



## ENGINEERED TECHNOLOGY PORTLAND CEMENT BASED CONCRETE REPAIR AND RESTORATION MORTAR MODIFIER



# PRODUCT DATA SHEET

### PRODUCT DESCRIPTION

Fusion-Crete® is contractor grade vinyl acetate copolymer in dry powder form specially designed for modification of Portland cement based repair mortar for permanent repair or resurfacing of existing concrete structures.

Fusion-Crete® allows the user to control polymer, cement, and sand content of the repair mortar depending on the type of repair desired.

Applications: Formable, pourable, pumpable. Mortar consistency ranges from dry pack mortar for spot-repairing damage without the use of forms to slurry coats for complete restoration of concrete.

Fusion-Crete® copolymer-modified repairs and overlays can be installed at any thickness on horizontal, vertical, or overhead surfaces, and be feather-edged into intact areas with excellent bonding to the substrate. Complete overlays may be installed to fully restore concrete, or change the pitch or shape of a slab to correct drainage problems or eliminate safety hazards.

Fusion-Crete® modified repair mortar is easily made by mixing Fusion-Crete® with water and combining with regular Portland cement and sand obtained near the application site.

### PHYSICAL PROPERTIES

Fusion-Crete® is a non re-emulsifiable elastomeric vinyl acetate copolymer in dry powder form with 100% dry solids content.

### PACKAGING

Five gallon plastic pail weighing 25 lbs.

### PRODUCT YIELD

One five gallon pail produces mix liquid to modify:

- .5 cubic yards of medium consistency repair mortar.
- Finish coating slurry to cover 1800-2200 square feet of concrete at a thickness of approximately .025 inch.
- Overlays between 1/16 - 1 inch thick, 40 gals - 140 gals.
- Overlays thicker than one inch; more than 140 gallons of mortar.

### ADVANTAGES

- Simplicity
- Versatility
- Performance proven in over 20 years of case studies in all climates
- Unmatched cost effectiveness
- Mortar application at any thickness with one product
- Feather-edge performance
- Ability to mix mortar at any consistency from dry pack to slurry
- High coefficient of friction for non-slip applications
- Safe and easy to use
- No special tools or materials required
- No special training necessary
- Carbon footprint practically invisible
- Lightweight product generating low shipping cost
- Unlimited shelf life in dry form

### SURFACE PREPARATION AND CONDITION

Surfaces must be clean of loose or rotten concrete, oil, grease, paint, coatings, dirt, and laitance to expose sound concrete. Moisten surface with water prior to priming with mix liquid.

Cold weather:

The temperature of surface to which Fusion-Crete® modified mortar is applied must be 45°F and rising. Fusion-Crete® modified mortar must be protected from freezing for the first three days after placement. When the air temperature is below 55°F, hot water heated not greater than 100°F may be used to hasten set. Do not add chemical accelerators or anti-freeze.

Hot weather:

The surface temperature of the concrete to which Fusion-Crete® is applied must not be greater than 105°F. Pre-soak concrete with water to cool down substrate and to prevent flash setting of Fusion-Crete® modified mortar.

**MIXING**

Fusion-Crete® mixed with clean water (named "premix") is the mix liquid for the Fusion-Crete® modified mortar. Add only Fusion-Crete® premix to the dry mix (Portland cement and sand) to mix mortar.

Fusion-Crete® premix is also used for priming the surface prior to placing the mortar and for finishing and feather edging repairs.

Fusion-Crete® settles in water while standing which requires stirring before adding to dry mix or sprayers for priming or finishing.

Estimate premix quantity: Each gallon of dry mix (Portland cement and sand) will require about one quart of premix for medium consistency mortar.

Measure Portland cement (type I, II, or I & II) and sand at ratio by volume (see below for ratios) in mixing container. Measurement need not be exact. Measuring by shovel scoop is adequate. Mix cement and sand briefly before adding premix.

Mortar can be mixed by hand in a pail or wheel barrow or with 500-800 rpm drill and square box mixing paddle in a pail or tub, or with a drum rotary mixer or mortar mixer. For instructions to add Fusion-Crete® to redi-mix cement truck batches contact Fusion-Crete® of U.S.

**Important note: Add premix to make mortar as wet or dry as desired depending on the application ranging from dry pack to trowelable mortar to slurry.**

**To mix basic repair mortar for filling divots, breakouts, holes, etc. over 1/8 inch deep and feathering out.**

Premix: one part Fusion-Crete® to six parts water.  
Dry mix: one part Portland cement to 2 or parts sand. (See important note above)

**To mix slurry for finish coating or shallow spall filling:**

Premix: one part Fusion-Crete® to two parts water.  
Dry mix: one part Portland cement to one part sand. (See important note above)

**To mix mortar for overlays:**

Thickness in inches	Premix: Fusion-Crete® to water	Cement to sand
1/16 - 1/4	1 : 3	1 : 2
1/4 - 1/2	1 : 5	1 : 2
1/2 - 1	1 : 7	1 : 2
1 - 2	1 : 10	1 : 2 1/2
2 - 3	1 : 15	1 : 2
3 - 4	1 : 20	1 : 2

Mixes for overlays 2 in. thick or more can be extended with two parts 3/8 in. rock.

**PLACING AND FINISHING MORTAR**

Prime surface with Fusion-Crete® premix and brush a small amount of mortar into primer. Trowel or pack mortar into repair area working firmly into bottom and sides of cavity to remove air and assure proper bond.

