

## IN-PAKT PRECISION CT GROUT

Pre-packaged, high performance, pumpable, non-shrink, cementitious grout for cold temperature applications. In-Pakt Precision CT Grout is a cement based, nonmetallic, non-shrink grout containing well graded, natural, fine aggregate, silica fume and other carefully selected components. In-Pakt Precision CT Grout meets ASTM C 1107, Type C grout and can be used at varying consistencies from dry pack to fluid in temperatures above -5°C (23°F).

### FEATURES & BENEFITS

- Can be mixed and placed from dry pack, plastic and fluid consistencies using relatively low water/cement ratios.
- Excellent pumpability.
- Improved resistance to washout.
- Achieves hardened properties in cold temperature conditions.
- Very low permeability.
- Non-corrosive, non-chloride, non-metallic.
- Excellent resistance to freeze-thaw cycling and salt-scaling in the presence of de-icing salts.
- All KING products are manufactured using ISO 9001:2008 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 in marine environments.
- Not recommended for areas of extremely high vibration.
- For void filling applications larger than 50 mm (2 in.), use MS-S10 Self-Consolidating Concrete.
- Contact KING Technical Support Staff for recommendations or information on uses or conditions not listed.

### PROCEDURES

#### Surface Preparation:

All surfaces to be in contact with In-Pakt Precision CT 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. To avoid freezing of the interface between the grout and the parent concrete, do not pre-wet the receiving surface. Pneumatically remove any free standing or other fine particles that may interfere with the bond between the In-Pakt Precision CT Grout and the substrate.

When temperatures are below freezing for 24 hours but not lower than -5°C (23°F), the temperature of the substrate, plates and grout must be warmed at 5°C (40°F) prior to placement. The temperature of the grouted area must be maintained above 0°C (32°F) for 24 hours after application.

When temperatures are below -5°C (23°F), the temperature of the substrate, plates and grout must be warmed at 5°C (40°F) for 24 hours prior to placement. The temperature of the grouted area must be maintained above 0°C (32°F) for 24 hours after application.

### Water Proportioning For Grout Consistency:

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

**Dry Pack** – approx. 2.5 litres (0.66 US gallon) of water

**Plastic** – approx. 3.0 litres (0.79 US gallon) of water

**Fluid** – approx. 4.0 litres (1.0 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 water into mixer and slowly introduce entire bag of In-Pakt Precision CT 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 Precision CT 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 Precision CT 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 Precision CT 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:

A resin based liquid membrane curing compound approved for use in cold weather conditions that complies with ASTM C 309 should be applied immediately after grout reaches final set.

### 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>			
	2.5 litres (0.66 US gallon)	3.0 litres (0.79 US gallon)	4.0 litres (1.0 US gallon)

## IN-PAKT PRECISION CT GROUT

	DRY PACK	PLASTIC	FLUID		DRY PACK	PLASTIC	FLUID
<b>WORKING TIME</b>	30 minutes	60 minutes	60 minutes	<b>HARDENED HEIGHT CHANGE</b>			
				<b>ASTM C 1090</b>			
<b>FLOW TABLE</b>				<b>28 Day</b>	0.10%	0.02%	
<b>ASTM C 1437</b>		110%*	> 150%	<b>ABSORPTION</b>			
<b>WET DENSITY</b>				<b>ASTM C 642</b>	8.2%	13.0%	
<b>ASTM C 138</b>		2127 kg/m <sup>3</sup> (132 lb./ft <sup>3</sup> )	2170 kg/m <sup>3</sup> (135 lb./ft <sup>3</sup> )	<b>FREEZE-THAW RESISTANCE</b>			
<b>SET TIME</b>				<b>ASTM C 666</b>	100%	107%	(Excellent durability factor)
<b>ASTM C 191 (METHOD A)</b>				<b>DE-ICING/SALT-SCALING RESISTANCE</b>			
<b>Initial</b>		3.0 hours	5.5 hours	<b>ASTM C 672</b>			
<b>Final</b>		3.5 hours	7.0 hours	<b>25 Cycles</b>	0.02 kg/m <sup>2</sup> (0.004 lb./ft <sup>2</sup> )	0.04 kg/m <sup>2</sup> (0.008 lb./ft <sup>2</sup> )	
<b>COMPRESSIVE STRENGTH</b>				<b>50 Cycles</b>	0.22 kg/m <sup>2</sup> (0.05lb./ft <sup>2</sup> )	0.20 kg/m <sup>2</sup> (0.04 lb./ft <sup>2</sup> )	
<b>ASTM C 109</b>							
<b>1 Day</b>		25 MPa (3625 psi)	15 MPa (2175 psi)	* Laboratory conditions with material and ambient temperatures kept at 5°C (40°F).			
<b>3 Day</b>	40 MPa (5800 psi)	30 MPa (4350 psi)	20 MPa (2900 psi)	<b>YIELD</b>			
<b>7 Day</b>	45 MPa (6525 psi)	45 MPa (6525 psi)	35 MPa (5075 psi)	<b>25 kg (55 lb.)</b>	0.013 m <sup>3</sup> 0.46 ft <sup>3</sup>	0.014 m <sup>3</sup> 0.49 ft <sup>3</sup>	
<b>28 Day</b>	55 MPa (7975 psi)	55 MPa (7975 psi)	40 MPa (5800 psi)	<b>PACKAGING</b>	In-Pakt Precision CT Grout is normally packaged in 25 kg (55 lb.) triple lined bags and polywrapped on wooden pallets. All KING can be custom packaged to suit specific job requirements.		
<b>COMPRESSIVE STRENGTH</b>				<b>STORAGE AND SHELF LIFE</b>	Material should be stored in a dry covered area protected from the elements. Unopened bags have a shelf life of 12 months.		
<b>ASTM C 109 (at 5°C (40°F))*</b>				<b>SAFETY PROCEDURES</b>	In-Pakt Precision CT 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.		
<b>1 Day</b>		5 MPa (725 psi)		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.0001_08/01/2014]			
<b>3 Day</b>		25 MPa (3625 psi)					
<b>7 Day</b>		30 MPa (4350 psi)					
<b>28 Day</b>		40 MPa (5800 psi)					
<b>SPLITTING TENSILE STRENGTH</b>							
<b>ASTM C 496</b>							
<b>28 Day</b>		4.0 MPa (580 psi)	3.5 MPa (505 psi)				
<b>BOND STRENGTH BY SLANT SHEAR</b>							
<b>ASTM C 882</b>							
<b>28 Day</b>		35 MPa (5075 psi)	35 MPa (5075 psi)				
<b>MODULUS OF ELASTICITY</b>							
<b>ASTM C 469</b>							
<b>28 Day</b>		26.0 GPa (3.8 x 10 <sup>6</sup> psi)	19.5 GPa (2.8 x 10 <sup>6</sup> psi)				

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