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INVESTIGATION OF THE SAFE DISPOSAL OF SINTERED OIL FIRED POWER STATION SOLID RESIDUES

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EXTENDED ABSTRACT

More than 200t of sludge are produced annually during the washing process of Greek P.P.C.'s (Public Power Corporation) air pre-heaters in the oil fired station of Aliveri, Evoia. This sludge contains up to 13%V and 5.5% Ni and is characterized as hazardous and toxic according to the European law 2000/532/EC. Its disposal in the landfill cannot take place without any precautions and for this reason the wastes are transferred in specialized treatment company in Germany, for neutralization and safe disposal.
The safe disposal of the wastes in the Greek landfill is targeted through the development of a sintering process. The decontamination of the sludge will result in both environmental and economic benefits.
The sintering process for the neutralization of this solid waste has been developed in technicum scale. The tests have been conducted in a sinterpot of 0.04m^2 surface. Extended chemical and mineralogical analyses, as well as elution tests of the products have followed in order to investigate the decontamination of the wastes and evaluate the environmental and economical benefits for the Greek community.
The elution tests have been conducted in a vertical quartz tube of 100mm internal diameter. The influence of the water characteristics such as ph and temperature and the height of the sludge layer have been investigated. The leachate content in Ni, V, Co, Fe cations has been determined in order to evaluate the possibility of the disposal of the residues in the Greek landfill according to the European legislation. The disposed yearly and stockpiled sludge sinter may be used as raw material for the recovery of valuable metals, especially of V, Ni and Co.

Key words: oil fired station sludge, sintering process, elution tests, leachate