



Concrete moves...



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ADMIXTURES AND SUSTAINABLE CONCRETE

Schlumpf Jürg⁽¹⁾

(1) EFCA; European Federation of Concrete Admixtures Associations
Sika Services AG, Corporate Target Market Concrete, 8048 Zürich, Switzerland

Abstract

Life Cycle Management of buildings and infrastructures worldwide is becoming a decisive controlling factor in the performance-related requirements of such projects. At the same time building materials required to achieve these performances are becoming scarce, while regulatory framework conditions for the manufacture of these materials are increasing. In order to meet the increasing requirements for protection of the environment, the sustainability of cement in particular, as the most significant component of concrete, must constantly be developed further. Considerable effort has already been made, but the industry nonetheless stands at the beginning of these developments: the employment of SCM (Secondary Cementitious Materials) is gaining momentum and will influence the properties of concrete as a building material. While some of these pozzolanic, latently hydraulic or inert additions, in parallel with their contribution to CO₂ emission reduction, show a positive effect on durability. These influence workability and curing as well. Simultaneously a shortage of natural aggregates is emerging, making the mechanical processing of aggregates increasingly necessary, so already today SCM and some fractions of crushed aggregates are being used worldwide in presence of high durability requirements. The content of this contribution is an examination of limitations in achievement of unchanged durability requirements as well as practicable processing conditions and how admixtures are involved in the process. Durability and Sustainability – a Contradiction?

Keywords: LCA, Life Cycle Assessment, Concrete Admixture, Superplasticizer, Concrete Durability, cradle to gate, global warming potential, cumulative energy demand