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Variability of Metal Composition and Concentrations in Road Dust in the Urban Environment

Authors : Sandya Mummullage, Prasanna Egodawatta, Ashantha Goonetilleke, Godwin A. Ayoko

Abstract : Urban road dust comprises of a range of potentially toxic metal elements and plays a critical role in degrading urban receiving water quality. Hence, assessing the metal composition and concentration in urban road dust is a high priority. This study investigated the variability of metal composition and concentrations in road dust in four different urban land uses in Gold Coast, Australia. Samples from 16 road sites were collected and tested for selected 12 metal species. The data set was analyzed using both univariate and multivariate techniques. Outcomes of the data analysis revealed that the metal concentrations inroad dust differs considerably within and between different land uses. Iron, aluminum, magnesium and zinc are the most abundant in urban land uses. It was also noted that metal species such as titanium, nickel, copper, and zinc have the highest concentrations in industrial land use. The study outcomes revealed that soil and traffic related sources as key sources of metals deposited on road surfaces.

Keywords : metals build-up, pollutant accumulation, stormwater quality, urban road dust
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