

Municipal Waste Incineration and Ash Utilization in Industrial Concrete

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Abstract

One of the main problems concerned with municipal waste treatment is its environmental impact and thus the main process in Israel is underground landfill whereas in most European countries incineration of the organic content is carried out. Israel will switch to incineration plants in the next decades and the main problem existing is the large ash content produced post the incineration process (20-30w%). In Austria the ash is not utilized but rather it is buried in near bye underground facility and the main concern is avoiding underground aquifer contamination via leaching of trace elements from the ash.

We have studied the incineration of the Israeli municipal waste (at 800-1,000°C) and found out the ash content is in the range of 14-25w%. Also, the study have shown that chemical or thermal treatment of the ash produced in the incineration unit results in a good material that can partially substitute cement or fine aggregates in industrial concrete. Namely there is no residue which has to be taken care post the combustion process and the steam produced or the treated ash have an actual economic value.

A detailed evaluation of the processes will be described.

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