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Research on Novel Sustainable Binders, Concretes and Composites

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Message from the Guest Editors

In recent years, sustainability and sustainable building materials have become a priority of the construction industry. Ordinary Portland cement (OPC) is a main component of building concrete. The production of Portland cement emits about 0.8 tons of carbon dioxide per ton. Possible replacement of the OPC with alternative binders is on the agenda around the world; therefore, new cementitious materials are created aimed at decreasing the levels of industrial pollution, CO₂ emissions from the binder production, as well as use of the unrenewable natural resources.

Binders with high levels of supplementary cementing materials (SCM) have been an object of studies for many years. Therefore, it is possible to lower the amount of Portland cement in binder composition, in this way decreasing the negative impact of cement production on natural environment. In order to avoid environmental problems and waste, it is important to scale down the consumption of Portland cement along with recycling of byproduct materials at the same time.

More attention is given to alkali-activated materials (AAM) as an ecological alternative to ordinary Portland cement (OPC) in the concrete industry.



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