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(81) Designated States (unless otherwise indicated, for every
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MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
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SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
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SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
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Declarations under Rule 4.17:

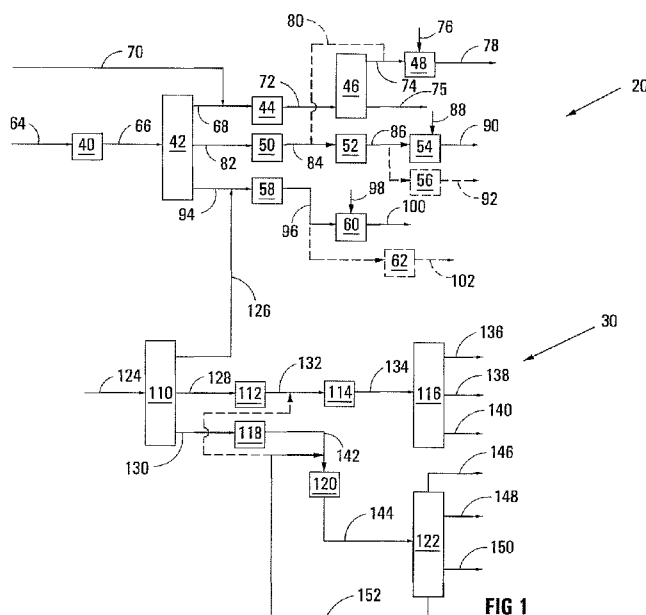
- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

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[Continued on next page]

(54) Title: PRODUCTION OF OILFIELD HYDROCARBONS



(57) Abstract: A process (20) to produce olefinic products suitable for use as or conversion to oilfield hydrocarbons includes separating (42) an olefins-containing Fischer-Tropsch condensate (64) into a light fraction (68), an intermediate fraction (82) and a heavy fraction (94), oligomerising (44) at least a portion of the light fraction (68) to produce a first olefinic product (72) which includes branched internal olefins, and carrying out either one or both of the steps of (i) dehydrogenating (50) at least a portion of the intermediate fraction (82) to produce an intermediate product (84) which includes internal olefins and alpha-olefins, and synthesising (52) higher olefins from the intermediate product which includes internal olefins and alpha-olefins to produce a second olefinic product (86), and (ii) dimerising (52) at least a portion of the intermediate fraction to produce a second olefinic product (86). At least a portion of the heavy fraction (94) is dehydrogenated (58) to produce a third olefinic product (96) which includes internal olefins. Also provided is a process (30) to produce paraffinic products suitable for use as or conversion to oilfield hydrocarbons which includes separating (110) a Fischer-Tropsch wax (124) into at least a lighter fraction (126, 128) and

a heavier fraction (130), hydrocracking (120) the heavier fraction (130) to provide a cracked intermediate (144), and separating (122) the cracked intermediate (144) into at least a naphtha fraction (148), a heavier than naphtha paraffinic distillate fraction (150) suitable for use as or conversion to oilfield hydrocarbons, and a bottoms fraction (152) which is heavier than the paraffinic distillate fraction (150).



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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))* (88) **Date of publication of the international search report:**
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INTERNATIONAL SEARCH REPORT

International application No
PCT/ZA2015/050002

A. CLASSIFICATION OF SUBJECT MATTER INV. C10G57/02 C10G47/00 C10G65/00 C10G65/12 C10G65/14 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) C10G C07C		
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 1 449 906 A1 (SYNTROLEUM CORP [US]) 25 August 2004 (2004-08-25)	18-34
A	paragraphs [0016], [0017], [0027], [0028], [0031]; claims 18,21; figure 1; example 1	1
A	----- US 5 965 783 A (GEE JEFFREY C [US] ET AL) 12 October 1999 (1999-10-12) claim 1	1
X	----- US 2001/004972 A1 (MILLER STEPHEN J [US] ET AL) 28 June 2001 (2001-06-28) paragraph [0044]; claim 1; figure 1	1-17,34
X	----- GB 2 158 090 A (SHELL INT RESEARCH) 6 November 1985 (1985-11-06) page 2, line 28 - line 57; claim 1 ----- -/--	1-17,34
☒ 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 28 July 2016		Date of mailing of the international search report 05/08/2016
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 Deurinck, Patricia

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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.
X	WO 2006/067174 A1 (SHELL INT RESEARCH [NL]; CRAMWINCKEL MICHIEL [NL]; DIERICKX JAN LODEWI) 29 June 2006 (2006-06-29) page 15, line 15 - line 20; claims 1-3; figure 1 page 16, line 5 - line 31 -----	18-34
X	EP 0 321 305 A2 (EXXON RESEARCH ENGINEERING CO [US]) 21 June 1989 (1989-06-21) page 3, line 53 - page 4, line 29; claims 1,6; figure 1 -----	18-34
X	US 2011/180455 A1 (BOUCHY CHRISTOPHE [FR] ET AL) 28 July 2011 (2011-07-28) paragraphs [0101], [0113] - [0117], [0129] - paragraph [0138]; figure 1 -----	18-34
X	US 2005/205462 A1 (GOPALAKRISHNAN SRIDHAR [US] ET AL) 22 September 2005 (2005-09-22) claim 1; figure 3 -----	18-34
X	US 2006/016722 A1 (ESPINOZA RAFAEL L [US] ET AL) 26 January 2006 (2006-01-26) paragraph [0050]; figure 1 -----	18-34
X	WO 00/20535 A1 (SASOL TECH PTY LTD [ZA]; HAAN ROBERT DE [ZA]; DANCUART LUIS PABLO [ZA]) 13 April 2000 (2000-04-13) page 1, line 14 - line 15; claim 40; figure 1 page 7, line 23 - line 33 page 8, line 30 - line 33 page 9, line 6 - line 9 -----	18-34
X	WO 01/46340 A1 (CHEVRON USA INC [US]) 28 June 2001 (2001-06-28) figure 1; example 1 -----	18-34
X	US 2011/024328 A1 (VIRDI HARJEET [US] ET AL) 3 February 2011 (2011-02-03) paragraphs [0016], [0048], [0091] - paragraph [0095]; figure 1 -----	18-34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ZA2015/050002

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-17(completely); 34(partially)

A process to produce olefinic products suitable for use as
or conversion to oilfield hydrocarbons.

2. claims: 18-33(completely); 34(partially)

A process to produce paraffinic products suitable for use as
or conversion to oilfield hydrocarbons.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/ZA2015/050002

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Information on patent family members

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