

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2017/020228

A. CLASSIFICATION OF SUBJECT MATTER
C30B29/06(2006.01) i, C30B11/08(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)
C30B29/06, C30B11/08

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

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2017
Kokai Jitsuyo Shinan Koho	1971-2017	Toroku Jitsuyo Shinan Koho	1994-2017

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 6-345583 A (Nittetsu Mining Co., Ltd.), 20 December 1994 (20.12.1994),	1, 14-15, 17-21
Y	claims; paragraphs [0001] to [0039]; fig. 1 to 2	1-4, 6-12, 14-21
A	(Family: none)	5, 13
Y	JP 5-286791 A (Mitsuhiro MARUYAMA), 02 November 1993 (02.11.1993),	1-4, 6-12, 14-21
A	claims; paragraphs [0001] to [0063]; fig. 1 to 4 & US 5367981 A column 1 to column 13, line 44; claims; fig. 1 to 4	5, 13

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 27 July 2017 (27.07.17)	Date of mailing of the international search report 08 August 2017 (08.08.17)
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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 A	WO 2009/081811 A1 (Cristal Systems, Inc.), 02 July 2009 (02.07.2009), paragraphs [0002] to [0159]; claims; fig. 1 to 9 & JP 9-81811 A1 & US 2010/0307406 A1 paragraphs [0002] to [0203]; fig. 1 to 9; claims & EP 2246461 A1 & KR 10-2010-0100920 A & CN 101910473 A & TW 200942652 A	1-4, 6-12, 14-21 5, 13
Y A	JP 2008-81398 A (Heraeus Shin-Etsu America, Inc.), 10 April 2008 (10.04.2008), paragraph [0045]; fig. 3 to 4 & JP 2007-70221 A & JP 2013-14518 A & US 2007/0051297 A1 paragraph [0053]; fig. 3 to 4 & US 2007/0051296 A1 & EP 1762549 A1 & KR 10-2008-0029863 A & TW 200815629 A & KR 10-2013-0023316 A & KR 10-2007-0029077 A & TW 200712018 A	3-4, 6-12, 14-21 1-2, 5, 13
Y A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 108550/1982 (Laid-open No. 15056/1984) (Konishiroku Photo Industry Co., Ltd.), 30 January 1984 (30.01.1984), page 2; fig. 1 (Family: none)	3-4, 6-12, 14-21 1-2, 5, 13