



CEM310

High Performance Non-Shrink Cementitious Grout

PRODUCT DESCRIPTION

CEM310 is a ready-to-use, durable, non-metallic, flowable, high strength, cementitious and one component non-shrink grout. It complies to ASTM 1107-Type B.

CEM310 comprises of a balanced blend of washed and graded silica sands, finely crushed Portland cement, flow improvement compounds and an inorganic shrinkage compensation additive, which densifies the grout.

CEM310 inorganic shrinkage compensating additive completely fills the voids to make the mix dense, strong and stable grout. CEM310 produces high early and ultimate strengths 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.

CEM310 remains stable without failure from compressive loading, impact, lateral thrusts, high heat or continuous vibration.

FIELDS OF APPLICATION

CEM310 is used on the interior or exterior applications in both flowable and trowable consistencies. CEM310 is used to grout structural columns, heavy machinery bases, post tensioning cables, anchor bolts, precast 'T' joints, bearing plates rails, gaps, recesses, column pockets, etc.

CEM310 is also used in large scale repairs to the damaged concrete structures, honeycombs, etc.

PRODUCT FEATURES

- Requires only addition of water.
- Easy to mix and apply.
- Pumpable with adjustable consistency.
- Non-shrink eliminates shrinkage normally encountered in cement systems.
- Provides an early high strength.
- Contains no ferrous metal, and therefore will not stain due to corrosion.
- Resistant to oil and water penetration.
- Low permeability.

PACKAGING

Product	Packaging
CEM310	50 Lb (22.68 kg) Bag

TECHNICAL DATA

Property	Plastic*	Flowable*	Fluid*
Water Demand, Gal/Bag (Liter/Bag)	0.839 (3.175)	0.899 (3.402)	1.079 (4.082)
Mixed Density, Lb/gal (Kg/Liter)	19.03 (2.280)	18.99 (2.275)	18.78 (2.250)
Time of efflux - flow cone, second, ASTM C939	-	-	27
Flowability, %	180	260	-
Pot Life**, minute	45	50	75
Setting time**, minute, ASTM C-191	Initial	110	200
	Final	180	240
Compressive Strength, psi (MPa), ASTM C-109	1 day	4700 (32.10)	3290 (22.40)
	7 days	9110 (61.90)	8500 (57.80)
	28 days	11070 (75.30)	10110 (68.80)
Flexural Strength, Psi (MPa), ASTM C-348	1 day	1090 (7.41)	1090 (7.40)
	7 days	1450 (9.89)	1410 (9.60)
	28 days	2100 (14.20)	1560 (10.60)
			620 (4.21)
			1100 (7.51)
			1430 (9.71)

* Average

** Test at 75°F (25°C).

Gravel: for grouting 3 inch (7.64 cm) cavities or more, add up to 50% by weight washed clean pea gravel of size 8 -10 mm to CEM310. Water mixing ratio remains the same.

APPLICATION DATA

Surface Preparation:

Concrete Surfaces: 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 aggregate. Bolt pockets, gaps, etc. must be blown with oil free, clean compressed air to remove any dirt and debris. Soak the area to be grouted with water for 24 hours before grouting to minimize the loss of water from the grout mixture.

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 levelling 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 6mm or more from bed plate base. Also ensure that the formwork is constructed water tight to prevent any leak of free flowing CEM310 grout during placing. Use polyethylene sheets or release agents for ease of formwork release.

Mixing: CEM310 is cement based. Do not exceed limitations set by ACI in mixing or placement of concrete. CEM310 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 CEM310 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 re-temper with the mixed CEM310 by the later addition of water.

Placing: Foundation, bedplate and CEM310 shall be maintained above (41F) 5°C for 24 hour following placement.

To avoid air pocket formation, pour grout from slanted form surface or center entrance point only. Anchor support elements to prevent movements. Use sufficient vent holes to bleed off entrapped air when placing grout. CEM310 may be pumped to extend movement without bleeding.

Maintain the continuity of grout flow preparing batches of mix CEM310 grout made readily available. Lengths of chains may also be employed in the formwork prior to placing which enables grout for free flow over large areas and to ensure evacuation of entrapped air.

Use chains, rods, or tamping to compact grout and remove voids, strike off exposed areas.

Cover immediately after placement with wet burlap or polyethylene.

Curing: The surface of the freshly laid grout should be protected from direct sunlight and cured. To prevent rapid water loss, cover with wet Hessian with continuous water sprinkling is essential immediately after placement of the grout.

Large Scale Repairs and Renovations: CEM310 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, derusted before applying the epoxy primer and sprinkling the 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/yd² (300 gm/m²) 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, CEM310 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 salt free aggregate of 8-10 mm diameter in ratio of 50% by weight. Mix water and CEM310 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: Observe the general procedures of curing as practiced in the concrete structures.

CLEANING

CEM310 should be cleaned from tools, equipment, etc. with clean water immediately after use.

STORAGE

CEM310 has a shelf life of 12 months when stored in cool and dry conditions in unopened bags.

CAUTIONS

Measure water accurately to prevent strength' reduction. Do not use additives such as retarders, set accelerators, calcium chloride or additional sand. Do not place CEM310 when temperatures are below or expected to fall below -17 to -16 °F (1 to 2 °C) within 72 hours.

HANDLING PRECAUTIONS

CEM310 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 CEM310 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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application and proper installation of each product. Specifier and user shall determine the suitability of the product for

specific application and assume all responsibility in connection therewith. AM20419.

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