

# MasterFlux UW 788

Non-shrink, cementitious grout for under water applications

## Material Description

**MasterFlux UW 788** 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.

## Areas of Application

**MasterFlux UW 788** 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.

## Characteristics 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 20mm, 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.

## Properties

| Strength                  |                                   |          |         |
|---------------------------|-----------------------------------|----------|---------|
| Age                       | Compressive                       | Flexural | Tensile |
| 1 day                     | 14 MPa                            | 5.0 MPa  | 2.0 MPa |
| 7 days                    | 40 MPa                            | 6.5 MPa  | 3.5 MPa |
| 28 days                   | 60 MPa                            | 8.0 MPa  | 4.0 MPa |
| Supply form :             | Grey Powder                       |          |         |
| Storage temperature :     | 10-50°C                           |          |         |
| Application temperature : | > 10°C                            |          |         |
| Density (wet) :           | 2.1 - 2.3 kg/L                    |          |         |
| E-Modulus :               | similar to high strength concrete |          |         |
| Resistivity               | < 40000 Ohm/cm                    |          |         |

## Application

### Surface Preparation

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 laitance, loose particles, oil, grease, mold 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 tremie pipe that will be used for placing the grout.

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Seal all the gaps in formwork and those between formwork and concrete surface, with a suitable underwater setting material such as **MasterCrete UW 902** or with **MasterFlux UW 788** 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.

Place approximately 80% of the water in the mixer.

Keeping the mixer running, add **MasterFlux UW 788** 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 so it is free from lumps.

## Water Requirement

For flowable consistency: 18% (3.6 L per 20kg bag or 180L per 1000kg bag).

## Placing

Place the mixed grout within 30 minutes after mixing.

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.

## Estimating Data

The yield from 20kg **MasterFlux UW 788** at flowable consistency is 11L. Therefore material requirement is 18.2kg/m<sup>2</sup> at 10 mm thickness.

| MasterFlux UW 788 |                                 |                |                      |                              |
|-------------------|---------------------------------|----------------|----------------------|------------------------------|
| L                 | Thickness in mm /m <sup>2</sup> | m <sup>3</sup> | bags /m <sup>3</sup> | m <sup>2</sup> /mm thickness |
| 11                | 11mm                            | (0.0011)       | 91                   | 11 m <sup>2</sup>            |
| 550               | 550                             | (0.55)         | 1.8                  | 550 m <sup>2</sup>           |

## Packaging

**MasterFlux UW 788** is available in 20kg bags and 1000kg bulk bags.

## Storage & Shelf Life

**MasterFlux UW 788** has a shelf life of 12 months. Store out of direct sunlight, clear of the ground on pallets protected from rainfall.

## Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

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## Disclaimer

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