

Description

Rheomac UW 450 anti-washout admixture is a patented, ready-to-use, liquid cellulose-based admixture that is specially developed for underwater concrete applications. Concrete containing Rheomac UW 450 admixture exhibits superior resistance to washout of cement and fines, while impeding the blending of external water into the plastic concrete.

Applications

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
- Mortar and grouting applications where mixtures are typically more fluid and have a higher potential for washout

RHEOMAC® UW 450

Anti-Washout Admixture

Features

- Reduction in washout of cement and fines
- Reduction in segregation, even with highly fluid, high water-to-cementitious materials ratio concrete mixtures
- Thixotropic action that provides concrete stiffening after placement
- Reduction or elimination of concrete bleeding

Benefits

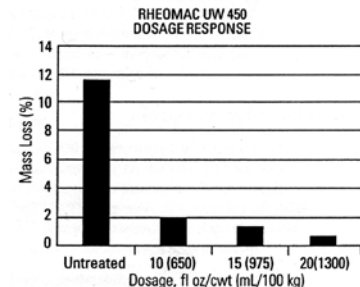
- Superior and predictable in-place concrete properties
- Dewatering costs reduced/eliminated
- Environmental impact of cement washout in water minimized
- Flexibility in batching procedures

Performance Characteristics

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 UW 450 anti-washout admixture to concrete significantly reduces the washout of cement and fines, compared to untreated concrete

Concrete Mixture Data (Non-Air-Entrained Concrete)

Cement Content	650 lb/yd ³ (386 kg/m ³)
Water-Cement Ratio	0.49
Slump	4 ± 0.5 in. (100 ± 10 mm)



Slump: Concrete that is designed for underwater placement applications is typically batched at an 8-10 in. (200-250 mm) slump. After Rheomac UW 450 admixture 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 minute period show that Rheomac UW 450 admixture 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 UW 450 admixture.

Setting Time: Rheomac UW 450 admixture has little to no effect on concrete setting time at commonly used dosages of 4-12 fl oz/cwt (260-780 mL/100 kg). Slight retardation of setting time may be experienced at dosages over 12 fl oz/cwt (780 mL/100 kg).

Compressive Strength: Using test specimens that are cast in air, concrete containing Rheomac UW 450 admixture may obtain slightly lower compressive strength when compared to untreated concrete. However, when strength is evaluated using test

Product Data: RHEOMAC® UW 450

specimens that are cast underwater, concrete containing Rheomac UW 450 admixture achieves higher strength because washout is minimized. In addition, most underwater concrete mixtures that are proportioned in accordance with ACI 304R, "Guide for Measuring, Mixing, Transporting, and Placing Concrete", exceed compressive strengths that are required for underwater applications. If necessary, a lower water-to-cementitious materials ratio may be used to achieve the desired results.

Guidelines for Use

Dosage: Rheomac UW 450 admixture is recommended for use at a dosage range of 4-20 fl oz/100 cwt (260-1300 mL/100 kg) of cementitious materials for most concrete mixtures. Because of variations in concrete materials, jobsite conditions and/or applications, dosages outside of the recommended range may be required.

Mixing: 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 600 lb/yd³ (356 kg/m³)
- Use of pozzolans approximately 15% by mass of cementitious materials
- A maximum water-to-cementitious materials ratio of 0.45
- Fine aggregate contents of 45-55% by volume of total aggregate
- Air contents of up to 5% are listed as desirable
- A slump of 6-9 in. (150-230 mm) is generally necessary and occasionally a slightly higher slump range is needed

Rheomac UW 450 admixture should be added with a water-reducing admixture, such as BASF Construction Chemicals PolyHeed® or Pozzolith® admixture lines. For achieving high slump concrete, use Rheomac UW 450 admixture in conjunction with a Glenium® high-range water-reducing admixture. This combination will produce a high-performance, flowing concrete that exhibits superior resistance to washout of cement and fines. Rheomac UW 450 admixture should be added after all other concreting ingredients have been batched and thoroughly mixed, either at the batch plant or at the jobsite.

Concrete Placement: Concrete containing Rheomac UW 450 admixture is easily pumped throughout the typical slump ranges that are used for underwater concreting. It is recommended that concrete containing Rheomac UW 450 admixture 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.

It is not recommended that concrete containing Rheomac UW 450 admixture be allowed to free-fall through water during placement.

Product Notes

Compatibility: Do not use Rheomac UW 450 admixture with naphthalene-based high-range water-reducing admixtures. Erratic behaviors in slump, pumpability and washout may be experienced.

Storage and Handling

Storage Temperature: Rheomac UW 450 admixture must be stored at temperatures above 44 °F (7 °C) to avoid dispensing difficulties due to thickening. Do not allow Rheomac UW 450 admixture to freeze since it cannot be reconstituted after thawing.

Handling: Contact with water in hoses, pumps, tanks or receiving vessels must be avoided to prevent gelling when transferring Rheomac UW 450 admixture to other containers.

Shelf Life: Rheomac UW 450 admixture has a minimum shelf life of 12 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Rheomac UW 450 admixture has been exceeded.

Dispensing: Consult your local BASF Construction Chemicals sales representative for the proper dispensing equipment for Rheomac UW 450 admixture. If dispensing directly from the 55 gal (208 L) drum, it is recommended that the larger 2 in. (50 mm) opening be used.

Packaging

Rheomac UW 450 admixture is supplied in 55 gal (208 L) drums, and 275 gal (1040 L) totes.

Related Documents

Material Safety Data Sheets: Rheomac UW 450 admixture.

Additional Information

For additional information on Rheomac UW 450 admixture or its use in developing concrete mixtures with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

BASF Construction Chemicals, LLC
Admixture Systems

www.masterbuilders.com

United States 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5544 ■ Tel: 800 628-9990 ■ Fax: 216 839-8821
Canada 1800 Clark Boulevard, Brampton, Ontario L6T 4M7 ■ Tel: 800 387-5862 ■ Fax: 905 792-0651

© Construction Research & Technology GMBH

© BASF Construction Chemicals, LLC 2007 ■ Printed in USA ■ 03/07 ■ LIT # 1017039 ■ Product and/or use covered by: US5667340 and CA22063595

**Master
Builders**