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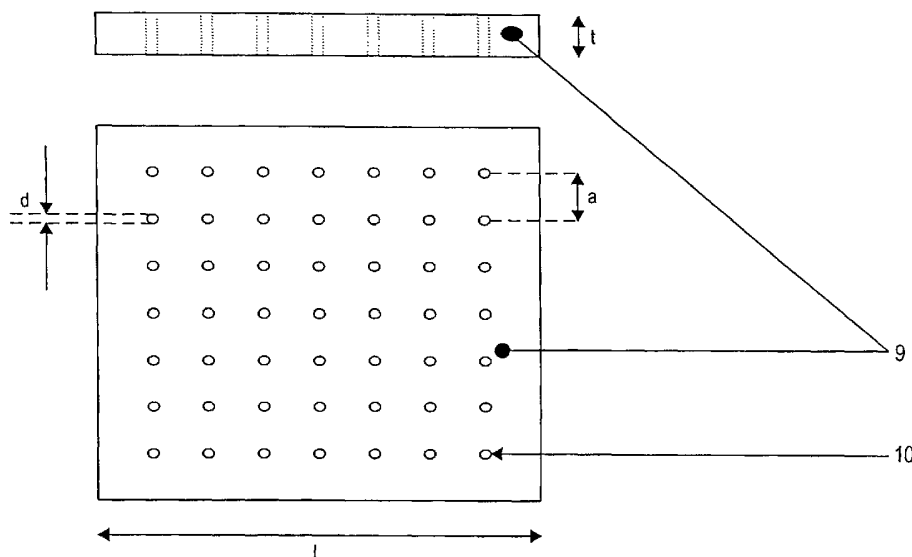
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(54) Title: SIEVE ELECTROOSMOTIC PUMP



(57) Abstract: An electroosmotic flow pump for generating a flow in an electrolyte from an inlet to an outlet in a channel, the electroosmotic flow pump comprising a housing with the channel for holding the ionic solution, a membrane separating the channel in a first part in contact with the inlet and a second part in contact with the outlet, the membrane comprising a plurality of perforations having inner surface parts with a finite zeta potential in an 130-160mM aqueous electrolyte with pH value in the interval 7-7.5, one or more first electrodes in electrical contact with electrolyte held in the first part of the channel and one or more second electrodes in electrical contact with electrolyte held in the second part of the channel, means for creating an electric potential difference between the first and second electrodes.



Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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## INTERNATIONAL SEARCH REPORT

onal Application No

PCT/IB2004/001044

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01D61/56 F04B19/00 B01D71/02 B01D69/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01D F04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/29402 A (SOPHION BIOSCIENCE AS) 11 April 2002 (2002-04-11)  page 19, line 5 - page 20, line 20; figures 7a,7b page 24, line 4 - line 6 page 26, line 25 - page 27, line 29 page 31, line 24 - line 32 -----	1,2,4,5, 7,9,12, 14-16
X	WO 02/103210 A (BOIARSKI ANTHONY A ; HANSFORD DEREK J (US); WALCZAK ROBBIE J (US)) 27 December 2002 (2002-12-27) page 7, line 8 - line 17 page 8, line 11 - line 17 claims 1-7 ----- -/--	1,4,7, 12,14,15

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## ° Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

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\* & \* document member of the same patent family

Date of the actual completion of the international search

5 August 2004

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16/08/2004

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## INTERNATIONAL SEARCH REPORT

nal Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 923 426 A (THEEUWES FELIX) 2 December 1975 (1975-12-02) column 3, line 2 - line 55; figure 1 column 4, line 19 - line 34; claim 12 column 7, line 28 - line 30 -----	1,7,8, 10,12-15
A	US 6 277 257 B1 (HENCKEN KENNETH R ET AL) 21 August 2001 (2001-08-21) column 10, line 20 - line 33 -----	12,13

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.2

Claims Nos.: 17-19

The features of claim 17-19 are only defined in terms of references to the description and drawings which does not comply with Rule 6.2a PCT. In consequence claims 17-19 relate to an extremely large number of possible apparatus. In fact, the claims contain so many options, variables, possible permutations and provisos that a lack of clarity (and conciseness) within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible. Consequently, the search has been carried out for those parts of the application which do appear to be clear (and concise), namely claims 1-16.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2004/001044**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 17-19  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/001044

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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