

### IN-PAKT CONSTRUCTION GROUT

Pre-packaged, general purpose, pumpable, non-shrink, cementitious grout.

In-Pakt Construction Grout is a cement based, non-metallic, non-shrink grout containing well graded, natural, fine aggregate and other carefully selected components. In-Pakt Construction Grout meets ASTM C 1107, type C grout and can be used at varying consistencies from dry pack to fluid.

#### FEATURES & BENEFITS

- Can be mixed and placed from dry pack, plastic and fluid consistencies using relatively low water/cement ratios.
- Excellent pumpability.
- Achieves hardened properties in a wide range of temperature conditions.
- Non-corrosive, non-chloride, non-metallic.
- Excellent resistance to freeze-thaw cycling.
- All King products are manufactured using ISO 9001:2000 Certified Processes.

#### USES

- Grouting machinery base plates and column sole plates.
- Grouting anchor bolts, dowels and hand rails.
- Repair of precast units.
- Infill of pipes and sleeves.

#### PROCEDURES

##### Surface Preparation:

All surfaces to be in contact with In-Pakt Construction Grout 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. Clean the area to be repaired with potable water, leaving the concrete saturated but free of standing water (SSD).

##### Water Proportioning For Grout Consistency:

The following amounts of water will produce the following grout consistencies:

**Dry Pack** – approx. 2.7 litres (0.7 US gallon) of water

**Plastic** – approx. 3.6 litres (0.95 US gallon) of water

**Fluid** – approx. 5.0 litres (1.3 US gallon) of water

**Note:** Water requirement varies with temperature. Increase water slightly as temperature rises and decrease water slightly as temperature decreases.

##### Mixing:

Place 75 % of required potable water into mixer and slowly introduce entire bag of In-Pakt Construction Grout. Add balance of required water slowly while mixer is running, not exceeding maximum recommended volume of water. Continue mixing for a minimum of 3 minutes and stop only when material has obtained a consistent homogeneous mix. Allow 5 minutes mixing time if using a spiral blade drill mixer. Keep grout mix well agitated until placed.

##### Placing:

**Dry Pack** – Firmly press or ram In-Pakt Construction Grout into place using metal or hardwood tamping tools and a mason's trowel. Grout consistency when pressed into a firm ball should display no cracking or excessive surface moisture.

**Plastic** – Rod In-Pakt Construction Grout into place or trowel into areas where material can not flow into place. Grout consistency should be similar to that of a masonry mortar (between 100 – 115 % flow, ASTM C 1437).

**Fluid** – In-Pakt Construction Grout may be poured or pumped into place. Pour continuously with adequate head pressure or pump into place ensuring that all voids are completely filled. Formwork joints should be caulked with suitable material. Adequately vent high points to allow entrapped air to escape.

##### Curing:

Curing is essential to optimize physical properties of the concrete and minimize plastic shrinkage. In-Pakt Construction Grout should be cured immediately after material has reached initial set or immediately after forms are removed 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 King Duro-Cure curing compound or 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.

	DRY PACK	PLASTIC	FLUID
<b>MIXING RATIO PER 25 KG (55 LB.)</b>			
	2.7 litres (0.7 US gallon)	3.6 litres (0.95 US gallon)	5.0 litres (1.3 US gallon)
<b>WORKING TIME</b>			
	30 minutes	60 minutes	60 minutes
<b>FLOW TABLE ASTM C 1437</b>			
		110 %	> 150 %
<b>FLOW CONE ASTM C 939</b>			
			30 seconds
<b>WET DENSITY ASTM C 138</b>			
		2130 kg/m <sup>3</sup> (133 lb./ft <sup>3</sup> )	2160 kg/m <sup>3</sup> (135 lb./ft <sup>3</sup> )
<b>SET TIME ASTM C 191 METHOD A</b>			
<b>Initial Set</b>		3.0 hours	4.0 hours
<b>Final Set</b>		4.5 hours	6.5 hours

## IN-PAKT CONSTRUCTION GROUT

	DRY PACK	PLASTIC	FLUID
<b>COMPRESSIVE STRENGTH</b>			
<b>ASTM C 109</b>			
<b>1 Day</b>	35 MPa (5075 psi)	25 MPa (3625 psi)	20 MPa (2900 psi)
<b>3 Day</b>	45 MPa (6525 psi)	30 MPa (4350 psi)	25 MPa (3625 psi)
<b>7 Day</b>	50 MPa (7250 psi)	35 MPa (5075 psi)	30 MPa (4350 psi)
<b>28 Day</b>	65 MPa (9425 psi)	40 MPa (5800 psi)	35 MPa (5075 psi)
<b>SPLITTING TENSILE STRENGTH</b>			
<b>ASTM C 496</b>			
<b>28 Day</b>		4.0 MPa (580 psi)	3.0 MPa (435 psi)
<b>BOND STRENGTH BY SLANT SHEAR</b>			
<b>ASTM C 882</b>			
<b>28 Day</b>		30 MPa (4350 psi)	35 MPa (5075 psi)
<b>MODULUS OF ELASTICITY</b>			
<b>ASTM C 469</b>			
<b>28 Day</b>		24.5 GPa (3.5 x 10 <sup>6</sup> psi)	18.2 GPa (2.6 x 10 <sup>6</sup> psi)
<b>BOND STRENGTH PERFORMANCE OF ANCHORS *</b>			
<b>ASTM E 1512 AND E 488</b>			
<b>24 hour</b>			45 kN (10100 lb.)
<b>7 Day</b>			60 kN (13475 lb.)
<b>28 Day</b>			70 kN (15725 lb.)
*: Tests conducted with a 15M (#4) steel rebar embedded at a depth of 150 mm (6 in.) in a 19 mm (¾ in.) diameter hole drilled in a 35 MPa concrete.			
<b>HARDENED HEIGHT CHANGE</b>			
<b>ASTM C 1090</b>			
<b>28 Day</b>		0.02 %	0.01 %
<b>WATER ABSORPTION</b>			
<b>ASTM C 642</b>			
		10.3 %	14.3 %
<b>FREEZE-THAW RESISTANCE</b>			
<b>ASTM C 666</b>			
		106 %	102 % (Excellent durability factor)

### OPTIMUM PERFORMANCE

- Not recommended for areas of extremely high vibration.
- Grout should be protected from freezing until after final set.
- Surface temperature of the grouted area should be between 5°C and 30°C (40°F and 86°F).

### YIELD

**25 kg (55 lb.)**

### PLASTIC

0.013 m<sup>3</sup>

0.47 ft<sup>3</sup>

### FLUID

0.014 m<sup>3</sup>

0.49 ft<sup>3</sup>

### PACKAGING:

In-Pakt Construction Grout is normally packaged in 25 kg (55 lb.) triple lined bags and poly wrapped 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

In-Pakt Construction Grout 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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