



**High Temperature Bulk Cement**



Updated 12.9.09

## 1 General Characteristics

**FireRok™** is a cementitious, high-early strength cement that can be used to produce a structural concrete. **Within 24 - 72 hours of placement, concrete made from FireRok™ can be exposed to intermittent high temperature environments up to 1800°F.** It can be mixed using conventional drum mixers.

**Recommended uses:** FireRok™ has been designed for areas which are exposed to high temperatures either from an intermittent or a continuous heat source. This would include runway areas exposed to jet blast, HPUs, oven, and metal casting areas.

## 2 Additional Physical Properties

**UNIT WEIGHT** (cement only)  
62 lb/ft<sup>3</sup>

**SETTING TIME**  
Set Times at 72°F/22°C at 2" (5 cm) material depth  
Initial set: 45 - 60 minutes  
Final set: 90 minutes

**VOLUME YIELD** (approximate)  
**3.00** cu.yd. ( 2.29 cu. meter) / 2250 lb. Super Sack

## 3 Specifications

Results derived by Ceratech internal test laboratory and represent typical results from production materials. Actual results may vary from CTI testing results; however, CERATECH's materials meet and/or exceed established internal quality control standards, (available upon request) . All samples were air cured.

Property	Results	Test Method
<b>Compressive Strengths, psi (MPa)</b>		
<b>8 hours</b>	<b>3150</b> (21.7)	<b>ASTM C 39</b>
<b>24 hours</b>	<b>3970</b> (27.4)	<b>ASTM C 39</b>
<b>7 days</b>	<b>6590</b> (45.4)	<b>ASTM C 39</b>
<b>28 days</b>	<b>8500</b> (58.6)	<b>ASTM C 39</b>
<b>Flexural Strength, psi (MPa)</b>		
<b>7 days</b>	<b>510</b> (3.5)	<b>ASTM C 78</b>
<b>28 days</b>	<b>600</b> (4.1)	<b>ASTM C 78</b>
<b>Splitting Tensile Strength, psi (MPa)</b>		
<b>28 days</b>	<b>750</b> (5.2)	<b>ASTM C 496</b>
<b>Rapid Freeze Thaw Resistance</b> (Durability Factor - Retained percentage of Dynamic Modulus)		
<b>300 cycles</b>	<b>100%</b>	<b>ASTM C 666A</b>
<b>Scaling Resistance, lbs/ft<sup>2</sup> (kg/m<sup>2</sup>)</b>		
<b>50 cycles</b>	<b>0</b>	<b>ASTM C 672</b>
<b>Abrasion Resistance,</b> Depth of wear, millimeters @ 28 day	<b>0.14</b>	<b>ASTM C 944</b>
<b>Modulus of Elasticity, msi (GPa)</b>		
<b>28 days</b>	<b>5.00</b> (34.0)	<b>ASTM C 469</b>
<b>Coefficient of Thermal Expansion, in/in/°F</b>		
<b>28 days</b>	<b>4.7</b>	<b>AASHTO TP 60</b>
<b>Length Change, % of total length</b>		
<b>28 days</b>	<b>-0.0100</b>	<b>ASTM C 157</b>



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## 4 Site Preparation

Surfaces should be prepared in accordance with ICRI 03730, "Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion." and / or ACI 546R-96 "Concrete Repair Guide". Concrete surfaces should be prepared by appropriate mechanical methods to obtain an exposed aggregate surface with a minimum surface profile of +/- 1/16" (1.5 mm) in accordance with ICRI 03732. Pre-existing coatings or surface treatments should be completely removed. Dry, clean, stable surfaces are required. Remove all standing water. Reinforcing steel should have no loose scale. **Surfaces of host concrete must be damp.**

## 5 Mixing Instructions

Contact CERATECH Field Engineering for mix design information  
(888-341-2600)

## 6 Packaging & Shelf Life

### PACKAGING

2250 lb. (1020 kg) Super Sack or bulk transport

### SHELF LIFE

1 year

### STORAGE

Material must be kept dry

## 7 Limitations

- Not recommended for placement in temps below 30°F/-1°C and above 120°F/49°C.
- Will not bond to polymers.
- Pumping not recommended for slumps lower than 4"

## 8 Application & Finish

- Working times based on ambient temperature, types of aggregate and total amount of water.
- Working times are influenced by surface temperature and repair profile.
- Minimum profile thickness is 1.50" (3.8 cm). There are no restrictions to the depth of placement profile.
- For best results, CERATECH recommends monolithic placement of materials. Maintain a minimum thickness of 1.50 inch if repair material must be layered. Material must also be layered before final set has been reached.
- Upon initial set, a broom finish can be applied. Upon final set, the material can be saw-cut, drilled, sanded and/or polished
- Do not re-temper. The addition of water to the surface of the repair will negatively affect the materials final properties.
- General loading in 6 hours for wheeled traffic and 2 hours for foot traffic after addition of water.
- All previously existing joints must be re-established within 4 hours of final set.
- Self-curing, (Protect with blankets or equivalent in ambient temperatures below freezing (32°F / 0°F).
- Clean all tools and equipment with water prior to the material reaching final set.

### WARRANTY:

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## 8 Safety

- See **Material Safety Data Sheet (MSDS)**.
- This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.
- Dispose of water and materials in accordance with Federal, State and Local regulations.
- The use of a dust mask, safety goggles and gloves is recommended.
- Keep out of the reach of children.

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