

PRODUCT SPECIFICATION

**Rapid Set® CEMENT ALL®**

Date Issued: 25<sup>th</sup> September 2017

<b>CONCRETE CANCER REPAIRS</b>	<b>MAINTENANCE OF CAST-IN-PLACE CONCRETE</b>
<b>RENDER REPAIRS</b>	<b>MAINTENANCE OF PRECAST CONCRETE</b>
<b>CRACK REPAIRS</b>	<b>MAINTENANCE OF CAST DECKS AND UNDERLAYMENT</b>
<b>STRUCTURAL REPAIR</b>	<b>MAINTENANCE OF GROUTING</b>
<b>CONCRETE REPAIR &amp; MAINTENANCE</b>	<b>MAINTENANCE OF MASS CONCRETE</b>
	<b>NON-METALLIC NON-SHRINK GROUTING</b>

**PART 1: GENERAL**

**1.1 RELATED DOCUMENTS**

A. Drawings and general provisions of the contract, including General and Supplementary Conditions, apply to this section.

**1.2 SUMMARY**

A. This section specifies material for general concrete repair, very rapid concrete repair and non-shrink grouting. It is suitable for use on horizontal, vertical, or overhead surfaces from featheredge to 100mm thick.

**1.3 SUBMITTALS**

A. Submit 2 copies of product manufacturer's literature and Material Safety Data Sheets (MSDS).  
[Note to specifier: Add any other required submissions.]

**1.4 QUALITY ASSURANCE**

A. Comply with the following unless modified by this specification.

1. ASTM C109/C109M-02	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50mm Cube Specimens)
2. ASTM C191-04	Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
3. ASTM C882-99	Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear
4. ASTM C928-00	Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
5. ASTM C1107-99	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
6. CRD 621-82A	Corps of Engineers Non-Shrink Grout

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to jobsite in original, unopened, undamaged containers that clearly show the manufacturer's name, product name, and batch number.
- B. Storage: Store material in a dry area off the ground. Protect from rain, snow, and other sources of moisture.



## PART 2: PRODDUCTS

### 2.1 MATERIALS

A. Rapid Set® CEMENT ALL®

Distributor:  
**CTS RapidSet Cement Pty Ltd**  
7/55 Pine Road, Yennora, NSW 2161  
Phone: 02 9632 1900  
Website: [www.ctsrapidsetcement.com.au](http://www.ctsrapidsetcement.com.au)

B. The material shall meet the following minimum performance requirements.

1. Set time per ASTM C191 (Mod.):

Final set	45 minutes, maximum
-----------	---------------------

2. Compressive strength per ASTM C109 (Mod.):

1 hour*	20.7 MPa
---------	----------

3 hours	31.0 MPa
---------	----------

7 days	41.4 MPa
--------	----------

28 days	62.0 MPa
---------	----------

\*after final set

3. Bond strength per ASTM C882 (Mod.):

1 day	9.7 MPa
-------	---------

28 days	17.9 MPa
---------	----------

4. ASTM C928 for packaged concrete repair materials.

5. ASTM C1107 and CRD C621 for non-shrink grout.

C. The material shall be hydraulic cement based, non-metallic with no added chlorides. Shall be pre-blended requiring only the addition of water.

D. Material shall be applied in thicknesses ranging from feather-edge to 100mm.

### 2.2 WATER: POTABLE

### 2.3 ADMIXTURES and ADDITIONS

If modification of the setting time, fluidity, color, or other properties is desired, use Rapid Set® CONCRETE PHARMACY® additives. Add the pre-measured packets per the manufacturer's recommendations.

Do not add other materials unless specified here or approved in writing by CTS Cement Manufacturing Corporation.



## PART 3: EXECUTION

### 3.1 SURFACE PREPARATION

- A. Remove a minimum of 1.6mm from the application surface.
- B. Concrete must be free of materials such as paint, oil, curing compound, bond breaker, or any material that will inhibit bonding. Mechanically remove loose, unsound, contaminated concrete.
- C. Reinforcing steel shall be free from rust and other materials that will inhibit bond.  
Mix 10:1 ratio of Prime All to Cement All and brush on exposed reinforcing steel.  
[Note to specifier: Add special requirements concerning replacement of reinforcing that has lost too much cross-sectional area.]
- D. Thoroughly clean extraneous material such as dirt, loose chips, and dust from concrete surface. If compressed air is used, it shall be free of oil.
- E. Concrete surface shall be saturated with potable water. Standing water shall be removed from surface to achieve a saturated-surface-dry (SSD) condition. Mix 50:50 Prime All and water and apply to concrete wet on wet.
- F. For formed grouting applications, build watertight non-absorbent forms leaving sufficient room to pour the grout.

### 3.2 MIXING

- A. Organize personnel and equipment before mixing.
- B. Use 2.8 to 4.7 litres of water per 25-kg bag of Rapid Set® CEMENT ALL®.
- C. Follow manufacturer's recommendations for mixing in cold or hot conditions. The mixed temperature may be controlled by protecting the bags of Rapid Set CEMENT ALL from temperature extremes and using hot or cold mix water.
- D. Add water to the mixing container. While mixing in a power driven mechanical mixer, such as a mortar mixer or a drill mounted mixer, add Rapid Set CEMENT ALL.
- E. Mix for 1 to 3 minutes to achieve a uniform, lump-free consistency.
- F. Do not re-temper.

### 3.3 PLACEMENT

- A. Place Rapid Set CEMENT ALL immediately after mixing.
- B. Work the mixed Rapid Set CEMENT ALL firmly into all application surfaces to achieve good bond. Consolidate to remove air voids.
- C. Do not wait for bleed water. Apply final finish as soon as material condition allows.
- D. For baseplate grouting applications, pour the grout from one side only allowing it to fill the space below the plate completely.

### 3.4 CURING

- A. Water cure installations per manufacturer's recommendations.

### 3.5 CLEAN UP

- A. Maintain a clean, orderly work area.
- B. Clean excess material from surrounding areas immediately.
- C. Protect adjacent surfaces that may be damaged, with drop cloths, waterproof paper, or other means to maintain surfaces free of material splashes, water, and debris.

## END OF SECTION

