

## PRODUCT DATA SHEET

# King<sup>®</sup> MS-Cable

### SHRINKAGE COMPENSATED GROUT MATERIAL FOR ANCHORING APPLICATIONS

#### PRODUCT DESCRIPTION

King<sup>®</sup> MS-Cable is a neat, high performance, shrinkage-compensated, anchoring grout. It is an unsanded, Portland cement-based, expanding, shrinkage-compensated, anchoring grout containing silica fume and other carefully selected components. MS Cable resists water washout, making it ideal for anchoring cables, tendons or bolts in rock or soil media.

#### USES

- For most grouted anchor requirements including, cable bolting, earth tie-backs for excavation or soil stabilization, grouting anchors in tunnel support systems, re-bar grouting, and grouting soil or rock tendons for anchoring piles or foundation structures
- Infill of pipe piles

- Structural grout medium for injection-bored micropiles
- Grouting conventionally bored micropiles
- Post-grouting of micropile installations
- Construction of grout columns around shafts of standard Helical Pier Foundation System Piles

#### CHARACTERISTICS / ADVANTAGES

- Superior early strength gain, allowing early tensioning of anchors
- Excellent cohesive properties
- Resistant to water wash-out and dilution by water in wet ground conditions
- Excellent pumpability
- Thixotropic properties reduce material loss in fractured ground
- Reduced bleeding
- Improved resistance to sulphate attack
- Very low permeability

#### PRODUCT INFORMATION

<b>Packaging</b>	44 lb bag (20 kg) 55 lb bag (25 kg) Custom packaging is available to suit specific job requirements	
<b>Shelf Life</b>	12 months in original, unopened packaging	
<b>Storage Conditions</b>	Store in a dry, covered area, protected from the elements	
<b>Density</b>	121 lb/ft <sup>3</sup> (1.95 kg/L)	<b>ASTM C109</b>

# TECHNICAL INFORMATION

## Compressive Strength

### GROUT TEMPERATURE OF 70 °F (21 °C)

ASTM C 109

Curing Temperatures	41 °F (5 °C)	70 °F (21 °C)
1 day	650 psi (4.5 MPa)	4060 psi (28 MPa)
3 days	4350 psi (30 MPa)	5800 psi (40 MPa)
7 days	5800 psi (40 MPa)	6500 psi (45 MPa)
28 days	8000 psi (55 MPa)	8700 psi (60 MPa)

### King® MS-Cable tested with SikaCem® accelerator

Dosage : 1 bottle (5 oz or 150 ml)

Curing Temperature	41 °F (5 °C)	50 °F (10 °C)	70 °F (21 °C)
1 day	1150 psi (8 MPa)	2175 psi (15 MPa)	4350 psi (30 MPa)
2 days	4350 psi (30 MPa)	5075 psi (35 MPa)	5500 psi (38 MPa)
3 days	5800 psi (40 MPa)	6090 psi (42 MPa)	6525 psi (45 MPa)
28 days	8700 psi (60 MPa)	8700 psi (60 MPa)	9700 psi (60 MPa)

Dosage: 2 bottles (10 oz or 300 ml)

Curing Temperature	32 °F (0 °C)	41 °F (5 °C)
1 day	-	2175 psi (15 MPa)
2 days	2900 psi (20 MPa)	4350 psi (30 MPa)
3 days	3625 psi (25 MPa)	5800 psi (40 MPa)
28 days	5800 psi (40 MPa)	8700 psi (60 MPa)

Expansion	3–6 % (Volume unconfined)	ASTM C940
Bleeding	0.0 % (No segregation)	ASTM C940

## APPLICATION INFORMATION

### Mixing Ratio

- For a 44 lb (20 kg) bag, the recommended volume of water is 1.3 to 1.77 US gal. (5.0 to 6.7 L). Note that for a 44 lb (20 kg) bag, a lower water:material ratio (1.3 US gal. / 5.0 L) should be used to achieve pumpable consistencies while a higher water:material ratio (1.77 US gal. / 6.7 L) should be used for flowable consistencies.
- For a 55 lb (25 kg) bag, the recommended volume of water is 1.65 to 2.2 US gal. (6.25 to 8.3 L). Note that for a 55 lb (25 kg) bag, a lower water:material ratio (1.65 US gal. / 6.25 L) should be used to achieve pumpable consistencies while a higher water:material ratio (2.2 US gal. / 8.3 L) should be used for flowable consistencies.

### Coverage

Approx. 0.47 ft<sup>3</sup> per 44 lb bag (0.0133 m<sup>3</sup> per 20 kg bag)  
 Approx. 0.59 ft<sup>3</sup> per 55 lb bag (0.0167 m<sup>3</sup> per 25 kg bag)

\*May vary according to projects conditions

Flowability	20–30 seconds	ASTM C939
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## 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.

All moulds and mixing tools were pre-conditioned to the curing temperature, and the grout temperature was maintained at 70 °F (21 °C). Prepared test specimens were cast and then cured at the indicated test temperatures until the time of testing.

Liquid/solids ratio (water + bottle Sikacem® Accelerator/King® MS-Cable ) = 0.33;  
2.2 US gal of liquid per 55 lb bag of King® MS-Cable (8.3 L of liquid per 25 kg bag of King® MS-Cable )

## USES

- Not recommended for areas subjected to extremely high vibrations.
- Adhere strictly to recommended water additions.
- Exceeding the recommended water:material ratio will result in reduced compressive strengths and inferior physical properties.
- Do not use mortar-style mixer to mix material.

## ENVIRONMENTAL, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### MIXING

Mix to the consistency required for placement. Note that King® MS-Cable AW and King® MS-Cable 's thixotropic properties make the grout appear thick and cohesive when it is in fact very pumpable. Introduce potable water into a high shear mixer and then add powder while operating at medium speed. Increase mixer speed and continue mixing at high speed for three (3) to five (5) minutes. Decrease mixer speed to low and continue mixing while placing the grout. The time between mixing and pumping of the batch should not exceed 15 minutes.

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**Product Data Sheet**  
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## CLEANING OF TOOLS

Clean all tools and equipment after use with water. Once hardened, the product can only be removed mechanically.

## OTHER RESTRICTIONS

See Legal Disclaimer.

## 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](http://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 obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

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