E2-17 Multielement analysis of airborne dust

M C S Seneviratna[1,2], P Mahawatte[1]
(*[1]Radioisotope Centre, Univ. of Colombo, Colombo 3, [2]Present address: Atomic Energy Authority, Colombo 3*)

The degree of air pollution in some selected sites in Sri Lanka was determined by measuring the elemental concentration in airborne dust. Samples of airborne dust were collected from 30 locations which covered different environmental conditions such as heavy traffic roadsides, residential areas and industrial areas.

Airborne dust was collected, by drawing air through a cellulose membrane filter of pore size 0.45 ìm, using a high volume air sampler, which was operated at the rate of 20 l/min. Sampling was done for a period of 6 h during the working hours of week days. Multi-element analysis on the loaded filter was carried out using energy dispersive - X-ray fluorescence spectrometry.

Al, S, Cl, K, Ca, Ti, Mn, Fe, Ni, Cu, Zn, Br, Rb, Sr, and Pb have been identified as present in the samples analysed. The maximum measured concentration of these elements and the suspended particulate matter (SPM) in ìg/m^3 were 25.6 (Al), 9.52 (S) 74.4 (Cl), 65.3 (K), 55.2 (Ca), 90.0 (Ti), 0.63 (Mn), 51.5(Fe), 0.63(Ni), 7.27(Cu), 251.0(Zn), 6.33 (Br), 1.78 (Rb), 9.52(Sr), 10.5(Pb) and 1208 (SPM) respectively. Of 30 samples analysed 12 samples showed SPM levels higher than the recommended values. Although Pb was observed in many samples, only one sample showed a level higher than the maximum permissible level recommended in ambient air quality standards in Sri Lanka.