CONSTRUCTION GROUT

ULTECH
ULTIMATION TECHNOLOGY CO., LTD.

Non-shrink general purpose grout

DESCRIPTION

CONSTRUCTION GROUT is a ready to use, cementitious grout with selected, graded natural aggregates for use in general civil engineering works. On mixing with the specified quantity of water it provides a grout with high strength characteristics and extended working time. The grout undergoes controlled expansion in the plastic state to compensate for plastic shrinkage.

FIELDS OF APPLICATION

CONSTRUCTION GROUT is recommended for grouting unwanted voids in structural elements such as;

- patching up honeycombs in concrete.
- grouting gaps between prefabricated elements.
- stanchion base plates and column bases.
- bridge bearing plates.
- underpinning.

FEATURES AND BENEFITS

Shrinkage compensated	Continue to retain filled volume.
Free flowing	Flow to fill the voids effectively.
High early and final strengths	Early load transfer and rapid installation.
Extended pot life	Minimal wastage caused by site delays in placing.
Pre packed and pre formulated	No batching and blending errors. Consistency in performance from batch to batch.

TYPICAL PERFORMANCE DATA

Compressive strength (N/mm^2)

Age	Flowable	Trowellable
1 day	25	45
7 days	55	65
28 days	65	80

Note *- Tested using cubes of size :*
70.6mm x 70.6mm x 70.6mm, restrained for 24 hrs, cured by immersion in water.

Flexural strength (28 days) : 3.5 N/mm^2

Setting times at 30°C

	Flowable	Trowellable
Initial (hr:min)	6:00	5:15
Final (hr:min)	7:45	6:45

PROPERTIES

Supply form		: Powder
Colour		: Cement Grey
Density (wet)	Flowable	: 2.10 kg/L
	Trowellable	: 2.27 kg/L

Flow properties:

Grout flow trough (Flowable)*	: 38-45 cm
CRDC cone efflux time (Flowable)	: 50-70 sec
JIS cone efflux time (Flowable)	: 6-9 sec
ASTM flow table spread (Trowellable)	: 18-22 cm

* 1 L of the grout in a flow trough of size 830 mm long, 100 mm wide and 75 mm deep

APPLICATION

Surface Preparation

Correct substrate preparation is critical for optimum performance. Surfaces should be structurally sound, clean, and free from loose particles, oil, grease, or any other contaminant.

Cement laitence, loose particles, oil, grease, mould release agent, curing membrane, and other contaminants must be removed by wet grit blasting, high pressure water jetting (approx. 150 bars) or such other effective methods. Prepare the surface of the concrete to a rough profile with a surface level difference of at least 5 mm between trough and ridge.

Saturate the surface thoroughly with clean water before placing the grout.

If pre-packing the voids with aggregate before grouting, ensure that the aggregates are in SSD (Saturated surface dry) condition.

Formwork

Proper design of formwork, wherever required, to suit the geometry of the space being grouted is essential for effective grouting. The formwork can be made from timber, steel, or any other suitable material depending on the circumstances. It must be grout tight, strong, and well braced to withstand the fluid pressure of the grout until it sets. Before erecting, coat the inner surfaces with a suitable release agent for easy release. Ensure that the distance between perimeter formwork and the base plate edge is 100 mm to 150 mm at the pouring side, 20

mm to 50 mm at the opposite (grout emerging) side and the minimum possible at the remaining sides (flush to base plate edge possible).

Provide a header box of at least 200 mm height, along the entire pouring side, to allow for sufficient build up of head while grouting.

Seal all the gaps in formwork, and those between formwork and concrete surface with a suitable joint sealant or with **CONSTRUCTION GROUT** mixed to a stiff consistency. Before commencing the grouting operation, blow clean the grouting area with oil-free compressed air.

Mixing

Mechanical mixing is necessary. For a large batch use an approved grout 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 grout stirrer.

Place approximately 80% of the water in the mixer.

Keeping the mixer running, add **CONSTRUCTION GROUT** slowly. Mix for at least 3 minutes until a lumpfree mix is obtained. Add the remaining water while continuing to mix until the desired consistency is achieved.

	Flowable	Trowellable
Water requirement/ 25 kg	4.5 L	3.2-3.4 L

Note: Where a large void has to be grouted, if prepacked grouting is not feasible, it is advisable to mix pea gravel or 12 mm down aggregates @ 50% to 100% by weight of **CONSTRUCTION GROUT**, to minimise the heat of hydration. The water requirement remains unchanged.

PLACING

Place the mixed grout into the pouring end of the formwork within 15 minutes after mixing. The placing should be without interruptions until completion.

EQUIPMENT

Mixing : Grout mixer or heavy duty slow speed drill fitted with a grout stirrer.

Placing : Double diaphragm air operated pump or a hand operated diaphragm type grout pump.

CLEANING

Clean tools and equipment with water, before the grout hardens.

ESTIMATING DATA

The yield from 25 kg **CONSTRUCTION GROUT** with different quantities of aggregates (e.g. - 2.6) is given below.

	Nil aggregate	13 kg aggregate	25 kg aggregate
Flowable	14 L	19 L	23.6 L
Trowellable	12.5 L	17.5 L	22.1 L

Therefore material requirement at flowable consistency, without any aggregate, is 17.86 kg/m^2 for 10 mm thickness.

PACKAGING

25 kg, multi-ply paper sacks with polythene liner.

SHELF LIFE

CONSTRUCTION GROUT can be stored in tightly sealed original bags for 12 months, if kept dry and at even temperature.

PRECAUTIONS

Health : CONSTRUCTION GROUT is alkaline like normal cement and can cause skin irritations to persons with sensitive skin. Wear gloves and masks while handling the product. Take all precautions normally taken while handling cement.

Fire : CONSTRUCTION GROUT is not flammable.

For detailed Health, Safety and Environmental Recommendations, please consult and follow all instructions in the product Material Safety Data Sheet.