

Trace element quality control analysis of environmental samples at the Neutron Activation Laboratory, IPEN, São Paulo, Brazil

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Analytical laboratories have been very much concerned lately with analytical quality control. One of the main objectives of laboratories around the world is to obtain the laboratory accreditation to assure the quality and credibility of the results, allowing international acceptance and comparison of analytical data. The IPEN Neutron Activation Analysis Laboratory (LAN-IPEN) has implemented a Quality Assurance Program, which comprises among many other activities the participation in intercomparison runs. As part of the Quality Assurance Program, the LAN-IPEN has participated of some interlaboratory runs, analyzing the following environmental samples: Mussel Tissue (IAEA-407), Seafood Material (*Almejas*- CCHEN), Tea Leaves (INCT-TL-1), Mixed Polish Herbs (INCT-MPH-2) and Marine Sediment Sample (IAEA-433). The elements As, Br, Ca, Cu, Cs, Fe, K, Na, Rb, Sb, Sc, Se, Th, U, Zn and Rare Earths were analyzed in the reference materials and candidate reference materials by instrumental neutron activation analysis (INAA). The performance of the laboratory has been statistically evaluated (Z-score) in relation to certified or assigned values calculated from all data provided by the participant laboratories. This method of assessing laboratories has been accepted as a standard for ISO/IUPAC. As a general trend Z-score values ($|Z| < 2$) were observed for most elements confirming the good quality of the analytical results for these environmental matrices by using a nuclear analytical technique.