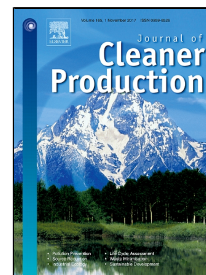


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6424 words

Use of **ground** coal bottom ash as cement constituent in concretes exposed to chloride environments

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Highlights

- Coal bottom ash decrease chloride ingress up to 25% in concrete.
- Chloride diffusion in coal bottom ash concrete is lower than in coal fly ash one.
- A linear relation between chloride diffusion and migration was found.
- After 28 days, electrical resistivity is higher with bottom ash than with fly ash.

Abstract

Coal bottom ash waste obtained from thermoelectric power plants could be recycled like any other new cement constituent when sufficiently ground. Such a proposal would result in a reduction of both energy consumption and CO₂ emissions from cement production, while minimising the environmental impact of disposing of the coal bottom ash in landfill sites.

The new cement constituent must guarantee at least the same durability than that of cements in current use. In order to assess the viability of using the coal bottom ash as the new main constituent of Portland cements, a comparative study with coal fly ash supplied by the same power plant was conducted. Coal fly as and **ground** coal bottom ash were used to replace 10% and 25% of the weight of the Portland cement. Natural chloride

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