

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SP2121-WO-PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2019/082317	International filing date (<i>day/month/year</i>) 22 November 2019 (22-11-2019)	(Earliest) Priority Date (<i>day/month/year</i>) 26 November 2018 (26-11-2018)
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.		

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 4 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:

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

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/082317

A. CLASSIFICATION OF SUBJECT MATTER
INV. C10L1/238
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)
C10L
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	US 6 248 702 B1 (COOLBAUGH THOMAS S [US] ET AL) 19 June 2001 (2001-06-19)	1-3,7-9
Y	claims 1,20,29; examples I,II,III, IV	14,15
X	US 4 933 098 A (GUTIERREZ ANTONIO [US] ET AL) 12 June 1990 (1990-06-12)	1-9,12,13
Y	column 18, line 12 - line 22; claims 1,4; examples 1,3,4,5	14,15
X	US 6 107 258 A (ESCHE JR CARL KURT [US] ET AL) 22 August 2000 (2000-08-22)	1-11
Y	column 13, line 64 - column 16, line 30; claims 1,9,10 abstract	14,15
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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 January 2020	Date of mailing of the international search report 29/01/2020
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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 Pöllmann, Klaus
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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/082317

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 2009/118302 A2 (SHELL INT RESEARCH [NL]; BRUNNER ANDREAS HUGO [DE] ET AL.) 1 October 2009 (2009-10-01) cited in the application	14,15
A	page 3, line 2 - line 27; claims 1,2,4,5,10, page 15, line 5 - page 18, line 26 -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2019/082317

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6248702	B1	19-06-2001	NONE

US 4933098	A	12-06-1990	DE 68911185 D1 20-01-1994
			DE 68911185 T2 14-04-1994
			EP 0336716 A2 11-10-1989
			US 4933098 A 12-06-1990

US 6107258	A	22-08-2000	BR 9804377 A 04-07-2000
			CA 2248661 A1 15-04-1999
			CN 1214345 A 21-04-1999
			EP 0909805 A1 21-04-1999
			JP H11302322 A 02-11-1999
			SG 74663 A1 22-08-2000
			US 6107258 A 22-08-2000

WO 2009118302	A2	01-10-2009	AR 071065 A1 26-05-2010
			AU 2009228775 A1 01-10-2009
			BR PI0910079 A2 15-12-2015
			CA 2719258 A1 01-10-2009
			CN 102015976 A 13-04-2011
			CN 105062582 A 18-11-2015
			EP 2257614 A2 08-12-2010
			JP 6046344 B2 14-12-2016
			JP 2011515550 A 19-05-2011
			MY 156904 A 15-04-2016
			RU 2010143572 A 10-05-2012
			UA 103892 C2 10-12-2013
			US 2009241882 A1 01-10-2009
			WO 2009118302 A2 01-10-2009
