

## PRODUCT DATA SHEET

# Sikacrete<sup>®</sup>-930 UHPC

ONE-COMPONENT, STEEL FIBER-REINFORCED, SELF-CONSOLIDATING ULTRA HIGH-PERFORMANCE CONCRETE (UHPC) WITH DUST REDUCTION TECHNOLOGY

### PRODUCT DESCRIPTION

Sikacrete<sup>®</sup>-930 UHPC is a fiber-reinforced, ultra-high performance concrete (UHPC) containing Portland cement, finely graded sand, steel fibers and other carefully selected components.

Sikacrete<sup>®</sup>-930 UHPC is gray in color and is packaged in 61 LB bags and 1,952 LB bulk bags. Sikacrete<sup>®</sup>-930 UHPC is only mixed with potable water and steel fibers; no additional chemical admixtures are required. Sikafiber 6513 UHPC fibers are packaged in 44 LB (20KG) bags.

### USES

- Superstructure bridge connections
- Substructure bridge connections
- Header joints
- Grouted fasteners
- Shear keys
- Form & pour applications where high strength and low permeability are required

### CHARACTERISTICS / ADVANTAGES

- Ultra-high compressive, flexural, and tensile strengths allowing significant reduction of concrete element sections, concrete volumes and reinforcing steel, resulting in a lightweight and slender structural element profile
- Possesses strain-hardening properties, a characteristic unique to UHPC
- Superior impact and abrasion resistant characteristics
- Superior resistance to cracking caused by shrinkage, thermal stresses and other conditions
- Very high energy absorbing capacity (toughness)
- Ultra-compact material resulting in very low porosity

- and permeability
- Superior resistance to freeze-thaw cycling and salt-scaling
- Superior resistance to sulfate attack
- Excellent bond to parent concrete without requiring a bonding agent
- Self-consolidating material
- Designed with natural normal-density non-reactive fine aggregate to eliminate the potential alkali-aggregate reactivity
- All Sika products are manufactured using ISO 9001:2015 Certified Processes

## PRODUCT INFORMATION

<b>Packaging</b>	61 lb. (27.7 kg) bag 1,952 lb. (885 kg) bulk bag
<b>Shelf Life</b>	12 months from date of production if stored in original, unopened and undamaged sealed packaging (6 months for bulk bags)
<b>Storage Conditions</b>	Store dry between 40 °F (5 °C) and 85 °F (30 °C) Protect from moisture. If damp, discard material
<b>Density</b>	150 lbs/cf

## TECHNICAL INFORMATION

<b>Abrasion Resistance</b>	<b>Duration of Test</b>	<b>Depth of Wear</b>	<b>Mass Loss</b>	(ASTM C 944)
	2 minutes	0.000 in	0.01%	Double load (44 lbs) 28 days
	4 minutes	0.001 in	0.02%	
	6 minutes	0.001 in	0.04%	
<b>Compressive Strength</b>	<b>Age</b>	<b>Strength</b>	(ASTM C 39)*	
	1 day	9,000 psi	3"x6" cylinders	
	7 days	14,000 psi	Lime water	
	28 days	18,000 psi	* as modified by	
	56 days	20,000 psi	ASTM C 1856	
<b>Modulus of Elasticity in Compression</b>	<b>Age</b>	<b>Compressive Modulus</b>	(ASTM C 469)	
	28 days	7,000 ksi	4"x8" cylinders Lime water	
<b>Flexural Strength</b>	<b>Age</b>	<b>Flexural Tension Ratio, Peak to First Crack, min</b>	(ASTM C 1609)	
	28 days	2.25		
<b>Tensile Strength</b>	<b>Age</b>	<b>Tensile Strength</b>	(ASTM C 307)	
	28 days	1,200 psi	1"x3" briquette Lime water	
<b>Tensile Strength</b>	<b>Age</b>	<b>Tensile Strength for Direct Tension</b>	(AASHTO T 397)	
	28 days	875 psi - effective cracking strength		
		1,000 psi - stress @ localization		
		0.00302 - (in./in.) strain @ localization		
<b>Pull-Out Resistance</b>	<b>Age</b>	<b>Direct Tensile Bond Strength</b>	(ASTM C 1583)	
	28 days	400 psi (failure in concrete)		
<b>Shrinkage</b>	<b>Age</b>	<b>Length Change</b>	(ASTM C 157)	
	28 days	- 0.031%	3"x3"x11" prisms Air cure	
<b>Expansion</b>	<b>Age</b>	<b>Length Change</b>	(ASTM C 157)	
	28 days	+ 0.006%	3"x3"x11" prisms Water cure	

