

FOR IMMEDIATE RELEASE

Chryso Admixtures Key In Extended Cements

Construction companies are increasingly appreciating the significant benefits which accrue from using extended cements.

Eddie Correia, general manager technical services from CHRYSO Southern Africa, says the move in South Africa towards the increased use of extenders, such as pulverised fuel ash (PFA) and slag, in cement is in line with international trends. Blessed with an abundance of these extenders, South Africa has, in many cases, been both at the forefront of this move for a longer time period.

“The need to conserve non-renewable construction material resources, as well as lower the rate of CO2 emissions, is driving this move and the reference base of major South African projects where extended cements has been used successfully is steadily increasing,” Correia says.

Both PFA and slag are by-products of industrial processes, which would normally be consigned to landfills. Both products are produced with a particle sizing either similar to or significantly smaller than pure cement. PFA is known to have a particularly spherical particle shape, which decreases concrete water demand and as a result increases concrete density.

Both products react with the by-products of pure cement hydration to form more hydration products in the cement paste pore structure. Under the right conditions, this process may continue for an extended period of time, extending from months to years in some cases. As a result, an ongoing densification of the concrete matrix is achieved, which in turn enhances impermeability and as a result enhances durability. Slag is known for its chloride ion binding characteristics, further enhancing the protection of concrete from chloride ingress.

Correia says that understanding the characteristics of extended cements, and how they will perform, is critical to ensuring their successful use in construction and this places greater responsibility on admixture producers such as CHRYSO Southern Africa.

“When replacing cement with PFA and slag the cost reduction is considerable, but you must know what you are doing,” Correia says.

CHRYSO Southern Africa has been working with local contractors to facilitate the use of these extended cements without affecting the slump retention, workability and durability of the concrete. Correia says the use of the correct admixtures will facilitate further extension of the concrete and CHRYSO has been involved in projects where up to 60% PFA and even greater amounts of slag have been used.

Although extended cements do reach the required strengths, they react slower. This means that design mixes which include extenders must take factors such as slump retention, setting times and strength gains into account.

“The more pure cement that is replaced, the lower the early strength of the mix. This necessitates the introduction of activators to trigger the early strength characteristics of the concrete,” Correia says.

Typically slump retention ensures extended workability and is considered a critical characteristic of concrete on projects today, especially given some of the complex structures that are being constructed. Adding to this issue is the growing number of projects within the urban environment; this means readymix trucks are subjected to traffic congestion while delivering.

In these applications, it is important to achieve acceptable slump retention, in conjunction with an acceptable early strength and for this admixtures with special polymers are key.

Correia says what is most important is that contractors interact with CHRYSO from the start of a project as this will enable the company to assess the complete cement and concrete requirements of the contract and make provision for the most appropriate admixture solution, based on the specific application needs.

“By offering access to extensive applications knowledge and experience, coupled with our well proven range of products, it is a given that CHRYSO will provide a fit-for-purpose solution for extended cements,” Correia concludes.

ADMIXTURES PIC 01 : Eddie Correia, general manager technical services from CHRYSO Southern Africa, says the move in South Africa towards the increased use of extenders, such as pulverised fuel ash (PFA) and slag, in cement is in line with international trends.

ADMIXTURES PIC 02 : PFA is known to have a particularly spherical particle shape, which decreases concrete water demand and as a result increases concrete density.

ADMIXTURES PIC 03 : Slag is known for its chloride ion binding characteristics, further enhancing the protection of concrete from chloride ingress.

ADMIXTURES PIC 04 : CHRYSO offers access to extensive applications knowledge and experience, coupled with our well proven range of products, providing a fit-for-purpose solution for extended cements.

ENDS ... NOVEMBER 2016

FROM : CORALYNNE & ASSOCIATES
TEL : +27 011 849 3142
EMAIL : communicate@coralynne.co.za
WEBSITE: www.coralynne.co.za

FOR : KIRSTEN KELLY
CHRYSO SOUTHERN AFRICA (PTY) LTD
TEL : +27 11 395 9700
EMAIL : kirsten@chrysosa.co.za
www.chryso.com