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Characteristics of Fly ash Produced at Power and Water Desalination Plants Firing Fuel Oil

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Abstract

Plants firing fuel oil produce huge quantities of fly ash as solid waste, which needs to be characterized prior to its proper management. It is worth mentioning that the published literature lack comprehensive information on the characteristics of such fly ash. Characteristics of fuel oil fly ash produced at selected power (PP) and water desalination (DP) plants were determined. The results showed that grain size of the DP fly ash (66.87 µm) is slightly larger than that of PP fly ash (63.09 µm). The PP fly ash is mostly carbon while DP has a larger percent of metal oxide ashes. Ash content in PP and DP fly ash were 4.8 and 43.3 percent, respectively. Moreover, metal concentrations are higher in DP fly ash than that in PP fly ash. As an example, average vanadium concentrations were 15619 and 40879 mg/kg in PP and DP fly ash samples, respectively. Generally, fly ash samples produced at the two plants are different in their physical and chemical characteristics, which could be attributed to the different fuels and additives being used at the two plants.

Keywords

Fly ash; Fuel Oil; Characteristics; Metals