<b>Resistance to Alkalinity</b>	<b>Age</b>	<b>Length Change</b>	(ASTM C 1260)
	14 days	+ 0.018%	1"x1"x11" prisms
<b>Electrical Resistance</b>	<b>Age</b>	<b>Surface Resistivity</b>	(AASHTO T 358)
	28 days	500 kΩ-cm	
<b>Slant Shear Strength</b>	<b>Age</b>	<b>Shear Strength</b>	(ASTM C 882)
	1 day	3,200 psi	Air cure
	7 days	3,500 psi	
	28 days	3,900 psi	
<b>Ring test</b>	<b>Age</b>	<b>Time to Cracking</b>	(ASTM C 1581)
	28 days	None	
		Stress Rate - 18.4 psi / day Potential for cracking - Low	
<b>Freeze-Thaw Stability</b>	<b>Cycles</b>	<b>RDM</b>	(ASTM C 666 - A)
	300	99.4%	3"x3"x11" prisms Air cure for 14 days
<b>Chloride Ion Ingress</b>	<b>Age</b>	<b>Permeability</b>	(ASTM C 1202)
	28 days	< 100 Coulombs	Air cure
<b>Salt resistance</b>	<b>Cycles</b>	<b>Mass Loss</b>	(ASTM C 672)
	25	0 lbs / sf	Air cure for 28 days
	50	0 lbs / sf	
<b>Splitting tensile strength</b>	<b>Age</b>	<b>Tensile Strength</b>	(ASTM C 496)
	28 days	2,500 psi	4"x8" cylinders Air cure

## APPLICATION INFORMATION

<b>Coverage</b>	Four 61 lb bags of Sikacrete®-930 UHPC mixed with one half bag of Sikafiber®-6513 UHPC (at 9.9% water) yields approximately 2.0 cubic feet
<b>Substrates</b>	Concrete
<b>Flowability</b>	7-9 in (spread) <span style="float: right;">(ASTM C 1437) as modified per ASTM C 1856</span>
<b>Set Time</b>	6-8 hrs

## BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

## ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using

any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

## APPLICATION INSTRUCTIONS

### SURFACE PREPARATION

- Surface must be clean and sound. Remove all deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from the area to be repaired.
- Be sure repair area is not less than 1" (25 mm) deep. Preparation work should be done by appropriate means. Obtain an exposed aggregate surface with a minimum surface profile of  $\pm 1/8"$  (3 mm) (ICRI CSP-7-8) on clean, sound concrete.

- Substrate should be Saturated Surface Dry (SSD) with clean water prior to application. No standing water should remain during application.

## MIXING

Materials and substrate temperatures should be between 40°F (5°C) and 85°F (30°C). In cold weather, hot water may be used to increase mix temperature and avoid lengthy set-times. Do not place Sikacrete®-930 UHPC when ambient temperature is below 40°F (5°C). Refer to ACI 306, "Guide to Cold Weather Concreting". Sika® Plastiment® is highly effective in hot weather concreting to offset the accelerating effects of high ambient temperatures by slowing the hydration reaction and controlling the hydration heat. Concrete workability is enhanced and a superior surface finish is obtained. In mass concrete pours Sika® Plastiment® controls temperature rise and reduces the risk of thermal cracking.

Sikacrete®-930 UHPC requires robust equipment for proper mixing. Single bags can be hand-mixed using a drill. A Collomix Xo-55 dual drill is effective in mixing. A suitable-sized mixing pail should be used. 0.73 gallons of potable water per 61 lb bag should be added to the mixing container. The powder should slowly be added to the water while continuously mixing. Mix for 7-8 minutes to achieve a uniform consistency. Add the required steel fibers and mix for another 2-3 minutes until completely mixed. For larger batches, forced-action, vertical or horizontal shaft mortar mixers can be used. Alternatively, hydraulic auger mixers for skid steers are also effective for mixing Sikacrete®-930 UHPC. For bulk bag mixing, please contact your local Sika representative.

## CURING TREATMENT

Moist curing will provide the best results. Alternatively, an ASTM C 309- or C 1315-compliant curing compound can be applied once the applied material reaches final set. An evaporation retarder such as SikaFilm® or Sikagard®-30 ER is effective in reducing plastic shrinkage cracking during hot or dry conditions.

## LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at [usa.sika.com](https://usa.sika.com) or by calling SIKA's Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the

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