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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/615,539	12/22/2006	Stuart N. Milligan	34249US	1057

28841 7590 06/15/2010

ConocoPhillips Company - IP Services Group
Attention: DOCKETING
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Houston, TX 77079

EXAMINER	
BOYLE, ROBERT C	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
06/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Legal-IP@conocophillips.com

Office Action Summary	Application No.	Applicant(s)	
	11/615,539	MILLIGAN ET AL.	
	Examiner	Art Unit	
	ROBERT C. BOYLE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *97-125* is/are pending in the application.

4a) Of the above claim(s) *97-112* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *113-125* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/8/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. It is noted that Applicant's most recent communication of 4/8/2010 included a Request for Continued Examination. However, the previous Office Action was a Non-Final mailed on 10/21/2009. Accordingly, the office has sent out a Notice of Improper Request for Continued Examination, made part of the File Wrapper on 6/4/2010. As the reply accompanying the RCE is to a Non-Final Office Action, the reply is entered and considered under 37 CFR 1.111.

2. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on 4/8/2010. In particular, all previous claims have been cancelled and new claims 97-125 have been added. This presents the claims in a manner with a scope not previously examined. Thus, the following action is properly made FINAL.

3. It is noted that Applicant has cancelled all previous claims and have added new claims 97-125. Of the new claims, claims 113-125 correspond roughly to the originally elected invention, a method of making a composition of a drag reducing polymer and a liquid hydrocarbon. However, the correspondence is not exact, i.e. there are differences in scope that were not present previously.

Election/Restrictions

4. It is noted that Applicant elected Group I, drawn to a method of making a composition, on 7/16/2008.

5. Newly submitted claims 97-112 are directed to inventions that are independent or distinct from the invention originally claimed for the following reasons:

6. Claims 97-106 are drawn to a composition, corresponding to Group III of the restriction filed on 6/25/2008. Inventions I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the inventions are distinct as invention III can be made by polymerizing monomers in the presence of a liquid hydrocarbon whereas Invention I requires introducing a pre-formed drag reducing polymer into a liquid hydrocarbon.

7. Claims 107-112 are drawn to a method of calculating and selecting, corresponding to a Group IV of the invention. Inventions I and IV are directed to related processes. The related inventions are distinct if: (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed have materially different modes of operation, as Invention I is a method that forms a composition, whereas Invention IV merely calculates and selects, no composition is formed. Likewise, the inventions do not overlap in scope because Invention I forms a composition and Invention IV does not. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

8. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 97-112 are withdrawn from consideration as being directed to non-elected inventions. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 113-125 are rejected under 35 U.S.C. 102(b) as being anticipated by **Choi**, *Polymer-Induced Turbulent Drag Reduction*, Ind. Eng. Chem. Res. 1996, 35, 2993-2998.

11. As to claims 113-114, 119, 124, Choi teaches a composition of polyethylene oxide or polyisobutylene added to kerosene (abstract; pg. 2994, experimental section). Choi states that solubility parameter of kerosene is about 17, POE is 20.4, and PIB is 15.5 (pg. 2997), therefore the solubility parameters of POE and kerosene are within 4 $MPa^{½}$ of each other, and PIB and kerosene are within 1.5 $MPa^{½}$ of each other.

12. As to claims 115, 118, Choi teaches POE and PIB polymers with a molecular weight of over 2 million (Table 1).

13. As to claims 116-117, 124, POE has oxygen heteroatoms present in the monomeric units (pg. 2994, experimental section).

14. Claims 120-121, 125 recite equations showing how to derive solubility parameter of the hydrocarbon and polymer. While Choi does not elaborate on these formulas, it is the examiner's position that the solubility parameters recited in Choi were derived by the well known equations.

