

### HP-S6 CONCRETE

High performance, rapid hardening, pre-packaged concrete material. HP-S6 Concrete is a pre-blended, pre-packaged high performance cementitious concrete repair and construction material containing Portland cement, silica fume, air-entraining admixture, 6 mm (¼ inch) stone and other carefully selected components.

#### FEATURES & BENEFITS

- High early strength for reduced construction schedule.
- 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.
- Improved durability.
- Improved performance in cold temperatures.
- Reduced bleeding.
- Improved resistance to sulphate attack.
- Very low permeability.
- Low shrinkage.
- 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 9001:2008 Certified Processes.

#### USES

- Partial depth rehabilitation of concrete beams, columns, and/or soffits in bridges, parking garages, balconies or other concrete structures.
- New concrete construction, especially areas subject to freeze-thaw cycles and high salt (chloride) environments.
- Minimum application thickness of 25 mm (1 inch).
- For full depth repair or for repair edges longer than 1 m (3 ft), refer to HP-S10 Concrete.

#### PROCEDURES

##### Surface Preparation:

All surfaces to be in contact with HP-S6 Concrete 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 sawcut 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:

HP-S6 Concrete. Add balance of required water slowly while mixer is running, not exceeding maximum recommended volume of water. **Maximum recommended volume of water is 2.6 litres (0.68 US gallons) 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 1000 kg bulk bags are used in ready-mix trucks can be forwarded upon request.*

##### Placing:

Mix and substrate temperatures should be maintained between 5 to 30°C (40 to 86°F).

In cold weather, hot water may be used to increase mix temperature and avoid lengthy set times. Do not place HP-S6 Concrete when ambient temperature is below 5°C (40°F). Refer to ACI 306, «Cold Weather Concreting». In warm weather, ice water may be used as mix water to cool mix temperature and avoid short working time. Evaporation retarder should be considered to improve finishability. When ambient temperature is above 30°C (86°F), refer to ACI 305, «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 trowel, a wood float or by rodding the material. Ensure material has completely encapsulated any exposed rebar. For slab finishing, the use of a wood float is recommended.

##### Curing:

Curing is essential to optimize physical properties of the concrete and minimize plastic shrinkage. HP-S6 Concrete should be cured 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.

<b>MASS DENSITY</b>		
ASTM C 39		2360 kg/m <sup>3</sup> (147 lb./ft <sup>3</sup> )
<b>COMPRESSIVE STRENGTH</b>		
ASTM C 39		
1 Day		40 MPa (5800 psi)
7 Day		50 MPa (7250 psi)
28 Day		60 MPa (8700 psi)
<b>AIR CONTENT</b>		
ASTM C 457		4 to 9 %
<b>BOND STRENGTH BY SLANT SHEAR</b>		
ASTM C 882		
28 Day		25 MPa (3600 psi)

##### YIELD

30 kg (66 lb.) or 1000 kg (2205 lb.) bag contain approximately 0.014 m<sup>3</sup> (0.5 ft<sup>3</sup>) or 0.45 m<sup>3</sup> (0.6 yd<sup>3</sup>) respectively.

##### PACKAGING

HP-S6 Concrete is normally packaged in 30 kg (66 lb.) triple lined bags and 1000 kg (2205 lb.) bulk bags and poly wrapped on wooden pallets. All KING products can be custom packaged to suit specific job requirements.

**HP-S6 CONCRETE****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**

HP-S6 Concrete 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. Material Safety Data Sheets are available upon request.

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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.

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**KING PACKAGED MATERIALS COMPANY**

**Burlington Office**  
3385 Harvester Rd.  
Burlington, ON  
L7N 3N2  
Phone: (905) 639-2993  
Fax: (905) 333-3730

**Boisbriand Office**  
3825 rue Alfred-Laliberté  
Boisbriand, QC  
J7H 1P7  
Phone: (450) 430-4104  
Fax: (450) 430-6855

**Brantford Office**  
541 Oak Park Rd.  
Brantford, ON  
N3T 5L8  
Phone: (519) 756-6177  
Fax: (519) 756-7490

**Sudbury Office**  
644 Simmons Rd.  
Dowling, ON  
P0M 1R0  
Phone: (705) 855-1155  
Fax: (705) 855-1122