



## Characterization of biomass ashes and investigation of usability

By Kröppel, Michaela

Condition: New. Publisher/Verlag: Scholar's Press | Biomass incineration for the generation of heat and electricity has increased in recent years and this trend is expected to be continued. Ashes as inorganic residues from incineration contain nutrients, but also heavy metals and unburnt carbon. Bottom ashes with low levels of heavy metals are usually used as fertilizers in forests and on fields. Fly ashes are highly contaminated with heavy metals and must therefore be properly disposed of. In view of the rising amount of biomass ashes, this doctoral thesis analyzes different ways for the utilization of biomass ashes - especially heavy metal contaminated fly ashes. The following topics are part of the doctoral thesis: - Validation of the analytical method ICP-OES for determining the concentrations of Al, As, B, Ba, Cd, Co, Cr, Cu, Fe, Mg, Mn, Na, Ni, Pb, Sb, Sr, Ti, V, and Zn - Extraction experiments for the investigation of the mobility of heavy metals and nutrients - Experiments of the influence of fly ashes on plant growth - Air classification of fly ashes and investigation of the elemental concentrations in different grain sizes - Analysis of the possibility of using fly ashes as secondary material in the...



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