

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2020/029202

<p>A. CLASSIFICATION OF SUBJECT MATTER Int.Cl. B01J23/63(2006.01)i, B01D53/94(2006.01)i, B01J35/04(2006.01)i, B01J37/02(2006.01)i, F01N3/10(2006.01)i FI: B01J23/63AZAB, B01D53/94222, B01D53/94245, B01D53/94280, B01J35/04301L, B01J37/02301C, F01N3/10A According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int.Cl. B01J21/00-38/74, B01D53/86-53/96, F01N3/10-3/38 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 1971-2020 Registered utility model specifications of Japan 1996-2020 Published registered utility model applications of Japan 1994-2020 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DWPI (Derwent Innovation)</p>																	
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:20%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X Y</td> <td>WO 2010/119904 A1 (CATALER CORPORATION) 21.10.2010 (2010-10-21), claims, paragraphs [0001], [0002], [0006], [0012]-[0037], [0055], [0118], [0119], fig. 1-3, examples</td> <td>1-7 2, 8-11</td> </tr> <tr> <td>X Y</td> <td>JP 2014-200714 A (CATALER CORPORATION) 27.10.2014 (2014-10-27), claims, paragraphs [0001], [0004]-[0045], [0103], [0104], [0114], fig. 1, table 1, examples 1-11, 13-24</td> <td>1, 3-7 2, 8-11</td> </tr> <tr> <td>Y</td> <td>WO 2017/204008 A1 (CATALER CORPORATION) 30.11.2017 (2017-11-30), claims, fig. 2, examples, paragraphs [0001], [0006]-[0060], [0076], [0077]</td> <td>8-10</td> </tr> <tr> <td>Y</td> <td>JP 2019-136695 A (MITSUI MINING AND SMELTING CO., LTD.) 22.08.2019 (2019-08-22), claims, paragraphs [0006]-[0009], [0065], fig. 2</td> <td>8-11</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X Y	WO 2010/119904 A1 (CATALER CORPORATION) 21.10.2010 (2010-10-21), claims, paragraphs [0001], [0002], [0006], [0012]-[0037], [0055], [0118], [0119], fig. 1-3, examples	1-7 2, 8-11	X Y	JP 2014-200714 A (CATALER CORPORATION) 27.10.2014 (2014-10-27), claims, paragraphs [0001], [0004]-[0045], [0103], [0104], [0114], fig. 1, table 1, examples 1-11, 13-24	1, 3-7 2, 8-11	Y	WO 2017/204008 A1 (CATALER CORPORATION) 30.11.2017 (2017-11-30), claims, fig. 2, examples, paragraphs [0001], [0006]-[0060], [0076], [0077]	8-10	Y	JP 2019-136695 A (MITSUI MINING AND SMELTING CO., LTD.) 22.08.2019 (2019-08-22), claims, paragraphs [0006]-[0009], [0065], fig. 2	8-11
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<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.</p>																	
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<p>Date of the actual completion of the international search 24.09.2020</p>		<p>Date of mailing of the international search report 06.10.2020</p>															
<p>Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan</p>		<p>Authorized officer Telephone No.</p>															

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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.
A	JP 6-099069 A (CATALER KOGYO KK) 12.04.1994 (1994-04-12), comparative example 2	1-10
A	WO 2014/002667 A1 (NE CHEMCAT CORP.) 03.01.2014 (2014-01-03), examples	1-11
A	JP 2017-189735 A (TOYOTA MOTOR CORPORATION) 19.10.2017 (2017-10-19), entire text, all drawings	1-11

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Information on patent family members

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WO 2010/119904 A1	21.10.2010	US 2012/0094827 A1 claims, paragraphs [0003]-[0005], [0008], [0025]-[0050], [0069], [0134]-[0136], fig. 1-3, examples EP 2431092 A1 CN 102395428 A
JP 2014-200714 A	27.10.2014	(Family: none)
WO 2017/204008 A1	30.11.2017	EP 3466541 A1 claims, fig. 2, examples paragraphs [0001], [0006]-[0061], [0077], [0078] CN 109153014 A
JP 2019-136695 A	22.08.2019	(Family: none)
JP 6-099069 A	12.04.1994	(Family: none)
WO 2014/002667 A1	03.01.2014	US 2015/0111727 A1 examples CN 104364011 A
JP 2017-189735 A	19.10.2017	US 2017/0291163 A1 entire text, all drawings CN 107282043 A