

RS-S10 is a high performance, very rapid hardening, polymer-modified, pre-packaged concrete material. It is a pre-blended, pre-packaged, high performance, cementitious, concrete repair and construction material powered by Rapid Set® technology, containing a redispersible polymer, 10 mm (3/8 inch) stone and other carefully selected components.

FEATURES & BENEFITS

- Very high early strength for reduced construction schedule
- Properties similar to conventional concrete, thus offering excellent compatibility to parent concrete
- Ideal for full depth repair, does not need to be extended
- Designed with natural normal-density non-reactive fine and coarse aggregates to eliminate potential alkali-aggregate reactivity (AAR)
- Membrane application possible in only 8 hours after placement*
- Compatible with integral, pre-applied and/or post-applied corrosion inhibitors**
- All KING products are manufactured using ISO 9001:2015 Certified Processes

*Earlier membrane application is possible under certain conditions. See the Membrane Application section for more detailed information.

**For more information regarding the use of a corrosion inhibitor in conjunction with RS-S10, please contact your KING Technical Representative.

OPTIONAL FEATURES & BENEFITS

CORROSION INHIBITOR

RS-S10 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 and full depth rehabilitation of concrete slabs, in parking garages, balconies and/or bridge decks
- Concrete repair applications requiring return to service within hours
- Place RS-S10 at a minimum thickness of 38 mm (1½ inches)

PROCEDURES

Surface Preparation: All surfaces to be in contact with RS-S10 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 RS-S10. Do not mix RS-S10 with a planetary mixer and do not mix RS-S10 manually. For a target slump of 200 mm (8.0") to 265 mm (10.5"), **place 2.20 L (0.58 US gallon) of water into mixer** and slowly introduce entire bag of RS-S10. Only 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 2.45 L (0.65 US gallon) per 30 KG (66 lb) bag**. Continue mixing for 3 minutes and stop only when material has obtained a consistent homogeneous mix.

If a slump lower than the target is desired (< 200 mm or 8.0"), place 1.90 L (0.50 US gallon) of water into mixer and slowly introduce entire bag of RS-S10. Add additional water as needed while mixer is running to achieve the desired slump, not exceeding the maximum recommended water content of 2.45 L (0.65 US gallon) per 30 KG (66 lb) bag.

Placing: When the ambient temperature is between 0 °C (32 °F) and 10 °C (50 °F), the temperature of the fresh concrete must be maintained between 21 °C (70 °F) and 30 °C (86 °F) to promote early-age strength gain. The substrate temperature should be maintained above 0 °C (32 °F), until the material has reached final set. When the ambient temperature is below 0 °C (32 °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 the physical properties of RS-S10 and minimize plastic shrinkage. RS-S10 should be protected from moisture loss (i.e. covered with a plastic sheet) for only 3 hours after material has reached initial set. Alternatively, apply a water-based curing compound that complies with ASTM C 309 after material has reached initial set. Curing is particularly critical in rapid moisture loss conditions such as high temperatures, high winds and low humidity.

MEMBRANE APPLICATION

Always follow the recommendations of the membrane manufacturer and test the moisture content before applying a membrane. Contact the membrane manufacturer or your KING Technical Representative for any additional information.

	Standard Application Without Primer***	Rapid Application With Primer****
Recommended Curing Method	Protect From Evaporation (ie. cover with a plastic sheet)	
Recommended Curing Period	3 Hours	3 Hours
Recommended Drying Period	5 Hours	-
Recommended Delay Before Membrane Application	8 Hours	3 Hours

***For more information regarding membrane application without the use of a primer, refer to the KING Technical Report titled "Membrane Application to King Construction Products".

****For more information regarding rapid membrane application with the use of a primer, refer to the KING Technical Report titled "Rapid Membrane Application to King Construction Products".

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 2350 kg/m³ (147 lb/ft³)

WORKING TIME^A

20 minutes

SET TIME^A

Initial 30 minutes-1 hour
Final 45 minutes-1 hour 15 minutes

COMPRESSIVE STRENGTH^A

ASTM C 39 **50% HUMIDITY CURE**
3 Hour 25 MPa (3625 psi)
1 Day 35 MPa (5075 psi)
3 Day 37 MPa (5360 psi)
7 Day 40 MPa (5800 psi)
28 Day 45 MPa (6500 psi)

FLEXURAL STRENGTH

ASTM C 78
1 Day 6.9 MPa (1000 psi)
28 Day 8.1 MPa (1175 psi)

MODULUS OF ELASTICITY

ASTM C 469
28 Day 28.7 GPa (4.1 x 10⁶ psi)

POISSON'S RATIO

ASTM C 469
28 Day 0.23

COEFFICIENT OF THERMAL EXPANSION

CRD-C 39
28 Day 14.7 x 10⁻⁶/°C (8.2 x 10⁻⁶/°F)

BOND STRENGTH BY SLANT SHEAR

ASTM C 882
1 Day 14.8 MPa (2145 psi)
7 Day 18.2 MPa (2640 psi)

UNIAXIAL DRYING SHRINKAGE

ASTM C 157
1 Day 230 µm/m
14 Day 300 µm/m
56 Day 440 µm/m

RESTRAINED SHRINKAGE (RING)

ASTM C 1581
Age at Cracking No cracks after 28 days
Initial Strain 3.9 µm/m
Maximum Strain -36.4 µm/m
Stress Rate 0.03 MPa/Day
(Low cracking potential)

BOILED ABSORPTION

ASTM C 642 5.8%

FREEZE-THAW RESISTANCE

ASTM C 666 95.9% (Excellent durability factor)

SALT-SCALING RESISTANCE

ASTM C 672
50 Cycles 0.34 kg/m² (0.07 lb/ft²)

CHLORIDE ION PENETRABILITY

ASTM C 1202 588 Coulombs

^AThe following data was obtained under laboratory conditions with a material temperature of 21 °C (70 °F). Higher or lower temperatures can respectively accelerate or delay setting time and early-age compressive strength gain.

YIELD

30 KG (66 lb) bag yields approximately 0.014 m³ (0.5 ft³).

PACKAGING

RS-S10 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

RS-S10 contains rapid setting 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.0018_2458717.5]