Shape or screed to desired shape or slope. Finish and feather edge with magnesium float, trowel, sponge float, or sponge. Feather edge with brush, broom, or sponge. Spraying or brushing Fusion-Crete® premix on surface aids in tool release and finishing.

Note on finish coats: Finish coat slurry is very high in polymer content which allows for priming the surface with water. Take care to brush out or soak up puddling of water before applying slurry to surface. Misting finish coats with water aids in applying broom finish stroke, especially in warmer weather. Take care not to over apply water to finish coats.

Instructional video is posted on YouTube or available on DVD by request with purchase of one 5-gallon pail of Fusion-Crete. Instructional document is can be downloaded from website.

**JOINT PLACEMENT**

Control joints and cold joints in the base concrete and the Fusion-Crete® repair must coincide. Maintain all joint profiles in the Fusion-Crete® repair or overlay to the full depth of the repair.

Damage at control joints and cold joints is often caused by the original installation of a concrete structure not allowing sufficient space between sections for expansion due to heat. When making repairs at control joints or cold joints maintain or increase space between concrete sections sufficient for expansion caused by high temperatures.

**CURING**

Under most conditions Fusion-Crete® mortar is self-curing. When applications over 1/4 inch thick are placed in warmer temperatures with low humidity shrinkage may occur.

Shrinkage will not affect bonding or performance of the Fusion-Crete® repair or overlay.

To avoid shrinkage cover area with plastic sheeting and/or mist with water into initial set and cure.

Shrinkage can also be eliminated by addition of Raditech AC60 fiber mesh which is extremely low cost and available from your Fusion-Crete® distributor.

**PRECAUTIONS**

Finished mix contains Portland cement and silica sand. Freshly mixed cement is highly alkaline and may cause skin injury. Avoid creating and inhaling dust. Provide ventilation and respiratory protection. Wear skin and eye protection. Dust mask recommended.

## FUSION-CRETE® TECHNICAL SPECIFICATIONS

### PHYSICAL PROPERTIES

Consistency:	Highly flowable
Initial set time ASTM C-91	1 hour
Final set time ASTM C-91	3 hours
Pot life at 68°F (20°C)	60 minutes
Working time at 70°F (21°C)	30 minutes
Flammability	N/A
Application temperature range	45°F (7°C) to 95°F (35°C)
Re-coating time at 68°F (20°C)	4 hours
Curing	80% strength 7 days, final 28 days
Resistance to moisture	Excellent
Resistance to accelerated weathering	Excellent

### LABORATORY TEST RESULTS

Compressive strength ASTM C-109, 1 day	1500 psi (10.35 MPa)	
Compressive strength ASTM C-109, 3 days	3200 psi (22.1 MPa)	
Compressive strength ASTM C-109, 7 days	4350 psi (30 MPa)	
Compressive strength ASTM C-109, 28 days	5750 psi (39.6 MPa)	
Flexural strength ASTM C-348	1355 psi (9.3 MPa)	
Flexural strength, 7 days ASTM C-348	1058 psi (7.3 MPa)	
Flexural strength, 28 days ASTM C-348	1175 psi (8.1 MPa)	
Pull-out strength, CAN/CSA-A23.2-6B, 7 days	312 psi (2.15 MPa)	
Pull-out strength, CAN/CSA-A23.2-6B, 28 days	367 psi (2.53 MPa)	
Tensile bond strength, 28 days	207 psi (1.43 MPa)	
Resistance to freeze/thaw cycles/deicing agents ASTM C672-91	0-no scaling	
Permeability to chlorides ASTM C-1202, Control-ready mix concrete	5523 coulombs passing after 6 hours	
Permeability to chlorides ASTM C-1202, Control-Fusion-Crete topping	4606 coulombs passing after 6 hours	
Slip resistance, CAN/CGSB-7501-M88	Wet	Dry
Ready mix, smooth	1.07	1.22
Ready mix, broom	1.07	1.14
Fusion-Crete, smooth	0.75	0.60
Fusion-Crete, broom	0.81	0.67

### STORAGE/SHELF LIFE

Fusion-Crete® stored in closed containers at temperatures between -10 and 90 °F has unlimited shelf life. Fusion-Crete® premix can also be stored for up to three months if it is uncontaminated and kept from freezing in closed container.

### APPLICATOR'S WARRANTY

At the discretion of an Approved Applicator, a performance warranty may be provided stating that Fusion-Crete® copolymer-modified concrete mortar will not delaminate, separate or lift off the substrate to which it is properly installed for a period of two years.

### U.S REPRESENTATIVE

Fusion-Crete® of U.S.  
970.879.3445 phone and fax  
970.846.4290 mobile  
fusion.crete@gmail.com  
www.fusion-crete.us

### MANUFACTURER'S WARRANTY

ABS CONCRETE SYSTEMS LTD. guarantees Fusion-Crete® in the original sealed container to be free of defects and when used as instructed will provide a satisfactory repair. However, ABS Concrete Systems, LTD., its agents, representatives, and distributors assume no responsibility for risks or liability that may arise from the use or performance of this product, as conditions, application, and installer capabilities are beyond its control.

### MANUFACTURER

ABS Concrete Systems, LTD.  
RR1 Site 9 Box 11  
Airdrie, AB, Canada T4B 2A3  
Toll Free: 800-377-3639  
Phone: (403) 297-9898  
Fax: (403) 297-9895  
Email: absadmin@absconcrete.com  
Website: www.fusion-crete.com

**MSDS:** See website or request copy from Fusion-Crete® of U.S.