

# ENRICHMENT OF RARE EARTH ELEMENTS FROM CONTAMINATED BIOMASS PRIOR TO EXTRACTION

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## **ABSTRACT**

Under the context of reserve depletion, recovering rare earth elements (REEs) from secondary resources is essential which assists to strengthen the circular economy. Contaminated biomass growing from brownfield lands is a potential material for REE recovery. However, prior to the extraction stage, polluted plants need to be lessened to a manageable volume. In this study, contaminated biomass gathered from an abandoned mining area was combusted in a pilot scale boiler, while solid residuals from different positions in the burning system were collected and analyzed. Higher REE concentration in the ash samples compared to that in the woody biomass indicates the efficiency of the combustion process from the metal enrichment point of view. The significant metal level in the solid remains is an advantage for the following step of extraction to reclaim REEs. It was concluded, that the concentration of REEs in bottom ash is greater than in the other solid residuals. That indicates the low volatility of rare earth metal compounds during incineration.

*Keywords: rare earth metals, contaminated biomass, combustion, recovery*

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