

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
25 October 2007 (25.10.2007)

PCT

(10) International Publication Number  
WO 2007/119042 A3

(51) International Patent Classification:

C10G 70/04 (2006.01) C07C 281/06 (2006.01)  
C10G 11/22 (2006.01) B01D 53/02 (2006.01)  
C10G 27/04 (2006.01) B01D 53/14 (2006.01)  
C07C 243/10 (2006.01) B01D 53/72 (2006.01)  
C07C 275/64 (2006.01)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(21) International Application Number:

PCT/GB2007/001077

(22) International Filing Date: 26 March 2007 (26.03.2007)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/792,705 18 April 2006 (18.04.2006) US  
0613676.6 10 July 2006 (10.07.2006) GB

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

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

(71) Applicant (for all designated States except US): INEOS EUROPE LIMITED [GB/GB]; Hawkslease, Chapel Lane, Lyndhurst, Hampshire SO43 7FG (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): WILLIAMS, Vaughan, Clifford [GB/GB]; 9 Woodside Court, Falkirk, Stirlingshire FK1 5AN (GB).

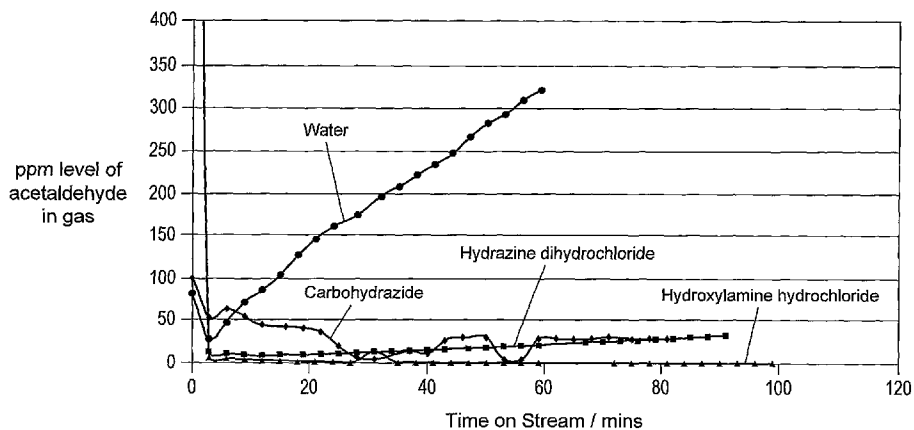
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(74) Agent: KING, Alex; Compass Patents LLP, 120 Bridge Road, Chertsey, Surrey, KT16 8LA (GB).

(88) Date of publication of the international search report:  
14 February 2008

(54) Title: PROCESS FOR THE TREATMENT OF A PRODUCT STREAM



(57) Abstract: The present invention relates to a process for the treatment of a product stream, more specifically of a product stream from an autothermal cracking process, said product stream comprising one or more olefins, hydrogen, carbon monoxide, carbon dioxide and one or more oxygenates, said process comprising contacting the product stream with at least one compound selected from those represented by formulas: (1) H<sub>2</sub>N-OR<sub>1</sub>, and (2) H<sub>2</sub>N-NR<sub>2</sub>R<sub>3</sub>, where: R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> may each be independently selected from H and carbon containing substituents.

WO 2007/119042 A3

## INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2007/001077

## A. CLASSIFICATION OF SUBJECT MATTER

INV. C10G70/04 C10G11/22 C10G27/04 C07C243/10 C07C275/64  
 C07C281/06 B01D53/02 B01D53/14 B01D53/72

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 B01D

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ, API 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 2002/139710 A1 (MARTIN JOHN F [US] ET AL) 3 October 2002 (2002-10-03)<br>claims 1-7<br>page 1, paragraphs 3,15<br>page 2, paragraphs 19,21 | 1-3,6-8               |
| X         | JP 08 269470 A (MITSUBISHI CHEM CORP)<br>15 October 1996 (1996-10-15)<br>abstract   | 1,4-6                 |
| X         | US 4 125 568 A (THERIOT WALTER A ET AL)<br>14 November 1978 (1978-11-14)<br>claim 1<br>column 1, lines 49-60<br>column 5, lines 23-28         | 1-5                   |
|           | -----<br>-/--<br>-----  |                       |

 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 document 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.

\*B\* document member of the same patent family

Date of the actual completion of the international search

11 December 2007

Date of mailing of the international search report

27/12/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Harf, Julien

## INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2007/001077

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages             | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | US 5 160 425 A (LEWIS VINCENT E [US])<br>3 November 1992 (1992-11-03)<br>claims 1-5,8<br>----- | 1,4-6                 |
| A         | WO 94/04632 A (BP CHEM INT LTD [GB])<br>3 March 1994 (1994-03-03)<br>claim 1<br>-----          | 7,8                   |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2007/001077

| Patent document cited in search report      | Publication date | Patent family member(s) | Publication date          |
|---|------------------|-------------------------|---------------------------|
| US 2002139710                               | A1               | 03-10-2002              | NONE                      |
| <hr style="border-top: 1px dashed black;"/> |                  |                         |                           |
| JP 8269470                                  | A                | 15-10-1996              | NONE                      |
| <hr style="border-top: 1px dashed black;"/> |                  |                         |                           |
| US 4125568                                  | A                | 14-11-1978              | AU 517812 B2 27-08-1981   |
|   |                  |                         | AU 3760678 A 03-01-1980   |
|   |                  |                         | BR 7804112 A 13-03-1979   |
|   |                  |                         | CA 1099749 A1 21-04-1981  |
|   |                  |                         | DE 2861153 D1 24-12-1981  |
|   |                  |                         | EP 0000279 A1 10-01-1979  |
|   |                  |                         | IT 1097351 B 31-08-1985   |
|   |                  |                         | JP 54016411 A 07-02-1979  |
| <hr style="border-top: 1px dashed black;"/> |                  |                         |                           |
| US 5160425                                  | A                | 03-11-1992              | NONE                      |
| <hr style="border-top: 1px dashed black;"/> |                  |                         |                           |
| WO 9404632                                  | A                | 03-03-1994              | AT 148914 T 15-02-1997    |
|   |                  |                         | AU 4727193 A 15-03-1994   |
|   |                  |                         | BG 99508 A 31-01-1996     |
|   |                  |                         | BR 9306931 A 12-01-1999   |
|   |                  |                         | CN 1090566 A 10-08-1994   |
|   |                  |                         | CZ 9500373 A3 18-10-1995  |
|   |                  |                         | DE 69308145 D1 27-03-1997 |
|   |                  |                         | DE 69308145 T2 28-05-1997 |
|   |                  |                         | EP 0656044 A1 07-06-1995  |
|   |                  |                         | HR 931121 A2 31-12-1994   |
|   |                  |                         | HU 71164 A2 28-11-1995    |
|   |                  |                         | PL 307559 A1 29-05-1995   |
|   |                  |                         | RO 116907 B1 30-07-2001   |
|   |                  |                         | RU 2115692 C1 20-07-1998  |
|   |                  |                         | SI 9300441 A 31-03-1994   |
|   |                  |                         | SK 23195 A3 11-07-1995    |
|   |                  |                         | ZA 9306019 A 17-02-1995   |