

HP-S10

HP-S10 is a high performance, high early strength, pre-packaged concrete material. It is a pre-blended, pre-packaged, high performance, cementitious, concrete repair and construction material containing Portland cement, silica fume, air-entraining admixture, 10 mm (3/8 inch) stone and other carefully selected components.

FEATURES & BENEFITS

- Ideal for full depth repair, does not need to be extended
- Excellent bond to parent concrete without requiring a bonding agent
- Designed with natural normal-density non-reactive fine and coarse aggregates to eliminate potential alkali-aggregate reactivity (AAR)
- High early strength for earlier re-opening of traffic lanes on concrete structure
- 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
- Improved performance in cold temperatures
- Reduced bleeding
- Improved resistance to sulphate attack
- Very low permeability
- Low shrinkage
- All KING products are manufactured using ISO 9001:2008 Certified Processes

USES

- High early strength concrete for use in pre-fabricated decks, and infill strips and shear key pockets of pre-fabricated bridges
- Partial and full depth rehabilitation of concrete slabs in parking garages, balconies, bridge decks and/or any concrete structures
- Minimum application thickness of HP-S10 is 38 mm (1½ inches)
- 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 HP-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: Place 75% of required water into mixer and slowly introduce entire bag HP-S10. Add balance of required water

slowly while mixer is running, not exceeding maximum recommended volume of water. **Maximum recommended volume of water is 2.4 L (0.6 US gallon) per 30 KG (66 lb) bag***. Continue mixing for a minimum of 3 minutes and stop only when material has obtained a consistent homogeneous mix.

*Mixing procedures of when 1,000 KG bulk bags are used in ready-mix trucks can be forwarded upon request.

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 HP-S10 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 2400 kg/m³ (150 lb/ft³)

COMPRESSIVE STRENGTH

ASTM C 39

12 Hour	21 MPa (3000 psi)
1 Day	40 MPa (5800 psi)
3 Day	45 MPa (6500 psi)
7 Day	50 MPa (7250 psi)
28 Day	60 MPa (8700 psi)

HP-S10

FLEXURAL STRENGTH

ASTM C 78

7 Day 10 MPa (1500 psi)

28 Day 14 MPa (2030 psi)

MODULUS OF ELASTICITY

ASTM C 469

28 Day 31.2 GPa (4.5 x 10⁶ psi)

AIR CONTENT

ASTM C 231 4.5-7.5%

ASTM C 457 > 3.0%

BOND STRENGTH BY SLANT SHEAR

ASTM C 882

7 Day 10 MPa (1500 psi)

28 Day 21 MPa (3050 psi)

UNIAXIAL DRYING SHRINKAGE

ASTM C 157

35 Day 415 µm/m

FREEZE-THAW RESISTANCE

ASTM C 666 100% (Excellent durability factor)

SALT-SCALING RESISTANCE

ASTM C 672 < 0.2 kg/m² (0.04 lb/ft²)

CHLORIDE ION PENETRABILITY

ASTM C 1202

56 Day 270 Coulombs

SAFETY PROCEDURES

HP-S10 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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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.00012_2458484.5]

YIELD

- 30 KG (66 lb) bag yields approximately 0.014 m³ (0.5 ft³)
- 1,000 KG (2,205 lb) bag yields approximately 0.44 m³ (15.5 ft³)

PACKAGING

HP-S10 is normally packaged in 30 KG (66 lb) triple-lined bags and 1,000 KG (2,205 lb) bulk 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.

KING PACKAGED MATERIALS COMPANY

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