

RAPID SET® CEMENT

Rapid Hardening Hydraulic Cement



PRODUCT DATASHEET

DESCRIPTION: RAPID SET® CEMENT is a high-performance, rapid hardening hydraulic cement. Use RAPID SET CEMENT to create concretes, mortars, and grouts that achieve structural strength in one hour. Engineered for low shrinkage and superior resistance to chemical attack, Rapid Set Cement maximizes service life and minimizes maintenance.

USES: Use RAPID SET CEMENT to replace ordinary portland cement for projects where fast return to service, high strength, and increased durability are desired. Rapid Set cement-based materials are ideal for a diverse range of interior and exterior projects including highway pavements, bridges, runways, tunnels, tilt-up, precast, sidewalks, floors, and many other applications. For larger jobs, RAPID SET CEMENT mixtures may be batched using conventional ready mix or volumetric mixer equipment. Many state and local municipalities throughout the United States specify RAPID SET CEMENT in their concrete mix designs when speed and durability are important.

ENVIRONMENTAL ADVANTAGES: Use RAPID SET CEMENT to reduce your carbon footprint and lower your environmental impact. Production of Rapid Set cement emits far less CO₂ than portland cement. Contact your representative for LEED values and environmental information.

APPLICATION: Customize the mix for specific applications. A trial batch is recommended to optimize performance. For small projects, start with one 88 lb (40 kg) bag of RAPID SET CEMENT, 176 lb (79.8 kg) of sand, 176 lb (79.8 kg) of 1/4" to 3/4" (0.6 cm to 1.9 cm) stone and about 4 gallons (15.1 L) of potable water. For calculating volume, the specific gravity is 2.98 g/cm³. Contact CTS technical support for additional assistance, if needed.

FOR 50-LB BAG: Customize the mix for specific applications. A trial batch is recommended to optimize performance. For small projects, start with one 50-lb (22.7 kg) bag of RAPID SET CEMENT, 100 lb (45.4 kg) of sand, 100 lb (45.4 kg) of 1/4" to 3/4" (0.6 cm to 1.9 cm) stone and about 2.3 gallons (8.7 L) of potable water. For calculating volume, the specific gravity is 2.98 g/cm³. Contact CTS technical support for additional assistance, if needed.

Place material quickly and strike off with a screed. Apply desired finish. Concrete admixtures are available from the Rapid Set® Concrete Pharmacy®.

SURFACE PREPARATION: For repairs, application surface must be clean, sound and free from any materials that may inhibit bond, such as oil, asphalt, curing compound, acid, dirt and loose debris. Mechanically abrade surface and remove all unsound material. Apply RAPID SET CEMENT concrete to a thoroughly saturated surface with no standing water.

CURING: Most materials made with RAPID SET CEMENT must be water cured. Begin curing after the material starts to harden and before the surface starts to lose its moist sheen. The objective of water curing is to maintain the moist sheen on the entire surface until the product has achieved sufficient strength. Keep exposed surfaces wet for a minimum of 1 hour. When experiencing extended setting time due to cold temperature or the use of retarder, longer curing times may be required.

OVERVIEW

Highlights:

- Advanced rapid hardening technology
- Use to create fast-setting concrete, mortar and grout
- Inherent sulfate resistance and low shrinkage
- Ready for service in as little as 1 hour
- Interior/exterior

Conforms to:

ASTM C1600 VRH

Approved:

State (DOT) and local approvals

MasterFormat® 2016

- 03 01 30 Maintenance of Cast-in-Place Concrete
- 03 01 40 Maintenance of Precast Concrete
- 03 01 50 Maintenance of Cast Decks and Underlayment
- 03 01 60 Maintenance of Grouting
- 03 01 70 Maintenance of Mass Concrete
- 03 31 00 Structural Concrete Cast in Place
- 03 33 00 Architectural Concrete - Cast-In-Place Concrete
- 03 37 13 Shotcrete
- 03 37 16 Pumped Concrete
- 03 37 19 Pneumatically Placed Concrete
- 03 47 00 Site-Cast Concrete
- 03 48 00 Precast Concrete Specialties
- 03 49 00 Glass-Fiber-Reinforced Concrete
- 03 53 19 Concrete Overlayment
- 03 61 00 Cementitious Grouting
- 03 62 13 Non-Metallic Non-Shrink Grouting

Manufacturer:

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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. 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 mix water, and follow ACI 306 Procedures for Cold Weather Concreting.

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. The use of Rapid Set[®] SET Control retarding admixture from the Rapid Set[®] Concrete Pharmacy[®] will help offset the effects of high temperatures.

AVAILABILITY: RAPID SET[®] CEMENT is available in 50 lb and 88-lb (22.7 kg and 39.9 kg) bags, 2000 lb (907 kg) and 3000 lb (1361 kg) bulk bags, bulk tankers and rail.

SHELF LIFE: RAPID SET CEMENT has a shelf life of 12 months when stored properly in a dry location, protected from moisture, out of direct sunlight, and in an undamaged package.

USER RESPONSIBILITY: Before using CTS products, read current technical data sheets, bulletins, product labels and safety data sheets at 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 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

TYPICAL PHYSICAL DATA

Set Time, ASTM C191 Mod.

Initial set 15 minutes

Final set 20 minutes

Compressive Strength, ASTM C109 Mod.

1.5 hours 4500 psi (31.0 MPa)

3 hours 5500 psi (37.9 MPa)

24 hours 7000 psi (48.3 MPa)

28 days 8000 psi (55.2 MPa)

All data produced at 70°F (21°C)



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