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MELLOSE non-dispersible Underwater Concrete Admixture

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MELLOSE NON-DISPERSIBLE UNDERWATER CONCRETE ADMIXTURE

THE NEED

Many under-water civil engineering structures are affected not only by the presence of water or salt but also by water pressure, flow of water, and by the different material's density. These factors could cause cracks, corrosion, and dispersion of concrete particles.



FIGURE 1 USING MELLOSE IN UNDER-WATER CONCRETE STRUCTURES

THE TECHNOLOGY

Mellose is a viscose agent based on under water Cellulose (Hydroxy Propyl Methyl Cellulose). It is commonly referred to as a self-leveling agent that increases viscosity when is dissolved in water. It can be also described as an anti-washout concrete or non-dispersible concrete mixture. Mellose is an essential component of high performance concrete construction under water.

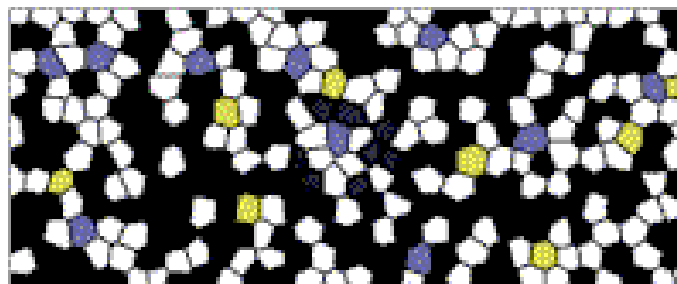
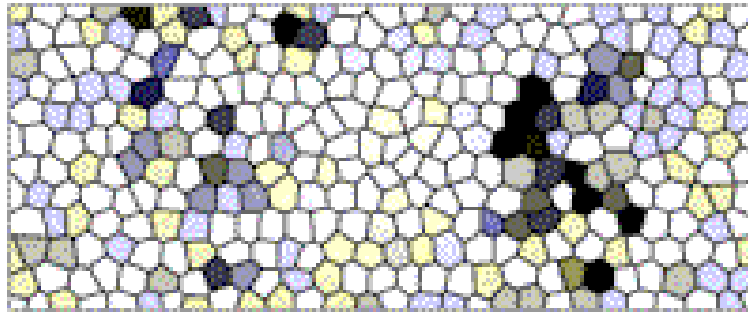


FIGURE 2 CONCRETE PARTICLES WITHOUT MELLOSE
(WATER PICTURED AS BLACK DOTS)



In under-water construction the concrete particles can be either separated or lost because of water pressure, water flows or different densities. When Mellose is added, it prevents the loss of cement in the mortar and the separation of the concrete particles due to its increased viscosity. It combines first with the water than with the cement and the other concrete particles.



**FIGURE 3 CONCRETE PARTICLES ADDING MELLOSE UNDER WATER
(WATER PICTURED AS BLACK DOTS)**

THE BENEFITS

Mellose increases the viscosity of suspended concrete but decreases the viscosity of flowing concrete. Therefore, it increases the workability of the concrete, while there is no separation of its aggregates. It prevents the segregation of aggregates as well as the bleeding when used for under water construction. The product comes in the form of a powder that is added as a concrete admixture.

STATUS

The product has been successfully applied by several Korean construction contractors like, Hyundai Construction and Dong-A Construction for the construction of the main tower in the Kwang-an Great Bridge in Korea.

BARRIERS

Mellose can not be used with Naphtalene Sulphonate because of chemical reactions.



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REFERENCES

1. MECA Engineering Co., LTD. MEL-Series Catalog Information

REVIEWERS

Peer reviewed as an emerging construction technology

DISCLAIMER

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PUBLISHER

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