



# CEM982

## High Performance Expansion Controlled Cementitious Grout, 2% Restricted & 5% Non-restricted Expansion

### PRODUCT DESCRIPTION

CEM982 is a ready-to-use, durable, non-metallic, flowable, high strength, cementitious, one-component controlled expansive grout, with superior load stability. It complies with ASTM C1107 Type C.

CEM982 comprises of a balanced blend of washed and graded silica sands to promote knitting, high sulphate resistant cement, fluidity improvement compounds and an expansive additive to control shrinkage. This shrinkage additive guarantees controlled positive expansion in all directions.

CEM982 inorganic shrinkage compensating additive completely fills the voids to densify the mix to a strong and stable grout. CEM982 produces an early high and ultimate strength without intermediate and latent shrinkage. The inorganic shrinkage compensating additive works hardest between initial set and final set reducing normal grout tendencies to drying shrinkage. The positive expansion of CEM982 is consistent throughout the life of the grout.

### FIELDS OF APPLICATION

CEM982 is used in the interior or exterior applications in both flowable and trowable consistencies. Proven uses of CEM982 assure trouble free performance for precise alignment of machinery basis, train rails, subway rails and gantry cranes as well as equipment basis in power plants, paper and steel mills, sewage treatment plants, water treatment plants, reservoirs, key ways and bed plates where heavy and repetitive loading occurs, anchor bolts, dowels, structural steel columns, beams, bearing plates, load bearing masonry walls or highway signs, posts, etc.

CEM982 is non-staining, non-corrosive and non-ferrous. It is ideal for use in conditions where the humidity is high, i.e.: beverage plants, food-processing plants, paper mills and meat packing plants.

### PRODUCT FEATURES

- Requires only addition of water.
- Two stage expansion in plastic and hardened states.
- Positive expansion in all directions
- Easy to mix and apply.
- Pumpable and adjustable consistency.
- Non-shrink that eliminates shrinkage normally encountered in cement systems.
- Gives an early high and ultimate strength.
- Contains no ferrous metal and therefore will not stain due to corrosion.
- Resistant to oil and water penetration.
- High sulfate resistant cement grout.

### PACKAGING

Product	Packaging
CEM982	50 Lb (22.68 kg) Bag

### TECHNICAL DATA

Property	Plastic*	Flowable*	Fluid*
Water Demand, Gal/Bag (Liter/Bag)	0.719 (2.722)	1.007 (3.810)	1.079 (4.082)
Mixed Density, Lb/gal (Kg/Liter)	18.78 (2.250)	18.78 (2.250)	18.90 (2.265)
Time of efflux - flow cone, second	-	-	23
<b>ASTM C939</b>			
Flowability, %	210	320	337
Pot Life**, minute	40	80	80
Setting time**, minute	Initial	60	200
	Final	90	360
<b>ASTM C-191</b>			
Compressive Strength, psi (MPa)	1 day	6454 (44.50)	2901 (20.00)
	7 days	10559 (72.80)	7397 (51.00)
	28 days	13619 (93.90)	8992 (62.00)
<b>ASTM C-109</b>			
Flexural Strength, Psi (MPa)	1 day	1233 (8.50)	1001 (6.96)
	7 days	2277 (15.70)	1553 (10.71)
	28 days	2538 (17.50)	1645 (11.36)
<b>ASTM C-348</b>			
		479 (3.30)	1102 (7.60)
		1363 (9.40)	

\* Average

\*\* Test at 75°F (25°C).

**Specifications: CEM982** meets the volume change and exceeds the compressive strength of ASTM C1107 Grade C.

**Gravel:** For grouting 3 inches (7.62 CM) cavities or more, add up to 50% by weight washed clean pea gravel of size 8 – 10 mm to CEM982. Water mixing ratio remains the same.

### APPLICATION DATA

#### Surface Preparation:

**Concrete Surface:** the concrete must be clean sound and free from oil, grease, laitance dirt and loosely adhering particles. The surface should be scabbled to remove the laitance and expose the aggregate. Bolt pockets, gaps, etc. must be blown with oil free, clean compressed air to remove any dirt and debris.

**Steel Surfaces:** the base plates, machinery bolts, etc. must be clean and free from oil, grease and rusting. Degreasing shall be carried out thoroughly, in case of any contamination.

**Formwork:** before placing formwork, ensure the equipment is set and aligned. If any leveling shims are to be removed upon initial setting of grout, apply a thin layer of releasing agent such as grease for easy removal. Ensure the formwork is secure and firm as per the formwork design maintaining the gap between formwork and the base plate. The gap should be wider on the pouring side than the opposite side. Slant forms at a 45° angle on placing side 6 mm or more from bedplate base.

Also ensure that the formwork is constructed water tight to prevent any leak of free flowing CEM982 grout during placing. Use polyethylene sheets or release agents for ease of formwork release.

