

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No.	International filing date (<i>day/month/year</i>)	(Earliest) Priority Date (<i>day/month/year</i>)	
PCT/US2019/062106	19 November 2019 (19-11-2019)	27 November 2018 (27-11-2018)	
Applicant			
SPECIALTY ELECTRONIC MATERIALS NETHERLANDS BV			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- the international application in the language in which it was filed
- a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- the text is approved as submitted by the applicant
- the text has been established by this Authority to read as follows:

FLUID TREATMENT VESSEL

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant
- the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____
 - as suggested by the applicant
 - as selected by this Authority, because the applicant failed to suggest a figure
 - as selected by this Authority, because this figure better characterizes the invention
- b. none of the figures is to be published with the abstract

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A fluid treatment apparatus comprising a tank containing a bed of at least one fluid treatment medium, a distributor plate separating the bed from an end portion of the tank, and an inert medium comprising amorphous particles having a harmonic mean diameter from 2.5 to 250 μm and a density from 0.57 to 0.998 cm^3/g . The volume of the end portion containing inert medium is from 25 to 95% of the total volume of the end portion.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2019/062106

A. CLASSIFICATION OF SUBJECT MATTER
INV. B01J47/022 B01J49/60 B01J49/06 B01J49/05
ADD.
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)
B01J
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 practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 497 632 A1 (PERMUTIT CO LTD [GB]) 5 August 1992 (1992-08-05) figure 1 page 4, line 29 - page 5, line 37 page 3, line 37 - line 51 -----	1,6,7
X	EP 0 551 002 A1 (ROHM & HAAS [US]) 14 July 1993 (1993-07-14) claims 1-3,6,7,10 page 5, line 21 - line 33 page 5, line 28 - line 29 table 1 -----	1-7
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Further documents are listed in the continuation of Box C.

See patent family 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 application or patent 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

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search 21 February 2020	Date of mailing of the international search report 04/03/2020
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Kaluza, Nicoleta
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2019/062106

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>Anonymous: "Product Data Sheet AMBERLITE(TM) 14i Inert Resin Polypropylene, Inert Resin for Industrial Demineralization Applications",</p> <p>1 May 2018 (2018-05-01), pages 1-3, XP055670919, Retrieved from the Internet: URL:https://www.lenntech.com/Data-sheets/DOW-177-03819-14i-L.pdf [retrieved on 2020-02-21] page 1</p>	1-7
X	<p>RO 121 020 B1 (DOW DEUTSCHLAND INC [DE]; OBSESTVO S OGRANICENNOJ OTVETS [RU]) 30 November 2006 (2006-11-30) figures 1-4 claims 1-3 page 4, line 1 - line 24 page 4, line 45 - line 48</p>	1-7
X	<p>Anonymous: "Product Data Sheet AMBERLITE(TM) 62i Inert Resin Polyethylene, Inert Resin for Industrial Demineralization Applications",</p> <p>1 May 2018 (2018-05-01), pages 1-3, XP055670920, Retrieved from the Internet: URL:https://www.lenntech.com/Data-sheets/DOW-177-03820-62i-L.pdf [retrieved on 2020-02-21] page 1 - page 2</p>	1-7
X	<p>US 4 269 715 A (BARRAQUE CHRISTIAN ET AL) 26 May 1981 (1981-05-26) claims 10-12 figure 1 column 6, line 20 - line 35</p>	1-7
A	<p>WADDELL H: "VOLUME, SHAPE, AND ROUNDNESS OF ROCK PARTICLES", JOURNAL OF GEOLOGY, UNIVERSITY OF CHICAGO PRESS, CHICAGO, IL, US, vol. 40, 1 January 1932 (1932-01-01), pages 443-451, XP009050547, ISSN: 0022-1376 the whole document</p>	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2019/062106

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
EP 0497632	A1	05-08-1992	NONE	
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			BR 9300049 A	24-08-1993
			CA 2086636 A1	11-07-1993
			CN 1074148 A	14-07-1993
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			FI 930074 A	11-07-1993
			JP H05253497 A	05-10-1993
			NZ 245639 A	28-03-1995
			PL 297340 A1	20-09-1993
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			EA 200000983 A2	22-10-2001
			HU 224645 B1	28-12-2005
			PL 344103 A1	04-06-2001
			RO 121020 B1	30-11-2006
			RU 2149685 C1	27-05-2000
			SK 17832000 A3	07-01-2002
			UA 66855 C2	17-09-2001
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US 4269715	A	26-05-1981	CA 1141047 A	08-02-1983
			FR 2443283 A1	04-07-1980
			US 4269715 A	26-05-1981
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