



The Chemical Company

MASTERFLOW[®] 88UW

Non shrink, cementitious grout for under water applications

DESCRIPTION

MASTERFLOW 88UW is a ready to use, cementitious grout which, on mixing with the specified quantity of water provides a flowable grout with high resistance to cement wash-out when placed under water, with high early and final strength characteristics. The grout undergoes controlled expansion in the plastic state.

FIELDS OF APPLICATION

MASTERFLOW 88UW is recommended for repairing structures under water and in tidal zone by grouting. The grout is suitable for use under both stationary and moving waters. Applications include repair of :

- bridge piers
- concrete piles
- jetty pillars
- harbour walls

FEATURES AND BENEFITS

Shrinkage compensated	Continues to retain filled volume.
Non wash out	No significant cement wash out under water. Gains full strength even under water.
Free flowing	Flows easily even in gaps as narrow as 20 mm, to facilitate complete filling of voids.
Pre packed	No batching or blending errors. Consistency in performance from batch to batch.
Dense micro structure	Resists water ingress. Protects steel.
High early and final strengths	Early load transfer and rapid installation.
High bond strength	Primer not required to facilitate good bond.
Iron free	No deterioration of grout due to rust expansion.

TYPICAL PERFORMANCE DATA

Strength characteristics (N/mm)²

Age (days)	Compressive	Flexural	Tensile
1	14	5.0	2.0
7	40	6.5	3.5
28	60	8.0	4.0

PROPERTIES

Supply form	: Powder
Colour	: Cement grey
Storage temperature	: 10-50°C
Application temperature	: >10°C
Density (wet)	: 2.1 - 2.3 kg/L
E-Modulus	: similar to high strength concrete

APPLICATION

Surface Preparation

Correct substrate preparation is critical for optimum performance. Services of a professional diver trained in surface preparation techniques is recommended.

Surfaces should be structurally sound, clean, and free from loose particles, oil, grease, barnacle growth, or any other contaminant.

Remove cement laitence, loose particles, oil, grease, mould release agent, curing membrane, and other contaminants from the surface by wire brushing, scabbling or other such 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.

Formwork

Proper design of formwork is essential for effective grouting. The formwork can be made out of timber, steel, or any other suitable material depending on the circumstances. The forms must be grout tight, strong, and well braced to withstand the water pressure and the fluid pressure of the grout till it sets.

If repairing a vertical surface, the gap between the formwork and the substrate surface should be wide enough to accommodate the tremmie pipe that will be used for placing the grout.

Seal all the gaps in formwork and those between formwork and concrete surface, with a suitable under water setting material or with **MASTERFLOW 88UW** mixed to a stiff consistency.

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.

It is important to ensure that the mixing capacity is adequate for grouting continuously to completion as interruptions in grout placing may result in air pockets and cause blockages in the placing pipe.

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Place approximately 80% of the water in the mixer. Keeping the mixer running, add **MASTERFLOW 88UW** slowly. Mix for at least 3-4 minutes until a lump free mix is obtained.

Add the remaining water while continuing to mix until the desired consistency is achieved. Sieve the grout free from lumps.

Water requirement

For flowable consistency : 18% (4.5 L per 25 kg bag).

Placing

Place the mixed grout within 30 minutes after mixing. **MASTERFLOW 88UW** can be placed to a thickness of up to 80 mm above water and 150 mm under water in a single pour.

Introduce a flexible pipe of minimum 50 mm diameter and fitted with a funnel at the top into the formwork under water. Ensure that the mouth of the pipe is about 50 mm above the bottom of the form. Place the grout slowly and continuously into the funnel (above water). Place at least 20% more grout than the estimated requirement.

Where situation demands, use a double diaphragm air operated slurry pump to pump the grout directly into the funnel. A hand operated pump or manual placing can also be employed.

Note : The pump is required only to convey the grout from the mixing site to the placing site and not to build up pressure.

It is advisable to get a diver inspect the grouted area periodically for any leaks during and immediately after grouting.

CURING

Curing is not required in under water situations.

When used above water, cure all exposed shoulders as soon as the grout reaches touch hard state with wet hessian for 24 hours, then apply a uniform coat of MASTEKURE 181.

EQUIPMENT

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

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

CLEANING

Use hot water to clean tools and equipment before the grout hardens. Due to the water repelling properties of **MASTERFLOW 88UW**, it can be very hard to wash tools and equipment using cold water.

ESTIMATING DATA

The yield from 25 kg **MASTERFLOW 88UW** at flowable consistency is 13.7 L. Therefore material requirement is 18.2 kg / m² at 10 mm thickness

PACKAGING

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

SHELF LIFE

MASTERFLOW 88UW can be stored in tightly sealed original bags for 12 months, if kept dry and at even temperature.

PRECAUTIONS

Health : **MASTERFLOW 88UW** 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 : **MASTERFLOW 88UW** is not flammable.

For detailed Health, Safety and Environmental recommendations, please refer to and follow all instructions on the product Material Safety Data Sheet.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF Construction Chemicals** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

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