



Trace metal composition of atmospheric aerosols in the North West province of South Africa

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Particulate pollution has been identified as one of the most important contributors to ill health and numerous studies suggest that health effects can occur at particulate levels that are at or below the levels permitted under national and international air quality standards. In this study, the composition of particulate matter sampled from ambient air in the Rustenburg municipality in the North West Province of South Africa was determined using Inductively Coupled Plasma Mass Spectroscopy. The elements identified in order of decreasing abundance are: Fe, Ca, Al, Mg, Si, Na, K, Zn, Cr, Ni, Cu, Ti, Mn, Pb, and V. The aim of the study was to quantify the heavy-trace metals, Cr, Ni, V and Pb, mainly due to their health effects; and the concentration levels were found to be between 360 to 5200 ng.m⁻³, 50 to 2800 ng.m⁻³, 60 to 500 ng.m⁻³, and 40 to 400 ng.m⁻³ for Cr, Ni, Pb and V respectively.