Cement Based Applications

The functionality of Ground Calcium Carbonate products
Omya – The Right Partner for Functional Minerals in Concrete Applications

Omya has a long history of success with Betocarb® & Betoflow® in concrete and construction. Due to the early efforts in France, Omya has been able to spread the value and importance of Betocarb® & Betoflow® across the globe. Today we can offer a range of Betocarb® & Betoflow® products in North & South America, Europe and Asia Pacific, giving us the opportunity to continue our leadership in all regions in the concrete and construction segment.

Omya provides products with clear value propositions for various applications in the wide field of cement based systems (Figure 1).

Depending on the characteristics of the final product, Omya can add value through its range of carbonate based functional minerals (Figure 1). In technically high complex systems such as High Performance Concretes, Betocarb® HP and Betoflow® D can provide strong benefits like improved water cement ratio and therefore an optimization of the admixture efficiency. This way we cover both, economic and ecological optimization of the concrete composition.

Benefits when Betocarb® & Betoflow® is formulated in the grout, mortars and concrete

- Increasing flowability & workability of technical mortars & concrete
- Improvement of particle packing & reduction of shrinkage
- Contribution to lower CO₂ emissions
- Better esthetics & significant reduction of microporosity
- Higher casting for dry & plastic concrete

Categorization of Betocarb® & Betoflow®

In order to clearly define the value proposition of each Omya Mineral Plasticizer®, Omya established five categories, namely Betocarb® F, Betocarb® UF, Betocarb® HP and Betoflow® D (Table 1). However, particles size alone is not sufficient to differentiate between the four Betocarb® grades. Omya therefore invented the LGSystem to clearly distinguish between the four types.

Figure 1. Cement based products in focus (different pictures) and possibility of value creation through functional minerals
Based on the LGSystem the effects in the final applications can be understood and following rule of thumb can be applied.

- Betoflow® D is a micro GCC for technical mortars and concrete
- Betocarb® UF as a mineral accelerator and fine-packaging agent
- Betocarb® HP for technical mortars and concrete
- Betocarb® F for lower permeability, better durability and strength
- Betocarb® for general use

The Betocarb® grades & Betoflow® are complementary additions to cement based systems and should always be seen in the big picture together with other ingredients. Table 2 therefore summarizes the properties which can be influenced by Betocarb® & Betoflow® and other ingredients of cement based products.

Table 1. Categories of Betocarb® & Betoflow® and their Particle Size Range

Table 2. Ingredients of Cement Based Systems and the Properties which can be Controlled and/or Enhanced
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