

MS-S6 is a high performance, multi-purpose, pre-packaged, concrete repair material. It is a pre-blended, synthetic fibre-reinforced, pre-packaged, high performance, cementitious, concrete repair material containing Portland cement, silica fume, air-entraining admixture, 6 mm (¼ inch) stone and other carefully selected components.

#### FEATURES & BENEFITS

- Air-entrainment provides superior resistance to freeze-thaw cycling and salt-scaling resistance
- Properties similar to conventional concrete, thus offering excellent compatibility to parent concrete
- Excellent durability
- Reduced bleeding
- Improved resistance to sulphate attack
- Very low permeability
- Low shrinkage
- Excellent bond to parent concrete without requiring a bonding agent
- Compatible with integral, pre-applied and/or post-applied corrosion inhibitors\*
- Designed with natural normal-density non-reactive fine and coarse aggregates to eliminate potential alkali-aggregate reactivity (AAR)
- All KING products are manufactured using ISO 9001:2015 Certified Processes

\*For more information regarding the use of a corrosion inhibitor in conjunction with MS-S6, please contact your KING Technical Representative.

#### OPTIONAL FEATURES & BENEFITS

##### CORROSION INHIBITOR

##### MS-S6 CI

- Corrosion inhibitor protects steel reinforcing and other metals embedded in concrete from corrosion induced by carbonation or chlorides
- Pre-blended corrosion inhibitor provides the correct dosage to enhance corrosion protection

#### USES

- Partial depth rehabilitation of concrete slabs, in parking garages, balconies, bridge decks and/or any concrete structures
- Minimum application thickness for MS-S6 is 25 mm (1 inch)
- For full depth repair or for repair edges longer than 1 m (3 ft), refer to MS-S10
- New concrete construction, especially areas subject to freeze-thaw cycles and high salt (chloride) environments

#### PROCEDURES

**Surface Preparation:** All surfaces to be in contact with MS-S6 must be free from dust, oil, grease or any other foreign substances that may interfere with the bond of the material. Remove all delaminated or unsound concrete providing a roughened surface and a minimum of 25 mm (1 inch) clearance behind any corroded reinforcing steel. The perimeter of the repair area should be saw-cut a minimum of 20 mm (¾ inch). Clean the area to be repaired with potable water, leaving the concrete saturated but free of standing water (SSD).

**Mixing:** Mechanical mixing using a concrete drum-mixer, mortar-style mixer or drill-mixer, is required when mixing MS-S6. Do not mix MS-S6 manually. **Place 2.2 L (0.58 US gallon) of water into mixer** and slowly introduce entire bag of MS-S6. If additional water is required to meet the target slump slowly add additional water while mixer is running, not exceeding the **maximum recommended water content of 2.6 L (0.69 US gallon) per 30 KG (66 lb) bag**. Continue mixing for 3 minutes and stop only when material has obtained a consistent homogeneous mix.

**Placing:** Mix and substrate temperatures should be maintained between 5 °C (40 °F) and 30 °C (86 °F), until the material has reached final set. Do not place MS-S6 when ambient temperature is below 5 °C (40 °F). Refer to ACI 306, "Guide to Cold Weather Concreting". In warm weather, ice water may be used to cool mix temperature and avoid short working time. When ambient temperature is above 30 °C (86 °F), refer to ACI 305, "Guide to Hot Weather Concreting".

Place material uniformly and consolidate by forcing it down to the surface of the parent concrete and around the underside of the rebar using a concrete vibrator, a steel trowel, a wood float or by rodding the material following ACI 309 R "Guide to Consolidating Concrete", without causing segregation. Ensure material has filled all voids and completely encapsulated any exposed rebar in the area to be repaired. For slab finishing, the use of a wood or magnesium float is recommended.

#### CURING

Curing is essential to optimize physical properties of the concrete and minimize plastic shrinkage. Cure immediately after material has reached initial set in accordance with ACI 308 "Guide to Curing Concrete". Continuously moist cure for a minimum period of 7 days. Alternatively, moist cure for a minimum period of 24 hours and apply a curing compound that complies with ASTM C 309. Curing is particularly critical in rapid moisture loss conditions such as high temperatures, high winds and low humidity.

#### TECHNICAL DATA

The following data is representative of typical values achievable under laboratory conditions. Results in the field may vary.

##### MASS DENSITY

ASTM C 39 2310 kg/m<sup>3</sup> (144 lb/ft<sup>3</sup>)

##### COMPRESSIVE STRENGTH

###### ASTM C 39

1 Day 15 MPa (2175 psi)  
 3 Day 25 MPa (3625 psi)  
 7 Day 35 MPa (5075 psi)  
 28 Day 45 MPa (6500 psi)

##### FLEXURAL STRENGTH

###### ASTM C 78

7 Day 7 MPa (1015 psi)  
 28 Day 12 MPa (1750 psi)

##### MODULUS OF ELASTICITY

###### ASTM C 469

28 Day 29.4 GPa (4.3 x 10<sup>6</sup> psi)

##### AIR CONTENT

ASTM C 457 4.0-9.0%

## BOND STRENGTH BY SLANT SHEAR

### ASTM C 882

1 Day	7.4 MPa (1070 psi)
7 Day	19.4 MPa (2810 psi)

## UNIAXIAL DRYING SHRINKAGE

### ASTM C 157

28 Day	350 µm/m
56 Day	500 µm/m

## FREEZE-THAW RESISTANCE

ASTM C 666	98% (Excellent durability factor)
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## SALT-SCALING RESISTANCE

### ASTM C 672

50 Cycles	< 0.1 kg/m <sup>2</sup> (0.02 lb/ft <sup>2</sup> )
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## CHLORIDE ION PENETRABILITY

ASTM C 1202	350 Coulombs
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## YIELD

30 KG (66 lb) bag contains approximately 0.014 m<sup>3</sup> (0.5 ft<sup>3</sup>).

## PACKAGING

MS-S6 is normally packaged in 30 KG (66 lb) triple-lined bags and polywrapped on wooden pallets. All KING products can be custom packaged to suit specific job requirements.

## STORAGE AND SHELF LIFE

Material should be stored in a dry, covered area, protected from the elements. Unopened bags have a shelf life of 12 months.

## SAFETY PROCEDURES

MS-S6 contains Portland cement. Normal safety-wear such as rubber gloves, dust mask and safety glasses used to handle conventional cement based products should be worn. Safety Data Sheets are available upon request.

**Warranty:** This product is designed to meet the performance specifications outlined in this product data sheet. If the product is used in conditions for which it was not intended, or applied in a manner contrary to the written recommendations contained in the product data sheet, the product may not reach such performance specifications. The foregoing is in lieu of any other warranties, representations or conditions, expressed or implied, including, but not limited to, implied warranties or conditions of merchantable quality or fitness for particular purposes, and those arising by statute or otherwise in law or from a course of dealing or usage of trade. [REV.0011\_2459292.5]