



**Bulk Cement
for Chemical Resistant
Structural Concrete
Production**

Updated 4.21.11

1 General Characteristics

KEMROK® is a versatile and flexible, high performance structural cement. **KEMROK®** can be effectively placed in ambient temperatures ranging from 30 to 120 degrees Fahrenheit. **KEMROK®** is mixed and placed like conventional Portland cement concrete, has up to 6 hours of working time depending on ambient temperatures and mix design. **KEMROK®** can be finished using standard concrete finishing practices. **KEMROK®** will achieve compressive strengths of more than 2500 psi within 6 to 72 hours depending upon mix design providing for fast track construction if desired. **KEMROK®** cement leaves virtually no carbon footprint and will eliminate approximately one ton of harmful CO₂ greenhouse gasses for every 3 yards of concrete produced.

KEMROK® can be configured and delivered from a batch plant via transit truck, introduced into a transit mixer at your site or prepared at an "on-site" batch plant for dump truck delivery projects. **KEMROK®** is designed to resist deterioration from exposure to sulfuric acids and other related caustic compounds.

RECOMMENDED USES: **KEMROK®** has been designed specifically for industrial infrastructure applications, secondary containment, sulfuric acid exposure and form & pour projects **KEMROK®** is engineered for low permeability and is resistant to chemical attack by sulfuric compounds and related acids.

2 Additional Physical Properties

UNIT WEIGHT

152lb/ft³ (2434 kg/m³)

SETTING TIME

Set Times at 72°F/22°C (ASTM C 403)

¹Initial set: 60 minutes to 4 hours

¹Final set: 90 minutes to 6 hours

VOLUME YIELD (Approximate - Based on 750 lb mix design)

3.00 cu.yd. (2.29 cu. meter) / 2250 lb. Super Sack
= (Binder, water, sand, No.57 stone, micro-air)

NOTES

1. Strength development and working times can be adjusted by varying the cement ratio and by use of various CERATECH proprietary activator admixtures.

3 Specifications

Results derived from internal CERATECH tests utilizing locally procured aggregates. Data represents typical results from production materials. Actual results may vary, however CERATECH's materials meet and/or exceed established internal quality control standards, (available upon request). **See NOTES section for respective cement loading.**

Property	¹ Rapid Set	¹ Standard Set	Test Method
Compressive Strengths, psi (MPa) ^{4 in. x 8 in. cylinders}			
6 hours	3500 (24.1)	NA	ASTM C 39
24 hours	3604 (24.9)	2497 (17.2)	ASTM C 39
3 day - 72 hour	4502 (31.0)	4193 (29.0)	ASTM C 39
7 days	6487 (44.7)	5998 (41.3)	ASTM C 39
28 days	8511 (58.7)	8502 (58.6)	ASTM C 39
Flexural Strength, psi (MPa)			
7 days	510 (3.5)	485 (3.3)	ASTM C 78
28 days	650 (4.5)	630 (4.3)	ASTM C 78
Splitting Tensile Strength, psi (MPa)			
28 days	720 (5.0)		ASTM C 496
Rapid Freeze Thaw Resistance (Durability Factor - Retained percentage of Dynamic Modulus)			
300 cycles	100%		ASTM C 666A
Scaling Resistance, lbs/ft² (kg/m²)			
50 cycles	0		ASTM C 672
Abrasion Resistance, Depth of wear, millimeters @ 28 day			
	0.14		ASTM C 944 (2005)
Modulus of Elasticity, msi (GPa)			
28 days	5.00 (34.0)		ASTM C 469
Coefficient of Thermal Expansion, in/in/°F			
28 days	4.6		AASHTO TP 60
Length Change, % of total length			
14 days	0.04		ASTM C 157
Creep (365 days) (μ Strain / psi) Creep Coefficient			
	1.91		ASTM C 512



4 Site Preparation

Construction site should be prepared in accordance with **ACI Guidelines for placement of structural concrete.**

5 Mixing Instructions

Standard Mixing Procedures (Rotating Drum Transit Truck Concrete Mixer)

CONTACT CERATECH FIELD ENGINEERING TEAM FOR SPECIFIC COMPONENT RATIOS
1-888-341-2600

- Determine volume of **KemRok™** required for project
- Pre-wet cement mixer with clean water then drain all water from mixer (away from placement area) Maintain rotation of drum at mixing speed.
- For each Super Sack unit of **KemRok™** add TBD lbs of fine aggregate (Sand SSD, Specific Gravity = 2.64)
- For each Super Sack unit of **KemRok™** add TBD lbs of coarse aggregate (ASTM #57 stone, SSD, Specific Gravity = 2.68)
- Add a total of TBD lbs (TBD gallons) of water including water within fine and coarse aggregate and * Air Entrainment Agent if required (See note below)
- Add TBD gallons of **KemRok™ Liquid Admixture** per each Super Sack of **KemRok™** used. (To facilitate transit time, activator may be added at job site)
- Mix for 7 minutes (Single Super Sack) Mix for 10 minutes (2 Super Sacks)(Slump may be adjusted with small increments of additional water)
- **KemRok™** can be discharged directly from transit truck into forms or into pumping unit hopper

Notes:

1. Use MicroAir from BASF only per manufacturers instructions
2. Vinsol Resins or Tall Oil based Air Entrainment Agents are not compatible with this product

6 Packaging & Shelf Life

PACKAGING

2,200 lb. 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.

8 Application & Finish

- Working times based on ambient temperature, types of aggregate and total amount of water.
- Working times are influenced by surface temperature humidity and repair profile.
- Minimum profile thickness is 3.00" (7.6 cm). There are no restrictions to the depth of the placement profile.
- 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 concrete will negatively affect the materials final properties.
- **General loading in 6 hours for wheeled traffic** (Compressive strengths greater than 2,500 psi.)
- **Self-curing**
- Clean all tools and equipment with water prior to the material reaching final set.



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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.

WARRANTY:

CERATECH, Inc. ("CERATECH") warrants that its products are free from defects in materials and workmanship. If any CERATECH product fails to conform to this warranty, CERATECH will replace the product at no cost to the buyer or refund the purchase price, at CERATECH's election. Any warranty claim must be made within one (1) year from the date of the shipment of the product to the buyer. In no event shall CERATECH be liable to the buyer for any consequential or incidental damages of any nature. CERATECH MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, WRITTEN OR ORAL AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF ITS PRODUCTS AND EXCLUDES THE SAME. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

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