

Method for Nitrate Collection

Description

The present invention relates to a method for nitrate collection from different kinds of matrixes and is particularly suited for extraction in view of nitrogen and oxygen isotope ratio analysis. Existing methods have disadvantages such as: high cost and complexity, inadequacy for routine analysis method, impossibility to measure oxygen isotopes ratio, applicable only to one matrix, etc.

The present invention proposes a method using anion exchange material with a particular selection of eluting agents and neutralizing agents. The efficiency, low cost and ease of use of the proposed agents make the method particularly interesting for widespread routine use. The method utilizes lead oxide as neutralizing agent for different reasons: cost effectiveness, ease of elimination of excess reagent and undesired by-products, ease of elimination of water. As eluent sulphuric acid is used.

The proposed method also allows extraction of nitrates from many types of matrixes such as: fresh water with low or high content of dissolved organic compounds; sea water; soils; plants and other biologic tissues; food; ...

Innovative aspects and main advantages

- Low cost and non hazardous reagents
- Ease of implementation and ease of use
- Higher efficiency in nitrate recovery
- Ease of sample preparation
- Recovery from large types of matrix
- Method adapted to widespread routine use
- Ease of elimination of excess reagents and undesired by-products
- Compatible with oxygen and nitrogen isotope analysis

Areas of application

- General tool for research on nitrogen and oxygen cycles in nature
- Detection of nitrates contamination of fresh/sea water
- Tool to differentiate organic products from products obtained using chemical fertilisers

Stages of development

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