



ULTRA EXPANDING GROUT

Expanding Medium and Plasticizing Agent

Admixtures

Surface Treatments

Protective Coatings

Concrete Repairs

Industrial Flooring

Grouts & Anchors,

Adhesives,

Water Proofing

Sealants

DESCRIPTION

ULTRA EXPANDING GROUT is a combination of an expanding medium and a Plasticizing agent. The expanding agent, by generating gas during the hydration process before the initial set takes place, counteracts the natural settlement and shrinkage of the grout. The Plasticizing agent enables high workability mixes to be produced with relatively low water/cement ratios stability and cohesion of the grout are greatly increased. The expansion is controlled to avoid excess being built up but is sufficient to provide high bond of the grout to the contact surfaces with the absence of voids.

PRIMARY APPLICATIONS

As an admixture for cementitious grouts where a low water cement ratio and positive expansion are required Applications include bed grouting, duct grouting, non shrink in-filling and jointing, pressure grouting for tunnels and shaft linings.

FEATURES/BENEFITS

- **POSITIVE EXPANSION** Ensures permanent contact and high bond to entire grouted surfaces.
- **EASY FLOW** plasticizing effect facilitates placement and injection.
- **HIGH COMPRESSIVE STRENGTH** Obtained with low water cement ratio.
- **IMPROVED QUALITY** Assists productions of grouts free from water pockets and bleeding.
- **MICROCELLULAR GROUT STRUCTURE** Combined with reduced water/cement ratio, provides improved resistance to both frost and fire damage.
- **IRON FREE** No metallic iron content to corrode and cause staining or deterioration due to rust expansion in the grout.
- **CHLORIDE** Composition allows high early strength development in grouts without the use of chlorides.

PROPERTIES

Chloride content: Nil

Compatibility with cements: Can be used with all types of cement except high alumina.

Compressive Strength Table 1 shows typical grout strengths obtainable with 7.06 cms size cubes with high quality OPC used at optimum water/cement ratios and workability and cured under restraint.

NOTE:

To simulate site conditions, compressive strength test cubes must be cured under restraint. (i.e., the cubes mould must be covered with a top plate immediately after grout is filled into the mould).

EXPANSION CHARACTERISTICS

Controlled positive expansion in unset grout incorporating Ultra expanding grout overcomes plastic settlement. An unrestrained Expansion of 1-4% is typical. Pressure to restrain plastic expansion Approx. 0.004 N/mm^2

Table 1 TYPICAL COMPRESSIVE STRENGTH				
Mix	3 days	7 days	14 days	28 days
Neat Cement and Ultra expanding grout.	15.9 N/mm ²	27.9 N/mm ²	36.2 N/mm ²	42.1 N/mm ²
1: 1 Cement Sand and Ultra expanding grout.	19.3 N/mm ²	30.4 N/mm ²	39.2 N/mm ²	46.0 N/mm ²



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NOTE: Unrestrained expansion may lead to some cracking and reduction in grout strength, Grouts and filling mixes containing Ultra expanding grout are there for intended for use in confined situations and not recommended for open area applications.

SPECIFICATIONS

The following are typical grout mixes using ULTRA EXPANDING GROUT.

Mix 'A': NEAT CEMENT

GROUT Suitable for pressure injection of small voids of ducts where low viscosity grout is necessary.

Portland cement: 50 kg.

Ultra expanding grout: 225 Gms.

Water: 20 to 22 litres

Yield: 36 liter

Mix 'B': CEMENT/SAND GROUT

Suitable for gravity or pumped injection filling of large voids where higher viscosity is acceptable.

Portland cement: 50 kg.

Sharp Sand 5 mm-0(Surface dry): 50 kg.

Ultra expanding grout: 225 gms.

Water (inclusive of sand moisture content): 22 to 24 litres

(inclusive of sand moisture content)

Yield: 57 liter

Where placing conditions allow, the water content can be reduced further to obtain a stiffer mix.

DIRECTION FOR USE

Note: For grout, mortar or concrete mixes with aggregate/cement ratio more than one use 4x225 grams units of Ultra Expanding Grout/100 kg of cement.

MIXING

GROUT MIXES

1. Place exact amount of specified water in a power operated grout mixer.
2. Whilst mixing continuously, slowly add the neat cement of 1:1 or 1:1:5 cement: sand mix to the water and at the same time, sprinkle in the Ultra expanding grout powder. Alternatively, premix the Ultra expanding grout with the dry cement or cement: sand before adding all to the water. Mix complete grout for a 3-5 MINUTES until through dispersion is achieved.
3. After mixing, all grout should be passed through a 5 mm. Sieve to remove lumps.
4. Where grout is pumped, the operation should be continuous to completion. Sufficient grout must be prepared to ensure that the container from which the grout is pumped is kept full, to prevent air from entering the line and causing void in the cavity being grouted.

MORTAR OR CONCRETE FILLING MIXES

1. Place water and sand plus aggregate. If used, in a mixer. While mixing continuously, add the Ultra expanding grout slowly.
2. After mixing thoroughly, add the cement and continue mixing for 3-5 MINUTES.

PRECAUTIONS

Health and safety

ULTRA EXPANDING GROUT is non-toxic. If eye contamination should occur wash immediately with plenty of water and medical advice should be sought.

PACKING

Ultra expanding grout IS SUPPLIED IN 10 kg bag.

Storage:

Avoid to place direct to sun light and always store in shady areas.

ISO Certification:

Our production facility at Pakistan is ISO 9001:2008 ISO 14001:2004 by BUREAU VERITAS and UKAS Management

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