

**ITEM 555.9101 06 M - RAPID HARDENING CONCRETE MATERIAL FOR BRIDGE
JOINT HEADERS AND OTHER AREAS**

DESCRIPTION

The work shall consist of furnishing and placing rapid hardening concrete for repair areas with well defined boundaries such as bridge joint headers. The repair areas per pour cannot exceed five square meters. The area(s) to be repaired shall be filled with rapid hardening concrete materials listed below, where indicated on the plans or directed by the Engineer. The depth of the placement, prior to repair, shall be a minimum of 50 mm.

MATERIALS: The materials used shall meet the following requirements:

Coarse Aggregate (703-0204 Crushed Slag shall not be used)	703-02
Rapid Hardening Concrete Repair Material	701-09 ^(a)
(a) Only cementitious 701-09 is approved having a minimum initial set of 10 minutes, see Approved List or contact the Materials Bureau for products.	
Water	712-01
Insulating Blankets	711-07
Burlap	711-06

The dry prepackaged component of the patching material shall be extended, by weight, to a workable mixture, with a minimum of 60% coarse aggregate with a CA1 gradation.

Mixing water shall be added per the manufacturer's instructions. The moisture content of the coarse aggregate shall be determined by the Contractor. The Contractor shall adjust the amount of mixing water to allow for excess water content or absorption. This adjustment shall be approved by the Engineer before mixing. Batching and mixing sequence will be as per manufacturer's instructions.

Only one material, supplied by a single supplier, shall be used for this work. The combining of materials, or the installation of different materials at separate locations, will not be permitted unless approved by the Engineer.

CONSTRUCTION DETAILS

The Contractor shall notify the Director, Materials Bureau through the Engineer a minimum of fourteen days prior to installation of the rapid hardening concrete repair material. Notification will include the contract number, rapid hardening concrete repair material product name, and approximate date of installation.

An experienced technical representative employed by the Manufacturer of the rapid hardening concrete repair material shall meet with the Engineer a minimum of 24 hours prior to placement to review materials and the installation procedure. No initial material placement will be permitted unless the Technical Representative is at the placement site.

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The manufacturer's technical representative shall advise both the Engineer and the Contractor regarding proper installation procedures to assure the rapid hardening concrete material is installed correctly.

At the time of installation, ambient air temperature must be between 10°C and 30°C unless otherwise specified by the manufacturer. No container shall be opened without prior authorization from the Engineer. The material shall be installed in strict accordance with the manufacturer's instructions and the recommendations of the manufacturer's Technical Representative.

The following surface preparation shall apply:

1. Blast clean all surfaces to be in contact with rapid hardening concrete repair material. Remove all grease and dirt. Remove all rust and mortar which is not firmly bonded to the surface being cleaned. Rust and concrete deposits which are firmly bonded and cannot be removed by blast cleaning may remain. A light coating of orange rust that forms on steel surfaces after blast cleaning is not considered detrimental to bond and may remain. Remove all debris created by blast cleaning.
2. Repeat blast cleaning if more than 48 hours pass before rapid hardening concrete repair material placement begins.

Immediately prior to material installation all receiving surfaces shall be vacuumed clean or air-blown clean with oil-free compressed air. No loose material of any nature shall be permitted on any receiving surface.

Prior to placing of rapid hardening repair material, the sides of the existing and bottom of the existing concrete, in contact with the repair material, shall be soaked with water as per manufacturer's recommendations. Remove all standing water from the area to be filled.

Care shall be exercised to eliminate voids in the material. This will be accomplished with internal vibration. Curing, unless specified otherwise by the manufacturer, shall consist of covering the repair with wet burlap and insulating blankets. The following minimum cure times will be followed based on ambient air temperatures:

Ambient Air Temperature	Cure Time
20° Celsius to 30° Celsius	1 hour
10° Celsius to 20° Celsius	2 hours

METHOD OF MEASUREMENT

The Engineer will field measure the work in cubic meters.

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BASIS OF PAYMENT

The unit price bid per cubic meter shall include the cost of all labor, materials, and equipment necessary to complete the work.

All work required for the repair of damages caused by the Contractor's operations and all work performed to replace concrete damaged by improper installation of concrete repair material shall be done at no cost to the State.