

RHEOMAC[®] UW450

Liquid anti-washout admixture

DESCRIPTION

RHEOMAC UW450 anti-washout admixture is a ready to use liquid, cellulose based admixture that is specially developed for underwater concrete applications. Concrete containing **RHEOMAC UW450** exhibits superior resistance to washout of cement and fines, while impeding the blending of external water into the plastic concrete.

FIELDS OF APPLICATION

RHEOMAC UW450 is recommended for use in all types of underwater concreting where conventional concrete or placing techniques would result in a high percentage of material loss due to washout.

RHEOMAC UW450 is particularly useful in mortar and grouting applications where mixtures are typically more fluid and have a higher potential for washout.

Recommendations

For underwater concrete placements, ACI 304R, Chapter 8, "Concrete Placed Underwater" provides certain basic mixture proportions such as:

- A minimum total cementitious material content of 356 kg/m³.
- Use of pozzolans approximately 15% by mass of cementitious materials.
- A maximum water-cementitious material ratio of 0.45.
- Fine aggregate contents of 45 to 55% by volume of total aggregate.
- Air contents of up to 5% are listed as desirable.
- A slump of 150 to 230 mm is generally necessary and occasionally a slightly higher slump range is needed.

FEATURES AND BENEFITS

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| Improved concrete cohesiveness. | Reduction in segregation, even when highly fluid. |
| Batch plant or job site addition | Flexibility in batching procedures. |

TYPICAL PERFORMANCE DATA

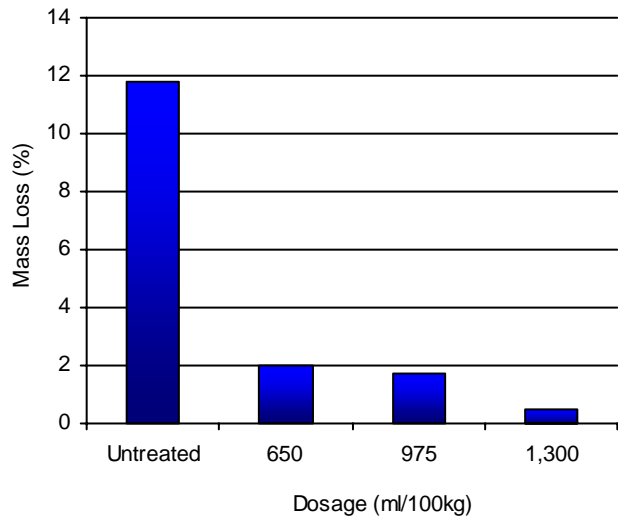
Washout Resistance:

Washout is determined by Army Corps of Engineers CRD-C 61, "Test Method for Determining the Resistance of Freshly Mixed Concrete to Washing Out in Water". Test results show that the addition of **RHEOMAC UW450** to concrete significantly reduces the washout of cement and fines, compared to untreated concrete.

Concrete mixture data (Non-air-entrained concrete)

- Cement content : 386 kg/m³
 Water-cement ratio : 0.49
 Slump : 100 ± 10mm
 Slump :

RHEOMAC UW450 Admixture Dosage Response



Concrete that is designed for underwater placement applications is typically batched at a 200 to 250 mm slump. After **RHEOMAC UW450** is added, a decrease in slump will be noted. It may be necessary to add additional high-range water-reducing admixture to achieve the slump required for placement. Slump evaluations for a 60 minutes period show that **RHEOMAC UW450** does not adversely affect concrete slump retention.

Air Content :

A slightly higher dosage of air-entraining admixture may be required to achieve the desired air content when using **RHEOMAC UW450**.

Setting Time :

RHEOMAC UW450 has little to no effect on concrete setting time at commonly used dosages between 300 and 1,300 ml/100kg cementitious materials. Slight retardation of setting time may be experienced at dosages over 1,300 ml/100 kg cementitious materials.

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The Chemical Company

RHEOMAC[®] UW450

Compressive Strength:

Using test specimens that are cast in air, concrete containing **RHEOMAC UW450** admixture may obtain slightly lower compressive strength when compared to untreated concrete. However, when strength is evaluated using test specimens that are cast under water, concrete containing **RHEOMAC UW450** achieves higher strength because washout is minimised. In addition, most underwater concrete mixtures that are proportioned in accordance with ACI 304R exceed compressive strengths that are required for underwater applications. If necessary, a lower water-cementitious materials ratio may be used to achieve the desired results.

APPLICATION

Concrete containing **RHEOMAC UW450** is easily pumped throughout the typical slump ranges that are used for underwater concreting. It is recommended that concrete containing **RHEOMAC UW450** is placed by pump or tremie. Concrete placement should be continuous and without interruption. Keep the discharge point of the placement device immersed in the fresh concrete during placement.

Note: It is not recommended that concrete containing **RHEOMAC UW450** be allowed to free-fall through water during placement.

Dispensing

For additional information on **RHEOMAC UW450** or its use in developing a concrete mixture with special performance characteristics, contact your local BASF Construction Chemicals representative.

DOSAGE

RHEOMAC UW450 is recommended for use at a dosage range of 300 to 1,300 ml/100 kg of cementitious material for most concrete mixes. Because of variations in concrete materials, job site conditions, and/or applications, dosage rates outside of the recommended range may be required.

RHEOMAC UW450 should be added after all other concreting ingredients have been batched and thoroughly mixed, either at the batch plant or at the job site.

PACKAGING

RHEOMAC UW450 is supplied in 205L drums.

SHELF LIFE

RHEOMAC UW450 can be stored for 12 months if stored at temperatures above 5°C and below 40°C, in tightly sealed original drums. Protect from freezing as it cannot be reconstituted.

PRECAUTIONS

Handling : Contact with water in hoses, pumps, tanks or receiving vessels must be avoided to prevent gelling when transferring **RHEOMAC UW450** to other containers.

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

1-1-3-0208

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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