

# Chemical Engineering

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## Analysis of heavy metals distribution in municipal solid wastes in cape town

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Thermochemical conversion of low energy pre-treated municipal solid waste in recent times has become an attractive growing technology. The quality of municipal solid wastes (MSW) needs an improved analysis to enhance her choice for energy exploitation and environmental assessment of fly and bottom ashes associated with the thermochemical conversion. The MSW were collected from Solid Waste Disposal facilities (SWDF) in Cape Town to investigate heavy metals distributions in the municipal solid waste obtained from SWDF. The municipal solid wastes were pre-treated to improve the quality of MSW. The 7700 Series quadruple ICP-MS solution method was used to determine concentrations and distributions of some heavy metals from SWDF in Cape Town. This study assesses and quantifies distributions of heavy metal in solid municipal solid waste in city of Cape Town. The results show significant levels of Fe, Al, Pb, Zn and Hg. The accumulation of high concentrations of heavy metals in bottom ash residue from thermochemical conversion could be a good remedy for heavy metals control. The transfer of these metals to bottom ash residue during and after thermochemical conversion was determined analytically.

### Biography

Daniel Ikhu-Omoregbe holds a first class honours degree in Chemical Engineering from the University of Benin, Nigeria in 1979; an MSc in Biochemical Engineering (1982) and a PhD in Chemical Engineering (1985) both from the University of Birmingham, UK. He was a Lecturer in University of Benin, Benin City, Nigeria (1985-1997); Senior Lecturer, National University of Science and Technology, Bulawayo, Zimbabwe (1997-2002); Associate Professor, University of KwaZulu-Natal, Durban, South Africa (2003-2008). He is currently Professor and Head of Department of Chemical Engineering, Cape Peninsula University of Technology. He is a corporate member of the Institution of Chemical Engineers, UK and a Chartered Chemical Engineer. His research interests include Renewable Energy, Food Processing, Environmental Engineering, and Waste to Energy. He has authored more than 60 academic papers.

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