331 TRACE ELEMENT DETERMINATIONS IN HUMAN CORTICAL AND TRABECULAR BONES. M. K. Takata[1], M. Saiki[1], N.M. Sumita[2], P.H.N. Saldiva[2] and C.A Pasqualucci[2]. [1]Radiochemistry Division, Instituto de Pesquisas Energéticas e Nucleares, IPEN/CNEN-SP, SP, Brazil. [2]Faculdade de Medicina, USP, São Paulo, SP, BRAZIL

Rib bones of Brazilian people (15 males, 3 females; mean age, 54.9 years) were analyzed by neutron activation analysis to evaluate element composition of cortical and trabecular bones, separately. For these analyses, the cortical and trabecular tissues were freeze-dried and in the case of total rib bone analyses, they were calcinated. Samples and element standards were irradiated at the IEA-R1 nuclear reactor and their induced gamma activities were measured using a HGe detector coupled a gamma ray spectrometry. For P analyses, the ^{32}P beta activity was measured using a Geiger-Muller detector. Elements Ba, Br, Ca, Cl, Fe, K, Mg, Mn, Na, P, Rb, Sr and Zn were determined in total rib bone samples and in cortical and trabecular bones. The statistical t test applied to the obtained results showed significant difference between the concentrations obtained for cortical and trabecular bones. Ca, Mg, Na, P, Sr and Zn presented higher concentrations in cortical tissues than in trabecular ones. For Br, Cl and K, the highest concentrations were observed in trabecular tissues. Comparisons made between the results obtained for Ca, Mg, Na and P for cortical bones and with the literature values showed a good agreement.

332 DETERMINATION OF INORGANIC CONSTITUENTS AND POLYMERS IN METALLIZED PLASTIC MATERIALS. E. P. Soares[1,2], M. Saiki[1], H. Wiebeck[3]. [1]Radiochemistry Division, Instituto de Pesquisas Energéticas e Nucleares, IPEN/CNEN-SP, SP, Brazil. [2]Escola SENAI "Fundação Zerrenner", SP, Brazil. [3]Chemical Engineering Department, Escola Politécnica, USP, São Paulo, SP, Brazil

Plastic production and its use have increased a lot and nowadays it has been wasted, causing serious environmental problems. Consequently, the analysis of toxic inorganic constituents and the identification of polymers in plastic materials are of great interest.

This work presents results obtained in the analyses of metallized plastic materials by neutron activation analysis and in the identification of polymers by infrared spectroscopy (IR) and differential scanning calorimetry (DSC). Plastic materials from food and cosmetic packagings, automobile accessories, toys, housewares, plastic cards, magnetic cards and CDs were selected for analyses. These samples and the elementa standards were irradiated under a thermal neutron flux of IEA-R1 nuclear reactor and their induced gamma ray activities were measured using a HGe detector coupled to a gamma ray spectrometry. Toxic elements such as As, Cd, Cr, Ni, Sb and Sn as well as Ba, Br, Ca, Co, Fe, Sc, Se and Zn were determined and their concentrations presented large variability from $\mu g\ kg^{-1}$ to percentage levels. Besides some elements were not detected in all samples. Results of IR and DSC tests indicated that polyethylene, polypropylene, poly(ethylene terephthalate), polycarbonate, poly(methyl methacrylate), acrylonitrile-butadiene-styrene terpolymer are types of polymers used in metallized plastics.

333 THE USE OF ACTIVATABLE TRACERS IN THE STUDY OF COHESIVE SEDIMENT TRANSPORT: A CASE STUDY IN HOMEBUSH BAY, SYDNEY, AUSTRALIA. S. E. Hollins[1], G. D. McOrist*[1], P. L. Airey[1] and W. L. Peirson[2]. [1]Environment Division, Australian Nuclear Science and Technology Organisation, New Illawarra Road, Lucas Heights, NSW, 2234, Australia. [2]Water Research Laboratory, School of Civil and Environmental Engineering, University of New South Wales, King Street, Manly Vale, NSW 2093, AUSTRALIA.

Determining the fate and impact of many contaminants from coastal urban areas requires a quantitative understanding of estuarine sediment transport processes. In this contribution, we explore the potential of activatable tracer techniques to provide high resolution measurements of contaminated sediment movement over periods up to a year or longer. Optimum tracer choice depends on its background level in the sediment