

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/JP2018/028247

**A. CLASSIFICATION OF SUBJECT MATTER**

Int. Cl. C02F1/44 (2006.01) i, B01D21/01 (2006.01) i, B01D61/16 (2006.01) i, B01D61/58 (2006.01) i, C02F1/56 (2006.01) i

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)

Int. Cl. C02F1/44, B01D21/01, B01D61/16, B01D61/58, C02F1/56

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

Published examined utility model applications of Japan 1922-1996  
 Published unexamined utility model applications of Japan 1971-2018  
 Registered utility model specifications of Japan 1996-2018  
 Published registered utility model applications of Japan 1994-2018

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2017-140577 A (KURITA WATER INDUSTRIES LTD.) 17 August 2017, paragraphs [0001], [0031], [0038], [0039], [0103], [0105], fig. 1 & WO 2017/138184 A1 & TW 201741250 A	1-2, 4-5, 8-10, 12-13, 16
Y		1-16
X	JP 2012-532020 A (HALOSOURCE, INC.) 13 December 2012, claims 1, 47, paragraphs [0084]-[0091], [0107], fig. 1 & US 2011/0000854 A1, claims 1, 47, paragraphs [0155]-[0162], [0181], fig. 1 & WO 2011/005794 A1 & EP 2451550 A1 & KR 10-2012-0051000 A	1, 4-5, 8-9, 12-13, 16
Y		1-16

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  
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 "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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 "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  
24.08.2018

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04.09.2018

Name and mailing address of the ISA/  
 Japan Patent Office  
 3-4-3, Kasumigaseki, Chiyoda-ku,  
 Tokyo 100-8915, Japan

Authorized officer  
  
 Telephone 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.
Y	WO 2016/027302 A1 (KURITA WATER INDUSTRIES LTD.) 25 February 2016, paragraphs [0011], [0012] & US 2017/0232389 A1, paragraphs [0012]-[0017] & KR 10- 2017-0042560 A & CN 106660835 A	1-16
Y	JP 2015-157265 A (KURITA WATER INDUSTRIES LTD.) 03 September 2015, claims, paragraphs [0010], [0044]- [0046] (Family: none)	1-16
Y	JP 2009-154095 A (KURITA WATER INDUSTRIES LTD.) 16 July 2009, claims, paragraphs [0013]-[0023] (Family: none)	1-16
Y	JP 49-71098 A (NALCO CHEMICAL CO.) 09 July 1974, page 1, lower right column, lines 4-11 & GB 1408111 A, page 1, lines 6-20 & DE 2332776 A1 & FR 2200317 A1	3, 11
A	JP 2-174992 A (NIPPON STEEL CORP.) 06 July 1990 (Family: none)	1-16
A	JP 9-168800 A (TELNITE LTD.) 30 June 1997 (Family: none)	1-16
A	JP 10-249400 A (NIPPON SHOKUBAI CO., LTD.) 22 September 1998 (Family: none)	1-16