

# Use of Municipal Waste Incineration Bottom Ash As A Road Material

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KEYWORDS: bottom ash, city waste incineration, road base, subbase, subgrade, leaching.

## ABSTRACT

The present study focuses on the utilization of bottom ash in road construction and on the potential environmental impact.

Bottom ash is the most significant by-product from municipal solid waste (MSW) incineration. It accounts for 85-95% of the solid product resulting from MSW combustion. About 220.000 tonnes per year of bottom ash are produced in Catalonia at the 7 major facilities, but nowadays they are mainly landfilled.

The physical characterization includes a visual classification of the bottom ash fractions, loss on ignition, absorption and specific gravity. Particle morphology and mineralogy have been studied for each fraction of the bottom ash because they play an important role in many mechanical and chemical properties. In the chemical characterization, the content of 50 elements were determined.

The geotechnical study is focused on the use of the bottom ash as an aggregate substitute in paving applications such as compacted subbase or base, subgrade and as a granular filler. The degree of bottom ash processing to achieve these applications is determined, including the recovery of chemical constituents. The properties studied are grain size distribution, compaction, bearing capacity, abrasion, permeability, volumetric stability and sulphate, chloride presence, and influence on the properties.

Leaching tests performed are DIN38414-S4 (as established by Catalonia Government standards for bottom ash valorization) and NEN7341-availability test and NEN7343-column test, which reproduce better the field conditions to give information about the potential impact.