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Concrete Chemistry and Sustainability

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Message from the Guest Editors

Concrete is the most widely used building material in the world. It is a major component of infrastructures and buildings. In recent years, the construction industry has grown considerably. Today, global concrete production has reached 27 billion tonnes and cement production has reached 4.1 billion tonnes.

During the clinker manufacturing process (clinker is the main component of cement), the use of huge kilns is required. These kilns consume large amounts of energy and emit great quantities of CO₂. It is estimated that for every tonne of clinker used in cement production, up to one tonne of CO₂ is emitted to the atmosphere. Several studies cite the cement industry as being responsible for 5–7% of all global CO₂ emissions.

Some of the strategies proposed to reduce pollutant emissions and the consumption of natural resources derived from the production of cement and concrete are to incorporate alternative materials in partial substitution or addition to cement and/or aggregate. These alternative materials could include agroforestry waste, bottom ash, blast furnace slag, glass dust, construction and demolition waste, etc.





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Message from the Editor-in-Chief

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