**Mixing:** CEM982 is cement based. Do not exceed limitations set by ACI in mixing or placement of concrete.

CEM982 must be mixed mechanically, using a slow speed electric drill fitted with mixing paddle. Larger quantities may require conventional power mixers.

Measure the required quantity of clean water. Pour approximately 2/3 of the measured quantity of water into the container/mixer then add CEM982 slowly while mixing. Add the remaining water and mix until a smooth, uniform homogenous consistency is achieved. Mix batch for a minimum of 5 minute and place immediately.

Do not attempt to retemper with the mixed CEM982 by the later addition of water.

For stiffer mixes, reduce water requirement. It is recommended to grout with stiffest CEM982 mix possible, and to never grout with CEM982 when the flow is less than 20 seconds.

**Temperature:** for application in hot weather, iced water will extend the working life and ease of placement. Also cool down the base plates. CEM982 can be applied with temperatures between 40°F (4°C) and 110°F (43°C) using ordinary precautions. Application of CEM982 should be kept to a minimum in severe hot or cold temperatures.

**Application:** apply continuously and rapidly from one side. This will reduce the tendency to entrap air. To avoid entrapped air pockets, pour or pump CEM982 on a slanted form surface only. Grout must fill the entire void and be placed at a level above the bottom of the plate to ensure complete face to face contact between the grout and the plate. Allow for the necessary weep holes to release the entrapped air between the grout mass and base plate chambers. Apply CEM982 when the flow is over 20 seconds.

Use chains, rods or tamping to compact grout and remove voids. Do not remove forms or cut back grout before initial set is achieved.

**Curing:** proper curing of the exposed grout shoulders is very important. Cover all exposed grout with wet burlap and/or polyethylene sheets immediately after application. Keep the area moist for a minimum of 48 hours or as long as possible and if desired after final set continue wet cure.

**Large Scale Repairs & Renovations:** CEM982 grout may also be used in large scale repairs that can be shuttered, e.g.: retaining walls, column extensions, large honeycombs, etc.

**Surface Preparation:** the concrete substrate should be free from oil, grease and loosely adhering particles. Damaged and spalled concrete should be removed and taken to sound concrete substrate. Exposed steel reinforcement if any, should be cleaned, de-rusted before applying the epoxy primer and sprinkling silica sand 0.4 – 0.8 mm grade. Allow the applied epoxy primer to cure.

**Epoxy Bonding Agent:** apply the epoxy bonding agent new-old concrete on the pre-treated dry concrete surface at approximately 0.553 Lb/yd<sup>2</sup> (300 gram/m<sup>2</sup>) coverage. The epoxy-bonding agent ensures excellent adhesion to the substrate; a monolithic bond provides and acts as a barrier against migration of chlorides and other salts. Within the specified open time of epoxy bonding agent, CEM982 mixed grout should be placed.

**Formwork:** place a formwork with the necessary release agent and ensure it is secure and water tight to eliminate any movement and leakage while placing the grout.

**Mixing:** use clean washed silt free aggregate of 8-10 mm diameter in above specified ratio. Mix water and CEM982 with aggregate until achieving a smooth uniform homogenous consistency. The mixture is then poured or pumped into the formwork ensuring no entrapment of air.

**Curing:** immediate curing after placement of the grout is necessary. Cure the grout using Hessian with continuous sprinkling.

**Cautions:** CEM982 is cement based, and is recommended that the following ACI practices be followed:

- ACI 304 – for measurement, mixing, transportation and application of concrete.
- ACI 305 – for hot weather application
- ACI 306 – for cold weather application.
- ACI 308 – for curing concrete.

Do not add plasticizer, cement, sand, or accelerator to CEM982. Use only clean water for mixing. Use 8–10 mm pea gravel when grouting exceeds 75 mm thickness.

Prior to application of grout, soak surfaces with clean water. At the time of application of grout, the substrate should be damp but free of standing water.

Avoid mixing more grout than can be applied in 15 minutes and avoid application when temperatures are or will be below 40°F (4°C) in the next 24 hours. On large jobs, rapid and continuous mixing and application are necessary. Excessive vibration due to nearby equipment should be avoided during application.

## CLEANING

CEM982 should be cleaned from tools, equipment, etc. with clean water immediately after use.

## STORAGE

CEM982 has a shelf life of 12 months when stored in cool and dry conditions in unopened bags.

## SAFETY

CEM982 is a non-flammable and non-toxic in nature. Avoid contact with eyes and skin as it may cause irritation due to its alkaline nature. Splashes of CEM982 should be washed off immediately with clean water. Wear necessary gloves and dust mask.

## TECHNICAL ASSISTANCE

Please contact International Chem-Crete Corporation for Technical Personnel.

## WARRANTY

**LIMITED WARRANTY:** International Chem-Crete Inc. warrants that, at the time and place we make shipment, our materials will be of good quality and will conform to our published specifications in force on the date of acceptance of the order.

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