

Accepted Manuscript

Title: Speciation analysis and fractionation of manganese – a review

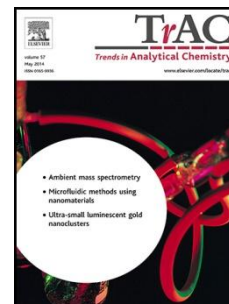
Author: Emilia Grygo-Szymanko, Anna Tobiasz, Stanisław Walas

PII: S0165-9936(15)30032-7

DOI: <http://dx.doi.org/doi: 10.1016/j.trac.2015.09.010>

Reference: TRAC 14588

To appear in: *Trends in Analytical Chemistry*



Please cite this article as: Emilia Grygo-Szymanko, Anna Tobiasz, Stanisław Walas, Speciation analysis and fractionation of manganese – a review, *Trends in Analytical Chemistry* (2015), <http://dx.doi.org/doi: 10.1016/j.trac.2015.09.010>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Speciation analysis and fractionation of manganese – a review

Emilia Grygo-Szymanko, Anna Tobiasz*, Stanisław Walas

Department of Analytical Chemistry, Faculty of Chemistry, Jagiellonian University in Krakow, Krakow, Poland

Highlights

- Significance, application and role of manganese
- Application of analytical methods for manganese speciation in different materials
- Direct and indirect techniques for manganese speciation and fractionation
- Manganese speciation/fractionation in soils, sediments, air, aerosols, water, plants and animals

Abstract

Manganese as an essential element is required by organisms from simple bacteria to plants, animals and human being. The identification and determination of organic or inorganic manganese forms is important from many points of view, such as their bioavailability or bioactivity. A review of the use of different analytical methods, which allow manganese speciation and fractionation in various type of matrix such as: soils, sediments, air, aerosols, water, plants, animals and polluted environmental samples is given in this article. The presented approaches assume mainly the use of indirect techniques from simple ones like extraction, through multistep procedures to more complex such as hyphenated techniques. Direct analysis of manganese species is also possible but unfortunately only in some cases and for selected samples.

Significance of manganese speciation and fractionation in different areas of life and difficulties in performing such analysis, makes them still a challenge.

Key words

manganese, speciation, determination, fractionation, water, plants, biological material

*corresponding author: Anna Tobiasz, Jagiellonian University in Krakow, tobiasz@chemia.uj.edu.pl, phone: +48 12 633 22 29

Download English Version:

<https://daneshyari.com/en/article/7688744>

Download Persian Version:

<https://daneshyari.com/article/7688744>

[Daneshyari.com](https://daneshyari.com)