



**Chemical Resistant
Vertical, Horizontal & Precast
Resurfacing Repair Mortar**



1 General Characteristics

KEMROK VR™ is a cementitious, rapid setting, non-Portland cement, vertical surfacing mortar. It is a single component powder that is water activated. **KEMROK VR™** has 20 to 30 minutes of working time.

KEMROK VR™ can be applied in ambient temperature ranges from 30 to 120 degrees Fahrenheit. **KEMROK VR™** is a low permeability mortar and is an ideal repair material for areas exposed to sulfuric acid compounds and chlorides.

RECOMMENDED USES: **KEMROK VR™** has been specifically engineered for use in vertical industrial applications such as spall repair and impact damage on beams, columns, pile and pile caps, pressure bearing pre-cast pipe, curbs, steps, pre-stressed panels, tunnels, sewers, loading docks, silos, retaining walls, culverts, catch basins, parapet walls, septic tanks, chemical containments and pre-cast product repair applications where the potential for sulfuric acid exposure is likely. **KEMROK VR™** has been designed to protect both new and existing manholes, wet wells, lift stations and other waste water related structures.

KEMROK VR™ can be hand applied with trowel or used with spray gun equipment. Contact CERATECH's Field Engineering Team for more information.

2 Additional Physical Properties

UNIT WEIGHT

136 lb/ft³

SETTING TIME

Set Times at 72°F/22°C
Initial set: 20 - 30 minutes
Final set: 45 minutes

VOLUME YIELD

0.41 ft³ / 48.5 lb. Plastic Bag

3 Specifications

Results shown below have been derived from internal CERATECH testing. Actual results may vary. CERATECH's materials meet and/or exceed established internal quality control standards, which will be provided upon request. All samples were air cured.

Property	Results	Test Method
Compressive Strengths, psi (MPa)		
1 day - 24 hours	3132 (21.6)	ASTM C 109
7 days	4487 (30.9)	ASTM C 109
28 days	5743 (39.6)	ASTM C 109
Flexural Strength, psi (MPa)		
24 Hours	638 (4.4)	ASTM C 78
Splitting Tensile Strength, psi (MPa)		
24 Hours	459 (3.1)	ASTM C 496
Bond Strength, psi (MPa)		
24 hours	1245 (8.6)	ASTM C 882

COVERAGE

1/16" (1.5mm)	69.1 ft ²
1/8" (3.0 mm)	34.5 ft ²
1/4" (6.0 mm)	17.3 ft ²
1/2" (12.0 mm)	8.6 ft ²
3/4" (19 mm)	5.8 ft ²
1.0" (25 mm)	4.3 ft ²



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4 Site Preparation

All surfaces in contact with **KEMROK VR™** shall be free of oil, grease, laitance and other contaminants. Concrete must be clean, sound and roughened to ensure a good bond. Soak concrete surfaces with potable water leaving the concrete saturated and free of standing water (SSD)

5 Mixing Instructions

Standard Mixing Procedures (Heavy Duty Drill & Paddle)

- Place **KEMROK VR™** in a suitable, smooth bottom plastic mixing container
- Dry mix material for 30 seconds
- Add in 2 quarts of water per 48.5 lb. bag of **KEMROK VR™**
- Mix for 3 1/2 minutes
- Place material

Standard Mixing Procedures (Mechanical Mixers)

- Pre-wet cement mixer with water then drain all water from mixer (away from repair area)
- **Start mixer**- **KEMROK VR™** requires a **total of 2 quarts** of water per 51 lb. unit.
Initially, add 50% of total mix water to concrete mixer
- Add pre-determined units of **KEMROK VR™**
- Add in remaining **mix water**
- Mix for 5 minutes total
- Pour all contents into hod (for hand trowelling) or spray apparatus hopper.
- Clean mixer or repeat process for next batch

6 Packaging & Shelf Life

PACKAGING

48.5 lb (21.9 kg) Plastic Bag

SHELF LIFE & STORAGE

1 year / Bags must be kept dry

7 Limitations

- Do not exceed 1.00" in thickness per lift.
- Not recommended for placement in temps below 30°F/-1°C and above 120°F/49°C.
- Will not bond to polymers.
- Do not exceed maximum mix water requirement

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.

8 Application & Finish

Suggested Spray Gun and Hand Trowelled Application Procedures for KEMROK VR™

1. Cementitious substrates must be dampened with clean potable water prior to and during installation. Make sure there is no standing water.
2. Mix **KEMROK VR™** in accordance with the manufacturers recommendations.
3. **For Trowel Applications**, install a thin tight coat then immediately double back to achieve a thickness of 0.5" to 1.0".
4. **For Spray Gun Applications**, using low pressure spray equipment, apply on vertical or horizontal surfaces up to 1.0" thick. (*Contact CERATECH Field Engineering for information on suitable pumps, nozzles and applicators.*)
5. **For thicker builds**, allow initial lift to reach final set, then scarify in a horizontal direction before placing next lift. (Repeat as necessary to reach final profile thickness.)
6. **KEMROK VR™** may be floated using a sponge, rubber, magnesium or wood float designed for this purpose. Avoid placing water on the surface of the **KEMROK VR™** during the floating process as this could lead to surface cracking. Dampen the float with water and not the surface of the **KEMROK VR™**. Finish texture and color can vary depending on the type of float and method used.
7. Avoid installations in the direct sun as this can decrease working time and cause rapid drying and/or cracking. Plan the work so that a wet edge can be maintained during installation.
8. Follow Industry recommendations regarding the use of Joints and Sealants.
9. Working times are influenced by ambient & surface temperatures. For optimum performance, maintain mortar, host concrete to within a range of 32°F /2°C and 90°F/32°C prior to, during and for 48 hours after placement of mortar. Working times are influenced by surface temperature and repair profile. Working time can be extended by adding CERATECH's Set Retarder Admixture to mix water. (See Set Retardant product data sheet for more information)
10. At low temperatures (below 50°F / 10°C) mortar setting time is extended.
11. At high temperatures (above 86°F / 30°C) mortar setting time is reduced, affecting placement. CTI recommends that repairs at high temperatures be protected from direct sun and heat or be placed early in the morning. Keep materials cool and use cold water for mixing.
12. **Self-curing**
13. Clean all tools and equipment with water prior to the material reaching final set.

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