HYBRID CONCRETE: ALTERNATIVE FUTURE

Cyril Attwell, ARC Innovations (Pty) Ltd
cyril.attwell@arcinnovations.com

Key Words: hybrid concrete, abrasion resistance, shrinkage, durability.

Hybrid concrete is a combination of hydrate and polycondensation products to produce crystalline and amorphous gels such as C-A-S-H, C-S-H, C-A-S-S and C-F-A-S-H.

Several physical and chemical characteristics of these products have being analysed and summarized in this thesis based on the practical application on commercial and industrial sites in Southern Africa since 2010. There are several distinct advantages of these type of products:

- lower costs environmentally
- lower costs economically
- better abrasion resistance
- lower heat of hydration
- crystalline formations in lieu of amorphous gels

The base materials for these eco-binders that have being applied on several sites are ground granulated corex slag, ground granulated blast-furnace slag, pulverised fuel ash, mineral sand slimes, small amounts of Portland cement in some cases and other wastes that are used to activate the eco-binders.

The site summary combines the use of Portland cement replacement concretes of 60 – 100% with the above wastes or by-products and the physical nature of the products over periods up to 4 years.