



US005514868A

United States Patent [19]

[11] Patent Number: 5,514,868

Dixon

[45] Date of Patent: May 7, 1996

[54] REDUCING INTERFERENCES, IN PLASMA SOURCE MASS SPECTROMETERS

4,769,542	9/1988	Rockett	250/305
5,068,534	11/1991	Bradshaw et al.	250/288
5,352,893	10/1994	Freedman	250/281
5,420,423	5/1995	Linden	250/281

[75] Inventor: Andrew Dixon, Uttoxeter, United Kingdom

Primary Examiner—Bruce C. Anderson
Attorney, Agent, or Firm—Chilton, Alix & Van Kirk

[73] Assignee: Fisons Plc, Ipswich, England

[21] Appl. No.: 403,842

[22] PCT Filed: Sep. 15, 1993

[57] ABSTRACT

[86] PCT No.: PCT/GB93/01949

§ 371 Date: Mar. 14, 1995

§ 102(e) Date: Mar. 14, 1995

[87] PCT Pub. No.: WO94/07257

PCT Pub. Date: Mar. 31, 1994

[30] Foreign Application Priority Data

Sep. 15, 1992	[GB]	United Kingdom	9219457
[51]	Int. Cl. ⁶	H01J 49/26; H01J 49/44; B01D 59/44	
[52]	U.S. Cl.	250/282; 250/288; 250/305	
[58]	Field of Search	250/281, 282, 250/288, 305	

A method and apparatus for determining the elemental composition of a sample (1) by plasma mass spectroscopy comprises introducing a said sample (1) into an inductively-coupled or microwave-induced plasma formed in an inert gas to generate atomic ions from the elements present in it; passing at least some of said atomic ions through a nozzle-skimmer interface (15-21) into an evacuated chamber (23), said interface comprising electrode means (19, 39) for determining the electrical potential at which said atomic ions enter said evacuated chamber (23) so that atomic ions of a given mass-to-charge ratio enter said chamber with a particular kinetic energy; energy filtering (40) the ions entering said chamber to prevent at least molecular ions of approximately said given mass-to-charge ratio having kinetic energies less than said particular kinetic energy from passing through; and mass filtering (22) the ions passed by the energy filter and detecting those of said ions having said given mass-to-charge ratio.

[56] References Cited

U.S. PATENT DOCUMENTS

3,859,226	1/1975	Schillalies	250/282
4,746,794	5/1988	French et al.	250/288

20 Claims, 3 Drawing Sheets

