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A geochemical study of settleable dust samples collected near some old and abandoned asbestos mine dumps in Limpopo province, South Africa

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Old and abandoned asbestos mine dumps have left major health problems to nearby communities. Since these asbestos mine dumps are not rehabilitated, it is now the government's priority to urgently rehabilitate these dumps to avoid major liability from the local communities. Wind may blow the dust away from the dumps towards the nearby communities and cause respiratory diseases when inhaled. The aim of this research is to monitor measure and characterize settleable dust samples collected around human settlements in the vicinity of abandoned and ownerless asbestos mine dumps. The standard method for collection and analysis of settleable dust advocated by the National Dust Control Regulations (NDC R 827, 2013), South Africa National Standards (SANS 1929, 2011) and American Standard Test Method (ASTM D-1739, 1970) is used in this research. Settleable dust samples were collected from November 2015 till May 2016 in Limpopo Province at the following five sampling sites: Cork, Bavianaankop, Kromellenboog, Penge 1 and Streatham 1. Samples were prepared for analysis with X-Ray Diffraction (XRD) and Scanning Electron Microscopy - Energy Dispersive X-ray (SEM-EDX) techniques. The preliminary data confirm presence of amphibole group (amosite) and serpentine group (chrysotile) in Limpopo Province. Settleable dust rates and the mineralogy results will also be presented during the conference.

Biography

Maphuti Kwata has completed her MSc from University of Pretoria and is currently studying for her PhD in the Department of Environmental Sciences at the University of South Africa. She is a Junior Scientist in the field of Air Quality Management at the Council for Geosciences. She has published three peer reviewed articles and has also presented at both national and international conferences.

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