

CEMGROUT GP

GENERAL PURPOSE, HIGH EARLY STRENGTH, NON-SHRINK FLOWABLE CEMENTITIOUS GROUT

Description

CEMGROUT GP is Portland Cement based, shrinkage-compensated, construction grout that conforms to Corps of Engineers CRD-C-621 and ASTM C 1107. Its non-metallic formula does not rust, bleed, or harm metals on contact. Its cost effectiveness makes it ideal for large jobs. The grout undergoes controlled expansion in the plastic stage to compensate for plastic shrinkage.

Uses

- To grout bearings, machine foundations, columns Joints in precast construction etc.
- To grout anchors in concrete
- To grout cavities, gaps and voids in concrete

Advantages

- Optimum contact with load bearing areas
- Pre packed and pre formulated
- Consistent performance
- Chloride free
- One component - Mixes easily with water
- Dimensionally stable
- Non - efflorescing - may be painted or coated
- Can be extended with clean water - graded coarse aggregates for large volume filling
- Lowest cost

Characteristic

- Appearance : Free flow grey powder
- W /P Ratio, by weight : 0.16 - 0.17 (flowable)
- Mix Density (Flowable) : 2200 - 2250 Kg/m³
- Compressive strength (IS4031, Part 6) :

1 Day	: 20 MPa
3 Days	: 42 MPa
7 Days	: 55 MPa
28 Days	: 65 MPa
- Flexural Strength (ASTM C78) 28 Days : 10 MPa

Compressive strength with addition of aggregates

Age (days) C.S (N/mm²)(W/P-0.17)

Aggregate by weight

	50%	75%	100%
1	25	30	32
3	45	50	52
7	58	62	65
28	70	75	78

Note : Cubes cast were kept under resistant before testing to simulate site condition. Size of the cubes used 70.6mm x 70.6mm x 70.6mm tested at 30°C.

- Young's modulus: 24 kN/mm²
- Coefficient of thermal expansion: 11x10⁻⁶ per °C
- Thermal conductivity: 1.04 W/m°C

Expansion Characteristic

Controlled expansion occurs in the unset material to ensure that the grout, when cured, will continue to occupy its original volume within the confines of the voids in which it has placed.

Unrestrained expansion : 1 to 4%

Time of expansion: Starts: 20 minutes Finish: 150 minutes

Pressure to restrain: Approx. 0.004 N/mm² plastic expansion lead to some cracks.

Note : It is necessary to restrain free flow grout edges over 50mm wide. Otherwise unrestrained expansion may

Standard Compliance

It complies with CRD-C621-83 of the Corps of Engineers (USA) specification and C1107.

Surface Preparation

All areas to be grouted must be clean and free of oil, grease, dirt and contaminants. Remove all loose materials. Concrete must be fully cured a minimum of 28 days. Where required, provide air- relief openings to avoid entrapment of air.

All metal components to be in contact with CEMGROUT GP must be free of rust, paint, or oils.

All concrete to come in contact with the grout must be thoroughly saturated with clean water for a minimum of 12 hours before placement of grout. Remove excess water from holes and voids just before grout placement.

Pre-soaking

Several hours prior to placing, the concrete substrates should be saturated with clean water. Immediately before grouting takes place any free water should be removed with particular care being taken to blow out all bolt holes and pockets.

Base plate

It is essential that this is clean and free from oil, grease or scale. Air pressure relief holes should be provided to allow venting of any isolated high spots.

Levelling Shims

If these are to be removed after the grout has hardened, they should be treated with a thin layer of grease.

Formwork

The formwork should be constructed to be leakproof. This can be achieved by using foam rubber strip or mastic sealant beneath the constructed formwork and between joints. In some cases it is practical to use a sacrificial semi-dry sand and cement formwork. The formwork should include outlets for pre-soaking.

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Unrestrained surface area

This must be kept to a minimum. Generally the gap width between the perimeter formwork and the plate edge should not exceed 150mm on the pouring side and 50mm on the opposite side. It is advisable, where practical, to have no gap at the flanksides.

Mixing

Precondition CEMGROUT GP to $23 \pm 3^\circ\text{C}$ before mixing. CEMGROUT GP is ready to use and requires only the addition of water. Use the minimum water required to achieve the desired placement consistency, approximately the following amounts

Pourable (Minimum Flow) :6.2 -6.6 litre/40 Kg bag of grout Flowable :6.4-6.8 litre / 40 Kg bag of grout

The water requirement may vary with mixing efficiency, temperature, and other variables. It is advisable to carry out a trial mix to access any adjustment necessary in the water demand before commencing large scale application.

Mechanical mixing is a must. For a large batch, use a concrete mixer and for a small batch (up to two bags at a time), use a heavy-duty, slow speed (approx. 600 rpm) drill fitted with a spiral paddle.

Place approximately 80% of the water in the mixer. Keeping the mixer running, add CEMGROUT GP slowly. Mix for at least 3 minutes until a lump-free mixture is obtained Add the remaining water while continuing to mix for at least 5minutes until the desired consistency is achieved.

Use 7-9 mm screen, to remove any unmixed lumps.

Placing

Placing should be without interruptions until completion. Place the mixed grout into the pouring hopper of the formwork within 15 minutes after mixing. Place from one side only.

CEMGROUT GP should be laid at a minimum thickness of 25mm and to a maximum depth of 100mm.

For grouting beyond 100 mm in depth, extend CEMGROUT GP with up to 40kg of 5-12 mm sized, washed, saturated surface-dry (SSD), graded, low absorption, high density

50mm, dress them with 10mm size aggregates to minimise any surface cracking, once grout attains initial set.

Coverage

Each bag of 40kg of mixing with 6.4 to 6.8L of water (Flowable) yields 22.1 L i.e. approximately 60 x 40kg bags / m³ When extended with 20 kg of aggregate (SG: 2.6) per bag of CEMGROUT GP, the yield will be 29.33L, and with 40kg of aggregate, the yield will be 36.5l

Curing

Cure the exposed grout shoulders as soon as the grout reaches touch hard state, for 2-3 days by water ponding and then with a uniform coat of curing compound

Cleaning of Tools

Clean tools and equipment with water before the grout hardens.

Note

All Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact our local FIRSTCHOICE SPECIALITY CHEMICALS representative.

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