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## **BOOK OF ABSTRACTS**

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## **Multi-Element Analysis of Indoor Dust by WDXRF using the FP Method**

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Indoor dust has been identified as an important vector of exposure by inorganic and organic substances potentially toxic in children and adults. The dust composition has a strong influence of contaminants provided from internal and external environments. During the natural process of wearing or weather incidents of artifacts and materials variety, the chemical substances are released into the environment in the steam form or by leaching from final products. Once released, they can be accumulated and enriched in the dust; and by continuous exposure (inhalation, ingestion and dermal contact mechanisms), these substances are harmful to human health. In this work, a study to determine the inorganic constituents concentrations in residential indoor environment dust samples, correlating them with the probable anthropogenic sources was proposed. Dust samples were collected from 69 residences in neighborhoods Pirituba, Freguesia do Ó, Jaraguá and Perus of the São Paulo metropolitan region, using a domestic vacuum cleaner, between 2006 and 2008. The samples were sieved up and the thinnest fraction ( $\leq 63\mu\text{m}$ ) was used for the determination of the major constituent and trace elements by X-ray fluorescence (WDXRF). The fundamental parameters method (FP) was used for the matrix effect correction. The results showed the presence of Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, Cr, Mn, Fe, Ni, Cu, Zn, Br, Rb, Sr, Zr and Pb. From the enrichment factor (EF), the elements P, S, Cr, Ni, Cu, Zn and Pb were classified as being significant and extremely enriched in the dust. The natural and anthropogenic contributions by statistical tools as factor analysis (FA) and cluster (CA) were identified. The elements Cr, Ni, Cu, Zn and Pb were present significantly elevated concentrations in relation to the total exposure values (ingestion, inhalation and skin contact) and to risk.