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Second Regional Symposium on Electrochemistry

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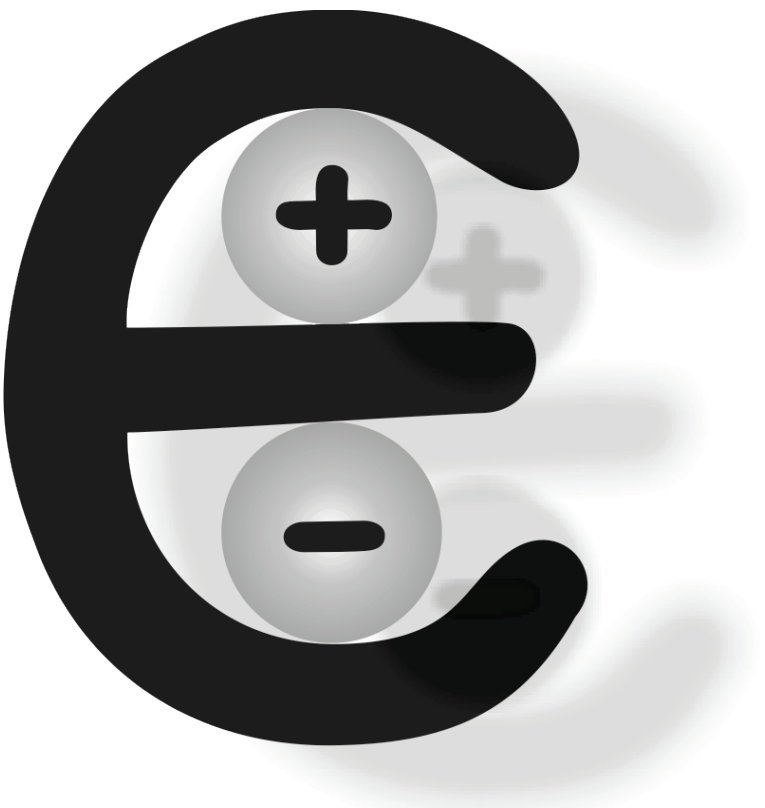

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FSP-P-09

The effect of pozzolanic admixtures on the corrosion of limestone cement mortars stored in combined chloride and sulfate environment at low temperatures

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In this work the effect of natural pozzolana, fly ash, slag and metakaolin on the corrosion of limestone cement mortars is studied. A limestone cement, containing 15% w/w limestone, was used. Mortar specimens were prepared by repalacing a part of cement with the above pozzolanic materials and steel bars were axially embedded into them. After 40 days of curing, the specimens were partially immersed in chloride (Cl^-) and chloride-sulfate (Cl^-/SO_4^{2-}) solution at 5 ^oC for a period of 10 months. Corrosion potential, corossion rate (Linear Polarization method) and mass loss of the rebars were tested. Pozzolanic materials may inhibit corrosion at the early stages of curing. Fly ash improves corrosion resistance in the Cl^-/SO_4^{2-} solution. Natural pozzolana, slag and metakaolin have a positive effect on corrosion resistance in the Cl^- solution. The use of natural pozzolana, fly ash and metakaolin leads to lower mass loss in the case of the Cl^-/SO_4^{2-} solution. The mass loss of steel rebars was higher in the Cl^-/SO_4^{2-} solution, showing that the presence of SO_4^{2-} favours the corrosion due to chlorides.

FSP-P-10

Characterization of carbon fibrous materials obtained from tree wastes

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Carbon fibres can be obtained in rather wide variety of structures, compositions and properties, depending on the nature of the organic precursor and conditions of the process applied in their preparation. In order to get a high surface area, physical or/and chemical activation processes of material have usually been employed. A challenge in the field of carbon adsorbents is to produce very specific materials with a given pore size distribution from low cost precursors.
In this study we used new type of a precursor for active carbon fibres material –achenes from the Platanus orientalis seeds. We examined the influence of different chemical activating agents on the porous and electrochemical properties of carbon material support. The properties of these fibers were compared with the properties of polysulfone hollow fibers treated on the similar way.
These investigations show that the waste such as fibrous seeds is very promising raw material for active carbon fibers production.