral Additive



## PRODUCT DATASHEET

**DESCRIPTION:** Rapid Set® FastRock™ 500 is a high-performance, calcium sulfoaluminate (CSA) cement-based additive designed for use with portland cement to produce a high-performance concrete mix designs engineered to achieve high early strength, low shrinkage, and improved sulfate resistance.

**ENVIRONMENTAL ADVANTAGES:** Use FastRock 500 to reduce your carbon footprint and lower your environmental impact. Production of FastRock 500 cement emits far less CO<sub>2</sub> than portland cement. Contact your representative for LEED values and environmental information.

**APPLICATION:** For use in cementitious products such as grouts, mortars, screeds, plasters and renders. Use FastRock 500 to replace approximately 25-35% of the portland cement material in the concrete mix design. Actual mix designs vary depending on application, regional portland cement and aggregate characteristics, supplementary cementitious materials, admixtures, and designed concrete performance requirements. Concrete materials made with FastRock 500 are produced by conventional concrete and grout production equipment and installation practices. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Do not place concrete if ambient temperatures exceed 90°F (32°C). Ambient conditions must be a minimum of 40°F (4°C) and rising at time of placement. Subgrade temperature must not be less than 40°F (4°C) at time of placement. Concrete temperature at placement must not be less than 55°F (13°C). Protect concrete from freezing temperatures for 7 days after placement. Do not place concrete that is 90 minutes or older measured from the time of initial production. Contact your CTS Engineering representative for project support at 1-800-929-3030

**PERFORMANCE PROPERTIES:** The properties of cementitious materials based on FastRock 500 depend on the unique mix designs developed for a variety of applications. Performance properties are also influenced by the characteristics of the local portland cement and aggregates. Appropriate testing should be performed for each project to verify mix designs meet or exceed design requirements.

**BATCHING & MIXING:** FastRock 500 is added at the batch plant or on-site using common bulk cement equipment and incorporation methods. When using bagged units for smaller projects, or portable silos on-site, a high pressure, high shear colloidal slurry machine is used for ease of production and to ensure effective mixing. (Contact CTS Cement for slurry machine support.) Typical mix designs use 120 lbs to 180 lbs (55 kg to 80 kg) of FastRock 500 to replace an equivalent weight of portland cement per cubic yard of concrete. Bulk FastRock 500 must be weighed before the portland cement to ensure proper dosage.

**WATER/CEMENT RATIO:** Due to FastRock 500's efficient consumption of mix water during hydration, a water/cement ratio of 0.45 to 0.50 is recommended. Ensure thorough mixing and dispersion throughout the load after all components have been added into the truck. Concrete production must comply with ASTM C94/94M except where otherwise stated in CTS Cement's published literature. For lower water/cement ratio designs, contact your CTS Engineering representative for project support at 1-800-929-3030.

**CURING:** Water cure materials made with FastRock 500 for best results. Keep exposed surfaces wet until the panel has achieved sufficient strength. Alternative curing methods may be suitable in some applications. Methods include, but are not limited to, the use of surface applied curing compounds conforming to ASTM C309. A minimum one hour of wet cure is required prior to application of a curing compound. Begin curing as soon as the surface starts to lose its moist sheen. Avoid delays. When experiencing extended setting time due to cold temperature or the use of retarder, longer curing times may be required. The material formulator is responsible for the mix design and determining the appropriate curing method.

**COLD WEATHER:** Environmental and material temperatures below 70°F (21°C) may delay setting time and reduce the rate of strength gain. Lower temperatures will have a more pronounced effect. Thinner sections will be more significantly affected. To compensate for cold temperatures, keep material warm, use heated

## OVERVIEW

### Highlights:

High early strength

Low shrinkage

Improve sulfate resistance

CTS Cement provides professional technical support for the use of FastRock 500. For assistance, contact your CTS Engineering representative or a member of the CTS Technical Services Team.

### Manufacturer:

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mix water and follow ACI 306 Procedures for Cold Weather Concreting. When average high and low temperature is expected to fall below 40°F (4.4°C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M). Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

**WARM WEATHER:** Environmental and material temperatures above 70°F (21°C) may speed setting time and increase the rate of strength gain. Higher temperatures will have a more pronounced effect. To compensate for warm temperatures, keep material cool, use chilled mix water and follow ACI 305 Procedures for Hot Weather Concreting.

**PACKAGING & AVAILABILITY:** FastRock 500 is available in 2000-lb (907-kg) bulk bags and available in bulk tanker trucks and railcars.

**SHELF LIFE:** FastRock 500 calcium sulfoaluminate cement bagged units have a shelf life of 6 months when stored properly in a dry location, protected from moisture, out of direct sunlight, and in an undamaged package. Sealed bulk storage containers extend the shelf life of FastRock 500 up to 1 year when stored properly and protected from adverse environmental conditions.

**USER RESPONSIBILITY:** Before using CTS products, read current technical data sheets, bulletins, product labels and safety data sheets at [www.CTScement.com](http://www.CTScement.com). It is the user's responsibility to review instructions and warnings for any CTS products prior to use.

**WARNING: DO NOT BREATHE DUST. AVOID CONTACT WITH SKIN AND EYES.** Use material in well-ventilated areas only. Exposure to cement dust may irritate eyes, nose, throat, and the upper respiratory system/lungs. Silica exposure by inhalation may result in the development of lung injuries and pulmonary diseases, including silicosis and lung cancer. Seek medical treatment if you experience difficulty breathing while using this product. The use of a NIOSH/MSHA-approved respirator (P-, N- or R-95) is recommended to minimize inhalation of cement dust. Eat and drink only in dust-free areas to avoid ingesting cement dust. Skin contact with dry material or wet mixtures may result in bodily injury ranging from moderate irritation and thickening/cracking of skin to severe skin damage from chemical burns. If irritation or burning occurs, seek medical treatment. Protect eyes with goggles or safety glasses with side shields. Cover skin with protective clothing. Use chemical resistant gloves and waterproof boots. In case of skin contact with cement dust, immediately wash off dust with soap and water to avoid skin damage. In case of skin contact with wet cement, wash exposed skin areas with cold running water as soon as possible. In case of eye contact with cement dust, flush immediately and repeatedly with clean water, and consult a physician. If wet cement splashes into eyes, rinse eyes with clean water for at least 15 minutes and go to the hospital for further treatment.

Please refer to the SDS and [www.CTScement.com](http://www.CTScement.com) for additional safety information regarding this material.

**LIMITED WARRANTY:** CTS CEMENT MANUFACTURING CORP. (CTS) warrants its materials to be of good quality and, at its option, will replace or refund the purchase price of any material proven to be defective within one (1) year from date of purchase. The above remedies shall be the limit of CTS' responsibility. Except for the foregoing, all warranties expressed or implied, including merchantability and fitness for a particular purpose, are excluded. CTS shall not be liable for any consequential, incidental, or special damages arising directly or indirectly from the use of the materials.

## **⚠ WARNING**

CANCER and REPRODUCTIVE HARM - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

