

# World Congress and Expo on Recycling

July 20-22, 2015 Barcelona, Spain

## Fly ash: A potential scrubber for phosphate and quarries wastes from the Israel and Palestinian authority industries

Roy Nir Lieberman, Oriol Font, Xavier Querol, Yizhak Mastai and Haim Cohen  
Consejo Superior de Investigaciones Científicas (CSIC), Spain

Israel imports ~13Mt of Bituminous coal annually. The pulverized coal is fired in 4 coal power plants and produce ~1.3M tons of coal Fly Ash (FA) and ~180k ton of bottom ash (in 2013) as a residue. Moreover, Air Quality regulations in Israel forbid emissions of toxic pollutants (example S, Hg) therefore; the coal undergoes beneficiation process in order to reduce its mineral content including sulfur and mercury. These results in formation of alkaline fly ashes (Class F), therefore are very basic upon immersion in water (liquid/solid ratio 10/1, South African Fly Ash, SAFA, pH>12.5, Colombian Fly Ash, COFA, pH>10.5). Today, ~100% of the coal fly ash are utilized is in the construction industry although it is known that it can neutralize acidic mine drainage therefore the fly ash can also be referred as chemical reagent. Therefore the possibility of using the fly ash as a chemical reagent to neutralize and also fixate different wastes is investigated in this study. Two wastes have been studied: (1) Acidic wastes either from the phosphate industry or the regeneration processes of used motor oil (viaOleum extraction). (2) Quarries sludges which consider hazardous. The results have shown that the FAs can act as an efficient encapsulation reagent for these wastes. Moreover, leaching experiments via the European Directive (EN12457-2) methods have proved that the aggregate products are in accord with the compliance test for leaching and the leached water is within the D L standards in Israel and also under the hazardous limits of the European Directive.

### Biography

Roy Nir Lieberman has completed his PhD from Bar Ilan University. He is doing his Postdoctoral Research in the Institute of Environmental Assessment and Water Research, Consejo Superior de Investigaciones Científicas (CSIC) in Barcelona, Spain.

[5dk32nl@gmail.com](mailto:5dk32nl@gmail.com)

### Notes: