

DETERMINATION OF ESSENTIAL MINERAL COMPOSITION IN BRAZILIAN INFANT FORMULA BY ACTIVATION ANALYSIS

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Milk is an important food in the human diet and it is the first food ingested by the babies after birth. As this is the first meal of infants it is of great importance to know the mineral composition to ensure that all growth needs are met. This study determines the mineral composition in infant formulas, which are normally used to substitute breast milk. The concentrations of Cl, K, Mg, Mn and Na were determined in infant formulas by Instrumental Neutron Activation Analysis. Thirteen infant formula samples were acquired in the market of São Paulo city, being four soy-based milk formulas and nine were milk-based fortified with Fe formulas. The infant formula samples, reference materials and primary standards of these elements were irradiated for 10 seconds under $6.6 \times 10^{12} \text{cm}^{-2} \cdot \text{s}^{-1}$ at the IEA-R1 nuclear research reactor of IPEN. CNEN/SP. The gamma-ray spectra were obtained using a counting system with an HPGe detector from CANBERRA. The concentration results obtained were from 2778 to 6217 mg kg^{-1} for Cl, from 4215 to 9271 mg kg^{-1} for K, from 344 to 588 mg kg^{-1} for Mg, from 0.40 to 3.73 mg kg^{-1} for Mn and from 1086 to 2604 mg kg^{-1} for Na. All elements analyzed in infant formula samples are within the standards and guidelines required by Brazilian legislation and Codex Alimentarius. The levels were also similar to the printed label information.