DETERMINATION OF ^{127}I AND ^{129}I IN ENVIRONMENTAL SAMPLES BY NEUTRON ACTIVATION ANALYSIS

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ABSTRACT

The analytical method of ^{127}I and ^{129}I in environmental samples has been studied and the background levels of these nuclides in soils, milk, atmosphere and seaweeds were measured.

The analytical method consists of separation of iodine from environmental samples by combustion, neutron irradiation, radiochemical purification of irradiated iodine by solvent extraction and gamma-ray spectrometry.

The detection limits of ^{129}I by this method were 4×10^{-7} Bq/g for dry soil, 7×10^{-6} Bq/ℓ for fresh milk, 2×10^{-8} Bq/m^3 for air and 7×10^{-8} Bq/g for fresh seaweeds, respectively. The relative standard deviation of ^{129}I Analysis in soil and milk were less than 10%.

^{129}I concentrations and atom ratios of $^{129}I/^{127}I$ in surface soil(0~5 cm depth) in Japan were from 1.1×10^{-7} Bq/g to 4.8×10^{-5} Bq/g and from 1.2×10^{-9} to 2.7×10^{-7} respectively. Other analytical results are discussed.