FA-S6

A SIKA COMPANY

FA-S6 is a high performance, pre-packaged, concrete repair material for partial depth repairs. It is a pre-blended, synthetic fibre-reinforced, pre-packaged, high performance, cementitious, concrete repair material containing Portland cement, fly ash, 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 in the presence of de-icing salts
- Designed with natural normal-density non-reactive fine and coarse aggregates to eliminate potential alkali-aggregate reactivity (AAR)
- Properties similar to conventional concrete, thus offering excellent compatibility to parent concrete
- Excellent pumpability
- Excellent workability and finishability
- Reduced bleeding
- Improved resistance to sulphate attack
- Low permeability
- Low shrinkage
- Enhances performance of cathodic protection system
- Compatible with integral, pre-applied and/or post-applied
- corrosion inhibitors*
- All KING products are manufactured using ISO 9001:2015 Certified Processes

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

OPTIONAL FEATURES & BENEFITS

CORROSION INHIBITOR

FA-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 beams, columns, and/or soffits in bridges, parking garages, balconies or other concrete structures
- Induced current applications including new construction
- and rehabilitation
- Galvanic anode applications including new construction
- and rehabilitation
- Minimum application thickness of FA-S6 is 25 mm (1 inch)
- For full depth repairs or for balcony edges longer than 1 m (3 ft), refer to FA-S10

PROCEDURES

Surface Preparation: All surfaces to be in contact with FA-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 FA-S6. Do not mix FA-S6 manually. **Place 2.5 L (0.66 US gallon) of water into mixer** and slowly introduce entire bag of FA-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 3.0 L (0.80 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 FA-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	2359 kg/m^3 (147 lb/ft^3)

COMPRESSIVE STRENGTH*

ASTM C 39	
1 Day	15 MPa (2175 psi)
3 Day	30 MPa (4350 psi)
7 Day	35 MPa (5075 psi)
28 Day	45 MPa (6500 psi)

FLEXURAL STRENGTH

ASTM C 78	
7 Day	5.7 MPa (825 psi)
28 Day	6.6 MPa (955 psi)

AIR CONTENT

ASTM C 457	4.0-9.0%

MODULUS OF ELASTICITY

ASTM C 469	
28 Day	28.2 GPa (4.09 x 10^6 psi)

KING PACKAGED MATERIALS COMPANY
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FA-S6

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POISSON'S RATIO
ASTM C 469
28 Day 0.24

BOND STRENGTH
CSA A 23.2-6B (MODIFIED)
28 Day 1.72 MPa (250 psi)*

BOND STRENGTH BY SLANT SHEAR
ASTM C 882
1 Day 8.3 MPa (1200 psi)
7 Day 15.9 MPa (2300 psi)

UNIAXIAL DRYING SHRINKAGE
ASTM C 157
3 Day 140 µm/m
28 Day 460 µm/m
60 Day 570 µm/m

BOILED ABSORPTION
ASTM C 642 7.0%

MAXIMUM VOLUME OF PERMEABLE VOIDS
ASTM C 642 15.0%

FREEZE-THAW RESISTANCE
ASTM C 666 100% (Excellent durability factor)

SALT-SCALING RESISTANCE
ASTM C 672
50 Cycles 0.25 kg/m^2 (0.05 lb/ft^2)

CHLORIDE ION PENETRABILITY
ASTM C 1202 1500 Coulombs

ELECTRICAL RESISTIVITY
8000 Ω•cm

*Bond strength achieved from independent job-site testing. Failure occurred in parent concrete.

YIELD
30 KG (66 lb) bag contains approximately 0.014 m^3 (0.5 ft^3).

PACKAGING
FA-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
FA-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.

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