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PAPER TITLE Determination of ^{90}Sr in natural samples

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ABSTRACT (See instructions overleaf)

Strontium isotope ^{90}Sr belongs to the group of isotopes which are very dangerous for human health. Therefore ^{90}Sr is regularly determined in natural samples such as soil, drinking water and food. When determining ^{90}Sr in natural samples it is necessary to isolate ^{90}Sr from the sample because ^{90}Sr is a pure β-emitter. As natural samples contain much more sodium and calcium than strontium, it is necessary to isolate a small quantity of strontium from a large sample with simultaneous separation of calcium and other interfering elements.For this purpose an elegant method based on ion exchange chromatography has been developed. Strontium is isolated from the natural sample and simultaneously separated from calcium, sodium, potassium, caesium, iron and some other elements on the chromatographic column filled with strong anion exchanger (type DOWEX and AMBERLITE) and alcoholic acid medium as eluent. Therefore, the paper will show the separation of strontium from caesium, potassium, sodium, calcium, barium and iron on two types of exchangers with different alcoholic acid eluents (ethanol + HNO_3, methanol + HNO_3). The application of the separation on fast ^{90}Sr isolation from a liquid sample will be presented and the possibility of fast and accurate determination of ^{90}Sr after isolation and separation from ^{90}Y on ion exchangers will be particularly considered.