

### STEELIKE®

### Ultra-High Performance Fiber Reinforced Concrete Mix Design

#### DESCRIPTION

Steelike® UHPFRC Mix Design is an Ultra High Performance Fiber Reinforced Concrete Mix, engineered with a focus on particle packing.

The product includes dry mix, as well as two types of low-carbon metal fibers totaling 4.44% by weight of dry mix/1.5% by volume: 50% of above fiber dose are ½ -inch in length (1.27 cm); 50% of above fiber does are ¾-inch in length (1.91 cm).

Cementitious Material: 41% by weight of the dry mix is cementitious.

The product is a just-add-water mix design for interior and exterior applications.

#### USE

Steelike® UHPFRC Mix is designed to enable everything from giant placements, bridge overlays and joints to extremely thin yet strong creations, such as concrete structures, deck overlays, architectural elements countertops, as well as 1/4-inch (0.635 cm) thick giant floor tiles and 1/2-inch (1.27 cm) thick indoor/outdoor cladding panels.

#### PROPERTIES/BENEFITS

- Just-add-water mix design
- Eliminates bleed water
- Essentially eliminates air holes
- Minimal post-production
- Tested “Negligible” for chloride permeability
- Tested to achieve 16,200 psi within 7 days and 26,300 psi compressive strength within 14 days
- The density of this mix is 155 lbs/cubic ft (2,483 kg/cubic meter)

#### TEST RESULTS

Test Method	Parameter	Performance (unit)		
ASTM C1202-12	Chloride permeability	Charge Passed (Coulomb) < 85.76		
ASTM C39	Compressive Strength of Cylindrical Concrete Specimens	Test @ (days )	Total Load (Lbs)	Unit Load (PSI)
		7	152,738	12,156
		14	203,550	16,200
		28	330,420	26,300
		56	362,421	29,212

#### PACKAGING

Packaged in 40-lb (18.1 kg) moisture resistant bags with reinforced handles. Metal fibers are included (packaged separately within moisture resistant bags). One pallet contains fifty (50) of 40-lb bags (aka 2,000 lbs/907 kg).

Also available in half a cubic yard/0.38 cubic meter (1,800 lbs/817 kg) reinforced, strap handled, bottom-discharged, and plastic lined super sacs. Fibers boxed separately.

#### YIELD

If mixed using the correct protocol,

- 40 lbs/18.1 kg of product will produce a little over 3.5 square feet (0.325 square meters) at a thickness of 1 inch (2.54 centimeters).
- One-half cubic yard (0.38 cubic meters) super sac (1,800 lbs /817 kg) of product will produce one half cubic yard (0.38 cubic meters).



## Technical Data Sheet

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### HANDLING/STORAGE

Read Safety Data Sheet (SDS) prior to using. Contains Portland cement and silica sand. Use proper safety equipment (gloves, goggles or glasses and dust masks). Store in a cool dry area. Do not puncture packaging.

### SPECIAL NOTES

- (1) The extremely low water to binder ratio is a crucial part of the product's mix design. It facilitates the creation of thousands of false sets. This will look like little balls of dough and very small bearings to different size marbles, which will then break down/apart and when the broken bonds come back together the strength will go up.
- (2) When adding pigment doses above 2% by weight of the Cementitious Material, water percentage by weight can be increased by 0.5%, for a total water content of 9.5% by weight.
- (3) When mixing larger batches, it is important to monitor the flow of this mix design.
- (4) For ambient temperatures above 80 degrees Fahrenheit (26.7 degrees Celsius) contact Kulish Design directly to purchase a workability admix.  
\*If workability admix is used, it would be added as soon as the mix break over or becomes fluid (a) in Step 6b., before the additional 2 minutes (for smaller batches) or (b) in Step 6a., before the additional 20 minutes (for larger batches) mix time is initiated.
- (5) For larger placements, a surface only retarder can be used during Finishing/Curing to reduce skinning and surface cracks. This also allows the material to be troweled. Contact Kulish Design for product recommendations.

### USE INSTRUCTIONS

#### Ingredients:

1. Weigh out the exact amount of DRY PRODUCT needed.
2. WATER: Multiply the amount of dry product by 9%

(or 0.09). This is the total amount of water (by weight) needed for the entire mixing process. (For example, for 5 lbs. / 2.267 kg of dry mix, add 0.45 lbs./0.204kg of water) \*

3. FIBER REINFORCEMENT: This mix has been designed to work with a 4.44% by weight (1.5% by volume) combined load of ½-inch (1.27 cm) and ¾-inch (1.91 cm) METAL FIBERS, which are included.

**\*Refer to SPECIAL NOTES (1) and (2)**

#### Mixing:\*\*

For Smaller Batches: If You Are Using 25 lbs/11.340 kg or Less of Dry Mix:	For Larger Batches: If You Are Using 25 lbs/11.340 kg or More of Dry Mix:
4. Turn on mixer, or hand mixer, and briefly spin the dry mix. If adding dry pigment, incorporate at this time and blend in. Blend in metal fibers <b>(before adding water)</b> .	4. While truck or vertical shaft mixer is turning, add mix, blend for 10 minutes then blend in fiber <b>(before adding water)</b> .
5. While mixing, slowly add the total amount of water and continue to mix until different-sized balls are formed.	5. While mixing at full speed, slowly add the total amount of water.
6a. Continue mixing until all lumps are gone and it becomes semi-fluid in consistency, similar to pancake/cake batter.	6a. Once the mix breaks over or become fluid,+ continue mixing for 20 minutes.
6b. After the mix "breaks" or becomes fluid like,+ mix for 2 more minutes.	<b>Optional 6b.</b> Only if the blended mix appears to be not completely blended, continue to mix no more than 3-5 additional minutes

**\*\*Refer to SPECIAL NOTES (3) and (4)**

**+ Refer to SPECIAL NOTE (4)**

Visit [www.steelike.com](http://www.steelike.com) for the most up to date technical information.



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### Application:

- Place the mix into your mold or form etc.
- When utilizing this product for architectural designs such as countertops, it is recommended to roll the exposed wet surface with a 1-inch(2.54 cm) spiked Epoxy roller. You can get this at [TheSteelikeStore.com](http://TheSteelikeStore.com)

### Finishing Tip/Curing:

Mix is a self-leveling, self-consolidating product, and requires very little finishing.\*\*\* **AFTER** the mix achieves a clay like consistency, curing can be accelerated by tenting with plastic and then covering with either a commercial or an inexpensive home electric heating blanket at 85 degrees Fahrenheit (29.4 degrees Celsius) for up to an additional 24 hours.

\*\*\*Refer to **SPECIAL NOTE(5)**

### AVAILABILITY & TECHNICAL SERVICES

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In addition to corporate offices in Springfield, Virginia, Kulish Design Co. maintains distribution centers in the United States and Canada.

For source or technical information, please call +1-609-703-2020.

### LIMITED WARRANTY

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#### NOTICE-READ CAREFULLY

#### FOR PROFESSIONAL USE ONLY

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### KULISH DESIGN CO., LLC

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