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Master of Science Thesis

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Investigation of the Behaviour of ^{106}Ru in Sea Water by Electromigration Techniques

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Two-dimensional electrochromatography, on filter paper sheets and filter paper sheets loaded with ion-exchange resins, of ^{106}Ru using sea water as a background electrolyte is described.

Samples of ^{106}Ru in its chloride form (originally in 8 *M* HCl), and in its nitrate form (originally in 8 *M* HNO_3), were used after a preliminary treatment.

Exptl. evidence shows that, in sea water, ^{106}Ru behaves depending on whether the original sample was in the chloride or nitrate form.

Two-dimensional electrochromatography of ^{106}Ru in sea water showed a large no. of well-defined species which could be readily classified into anionic, cationic, electroneutral, particulate, non-adsorbable and more or less adsorbable forms. Although the anionic fractions, as expected, were strongly adsorbed on Dowex 2-X8 anion ion-exchange paper, the cationic fractions of ruthenium chloride were not adsorbed on Dowex 50 cation ion-exchange filter paper.

The same expts. were also performed starting with RuO_4, which was obtained by distn.. The fate of RuO_4 and soluble species resulting from decompn. of the tetroxide in HCl, HNO_3 and $HClO_4$ soln. and in sea water, was studied.

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1. Investigation of the Behaviour of ^{106}Ru in Sea Water by Electromigration Technique

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Electrochromatography, two-dimensional
Electromigration
^{106}Ruthenium, in sea water
Sea water, ^{106}ruthenium in