

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 February 2003 (06.02.2003)

PCT

(10) International Publication Number
WO 03/010096 A3

(51) International Patent Classification⁷: **C02F 1/68**,
B01D 47/00, 53/02, 59/26, B01J 8/00, 20/00, 20/02, C01B
17/16, 31/20, 7/00, C01C 3/00, B28C 7/04

(21) International Application Number: PCT/US02/23345

(22) International Filing Date: 22 July 2002 (22.07.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/912,199 24 July 2001 (24.07.2001) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN,
YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
22 May 2003

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: PRODUCT FOR TREATING CONTAMINATED FLUIDS AND METHOD OF MAKING AND USING THE SAME

(57) Abstract: A product, capable of treating contaminated fluids, preferably gases, is disclosed. The product contains a carrier, an activated metal oxide, an odor counteractant, a carrier for the odor counteractant, and an agent which limits diffusion of the odor counteractant. The product removes sulfur contaminants, such as hydrogen sulfide and mercaptans, while also reducing and/or neutralizing other common odor causing compounds in fluids, preferably gases. Methods of making and using the product are also disclosed.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/23345

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B01; C02F 1/68; B01D 47/00, 53/02, 59/26; B01J 8/00, 20/00, 20/02; CC01; C01B 17/16, 31/20, 7/00; C01C 3/00; B28C 7/04

US CL : 210/758, 749; 423/231,230,244.02,237,245.1,210; 502/400,406,416,507; 366/8; 95/90

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 210/758, 749; 423/231,230,244.02,237,245.1,210; 502/400,406,416,507; 366/8

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)
DERWENT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,792,438 A (SCRANTON, Jr) 11 August 1998, col. 6 lines 11-62, working examples	1-4, 7-17, 21-27, 29-31
Y	US 5,997,829 A (SEKINE et al) 07 December 1999, col 3 lines 18-60, col 7 lines 10-16, examples	1-36
Y	US 5,320,992 A (FOX et al) 14 June 1994, col 1 lines 25-43	1,3,7,8,10,11,12,15,16,19,24-33
Y	US6,277,344 B1 (HEI et al) 21 August 2001, col 3 lines 30-60	1,2,18,25,31
Y	US 6,126,911 A (SCRANTON, Jr) 03 October 2000, entire specification	1-4, 7-17, 21-27, 29-31
A	US 4,427,630 A (AIBE et al) 24 January 1984, entire text	1, 7
Y	US 6,379,429 B1 (SCRANTON, Jr) 30 April 2002, entire text	25-28



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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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

20 August 2002 (20.08.2002)

Date of mailing of the international search report

19.09.02

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks

Box PCT

Washington, D.C. 20231

Facsimile No. (703)305-3230

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/23345

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

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

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim 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. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation 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 fee, this Authority did not invite payment of any additional fee.
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.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

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BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-14, 25-36, drawn to product.

Group II, claim(s) 15-24, drawn to making the product.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Claim 1 is either obvious over or anticipated by Scranton, US 5,792,438. Accordingly, the special technical features linking the two inventions (the carrier, the metal oxide, the odor counter-actant and the diffusion limiting agent) do not provide a contribution over the prior art, and no single general inventive concept exists. Therefore, the restriction is appropriate.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.