

# MasterMatrix UW 440

Anti-wash out admixture for use in underwater concrete or piling applications

## Material Description

**MasterMatrix UW 440** anti-washout admixture is a ready to use, powdered admixture specially developed for concrete placed underwater. Concrete treated with **MasterMatrix UW 440** exhibits superior resistance to washout of cement and fines.

**MasterMatrix UW 440** complies with BS 8443:2005 – “Specification for establishing the suitability of special purpose concrete admixtures” - Table 2 - Underwater Concrete Admixtures.

**MasterMatrix UW 440** can also be used, at a lower dosage rate, in piling applications to prevent poor surrounding ground conditions from absorbing moisture from the concrete mix, and therefore making post pouring operations such as placing the reinforcing cage easier.

## Areas of Application

**MasterMatrix UW 440** admixture is recommended for use in all types of concrete pumped or placed underwater, where thixotropic action is desired. **MasterMatrix UW 440** admixture is especially helpful in extreme conditions where conventional concrete or placing techniques would result in a high percentage of material loss due to washout.

Piling operations in poor ground conditions, or where a deep reinforcing cage needs to be inserted after the completion of the concrete placement.

## Characteristics and Benefits

**MasterMatrix UW 440** admixture produces a concrete mixture highly resistant to washout, while maintaining workability, pumpability, and placeability. The following special qualities are also provided:

- Minimal to no effect on water demand.
- Reduces or eliminates concrete bleeding.
- Workability characteristics equal to untreated concrete.
- Virtually eliminates segregation even with highly fluid, high water-cementitious ratio mixes.
- Reduces/eliminates costly methods of de-watering.

- Thixotropic action provides stiffening after concrete is placed.
- Minimises environmental impact of cement washout in water.
- Minimal to no effect on set time.
- Prevents absorption of moisture from the concrete into surrounding ground during piling operations.
- Easier placement of deep section reinforcing cages

## Properties

Appearance	Beige Powder
Uncompacted bulk density @ 20°C	560kg/m <sup>3</sup>
Chloride content (%)	Less than or equal to 0.10

## Application

**MasterMatrix UW 440** admixture should be used in conjunction with a high range water reducing admixture from the MasterPolyheed, MasterGlenium, MasterEase or MasterSure ranges. This combination will produce a high performance, high strength, low water-cementitious ratio concrete that exhibits superior resistance to washout of cement and fines.

## Washout Resistance

Washout as determined by Annex A of BS 8443:2005 “Determination of Washout”, reports the performance of **MasterMatrix UW 440** admixture treated concrete compared to untreated concrete. This requires that an anti-washout admixture must result in a washout value of less than 15% when compared to the EN 480 control mix.

## Workability Retention

Results from slump loss studies taken over a 60 minute period indicate **MasterMatrix UW 440** admixture does not adversely affect concrete workability retention.



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## Set Time

MasterMatrix UW 440 admixture has little to no effect on concrete set time.

## Air Content

A slightly higher dosage of air entraining admixture may be required to achieve the desired air content when using MasterMatrix UW 440 admixture.

## Compressive Strength

MasterMatrix UW 440 admixture has an effect on compressive strength. It is strongly recommended that trial mixes be carried out to establish the correct performance. Although this effect is lower when using in a piling operation, it is still recommended that trial mixes be performed prior to actual use on site.

## Dosage

For most underwater concrete mixtures, MasterMatrix UW 440 admixture is recommended for use at a dosage range of:

- By Mass - 1.5 to 3.0kg per cubic metre of concrete, typically 2.0kg will give less than 15% washout at a cement content of 450 kg/m<sup>3</sup> and a w/c ratio of less than 0.45.

For most piling operations the MasterMatrix UW 440 admixture is recommended for use at a dosage range of:

- By Mass - 0.4 to 1.0kg per cubic metre of concrete, in most situations a dosage rate of 0.4 to 0.5 kg/m<sup>3</sup> is suitable.

The dosage rates given above are for typical usages, they are not meant as absolute limits, as other dosages may be utilised in special cases according to specific job conditions.

If required consult Master Builders Solutions for advice. Trial mixes should be carried out to ensure optimum dosage and effect.

## Compatibility

MasterMatrix UW 440 can be used with all types of cements. For use with other special cements, contact our Technical Services Department.

MasterMatrix UW 440 should not be pre-mixed with other admixtures. If other admixtures are to be used in concrete containing the MasterPolyheed range they must be dispensed separately.

When complimentary admixtures are required it is important that trials are performed, prior to any supply, to determine the respective dosages of any complimentary admixture, and the suitability, in the fresh and hardened state, of the resultant concrete. In these circumstances we recommend that you consult our Master Builders Solutions for further advice.

## Packaging

MasterMatrix UW 440 is available in 1.0kg water soluble sachets, with 12 sachets in each plastic tub.

## Storage & Shelf Life

MasterMatrix UW 440 has a shelf life of 18 months if stored according to manufacturer's instructions in unopened container.

Store in original sealed containers and at temperatures between 5°C and 30°C. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.

## 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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