

Title (en)

AUTOMATED IN-PROCESS ISOTOPE AND MASS SPECTROMETRY

Title (de)

AUTOMATISIERTE PROZESSINTEGRIERTE ISOTOPEN- UND MASSENSPEKTROMETRIE

Title (fr)

SPECTROMETRIE DE MASSE PAR DILUTION ISOTOPIQUE, AUTOMATISEE, EN COURS DE FABRICATION

Publication

**EP 1355728 A4 20050112 (EN)**

Application

**EP 01996118 A 20011205**

Priority

- US 0146539 W 20011205
- US 26474801 P 20010129

Abstract (en)

[origin: WO02060565A1] A method and associated apparatus for in-process automated analysis employing a modified form of isotope dilution mass spectrometry is disclosed. It involves elemental and speciation threshold measurement that is optimized for quality assurance at and is capable of functioning at and near quantitative instrumental detection limits. The system is automated and may be employed in an unattended operation for identification and quantification of elemental or specie contaminants. In a preferred aspect of the method, a sample is subjected to equilibration with at least one spiked enriched stable isotope element or specie (38) after which it is subjected to ionization in an atmospheric ion generator (32) and processed by a microprocessor which through a controller (20), coordinates operation of sample and spike delivery and equilibration as well as, the operation of the atmospheric ion generator and mass spectrometer (36). The method may in the alternative be employed qualitatively.

IPC 1-7

**B01D 59/44**; **H01J 49/00**; **G01N 30/00**

IPC 8 full level

**G01N 27/62** (2006.01); **B01D 59/44** (2006.01); **C08J 9/00** (2006.01); **H01J 49/04** (2006.01); **H01J 49/10** (2006.01); **H01J 49/26** (2006.01)

CPC (source: EP KR)

**B01D 59/44** (2013.01 - EP); **C08J 9/0004** (2013.01 - EP); **H01J 49/00** (2013.01 - KR); **H01J 49/0009** (2013.01 - EP); **H01J 49/0031** (2013.01 - EP); **H01J 49/04** (2013.01 - EP); **C08J 2300/14** (2013.01 - EP)

Citation (search report)

- [A] WO 0052735 A1 20000908 - BRUKER DALTRONICS INC [US]
- [A] GB 2349270 A 20001025 - HITACHI LTD [JP]
- [A] STEWART I I ET AL: "Developments in the electrospray mass spectrometry of inorganic species", TRAC, TRENDS IN ANALYTICAL CHEMISTRY, ANALYTICAL CHEMISTRY. CAMBRIDGE, GB, vol. 15, no. 2, 1 February 1996 (1996-02-01), pages 80 - 90, XP004034784, ISSN: 0165-9936

Citation (examination)

HEUMANN: "Isotope Dilution Mass Spectrometry (IDMS) of the Elements", MASS SPECTROMETRY REVIEWS, vol. 11, 1992, pages 41 - 67

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

**WO 02060565 A1 20020808**; **WO 02060565 A8 20021003**; CA 2434094 A1 20020808; CN 100408151 C 20080806; CN 1575195 A 20050202; EP 1355728 A2 20031029; EP 1355728 A4 20050112; JP 2004526952 A 20040902; KR 20030079968 A 20031010

DOCDB simple family (application)

**US 0146539 W 20011205**; CA 2434094 A 20011205; CN 01822365 A 20011205; EP 01996118 A 20011205; JP 2002560754 A 20011205; KR 20037009937 A 20030728