15. As to claims 122-123, Choi teaches the PEO is added in about 20 wppm (Figures 2-3).

16. Claims 113-121, 124-125 are rejected under 35 U.S.C. 102(b) as being anticipated by **Castner** (US 4,736,005).

17. As to claims 113-121, 124-125, Castner teaches a method of adding a polymer to petroleum to modify the viscosity where the polymer has monomers with nitrogen atoms and has molecular weights of 1,000,000 or greater (abstract; col. 2, lines 37-68; col. 3, line 1-col. 4, line 30; col. 9, lines 5-25; col. 10, lines 1-8; col. 18, lines 24-36). Castner teaches an example with a molecular weight of 3.5 million (col. 10, lines 1-8). It is the examiner's position that a polymer with a molecular weight of 3.5 million has over 25,000 repeating units.

18. While Castner does not teach the property of solubility parameter, Castner teaches the same polymer as claimed. It is therefore inherent that the polymers of Castner have the claimed solubility parameters since such a property is evidently dependent on the nature of the composition used. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

19. Claims 113-125 are rejected under 35 U.S.C. 102(b) as being anticipated by **Inaoka** (EP 0882739).

20. As to 113-121, 124-125, Inaoka teaches a method of adding a drag reducing polymer to crude oil where the polymer is an ethylhexyl methacrylate homopolymer with a molecular weight of not less than 5,000,000 (abstract; page 4, lines 25-34, 44-52; page 8, lines 2-4; page 10, lines 22-38; page 17, lines 6-14). It is the examiner's position that a polymer with a molecular weight of 5 million has over 25,000 repeating units.

21. Claims 113-121, 124-125 recite properties of the liquid hydrocarbon regarding solubility parameters. Inaoka does not teach claimed properties. However, Inaoka teaches the liquid hydrocarbon is crude oil, the same hydrocarbon as claimed. It is therefore inherent that the crude oil of Inaoka has the claimed properties since such properties are evidently dependent on the nature of the composition used. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

22. As to claims 122-123, Inaoka teaches addition in amounts of 0.5-50 ppm (pg. 8, ln 20).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

24. Claims 120-121, 125 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Choi**, *Polymer-Induced Turbulent Drag Reduction*, Ind. Eng. Chem. Res. 1996, 35, 2993-2998 in view of **Gharagheizi**, *Effect of Calculation Method on Values of Hansen Solubility Parameters of Polymers,* Polymer Bulletin, 57, 377-384, (2006). The discussion with respect to Choi as set forth in paragraphs 9-15 above is incorporated here by reference.

25. As to claims 120-121, 125, Choi teaches a composition of polyethylene oxide or polyisobutylene added to kerosene (abstract; pg. 2994, experimental section). Choi states that solubility parameter of kerosene is about 17, POE is 20.4, and PIB is 15.5 (pg. 2997), therefore the solubility parameters of POE and kerosene are within 4 $MPa^{1/2}$ of each other, and PIB and kerosene are within 1.5 $MPa^{1/2}$ of each other. Choi does not teach the solubility equations recited.

26. However, Ghardagheizi teaches Hildebrand's solubility parameter is

$$\delta = \sqrt{c} = \sqrt{\frac{\Delta H_v - RT}{V_m}}$$

and Hansen's solubility parameter for polymers is $\delta_t^2 = \delta_d^2 + \delta_p^2 + \delta_h^2$ (pg. 377-378). It would have been obvious that the solubility parameters of Choi were derived using the equations of Ghardagheizi because the equations are a practical method to determine solubility interactions of compositions (pg. 377-378) and Choi references the work of Hansen (pg. 2998) and those of ordinary skill in the art would apply the proper formula to the proper composition.

Response to Arguments

27. Applicant should submit an argument under the heading "Remarks" pointing out disagreements with the examiner's contentions. Applicant must also discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them.

28. While it is noted that all previous claims have been cancelled, no discussion on how the prior art presented in the previous Office Action applies to the current claims has been made.

Conclusion

29. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. BOYLE whose telephone number is (571)270-7347. The examiner can normally be reached on Monday-Thursday, 9:00AM-5:00PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert C. Boyle/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796

Notice of References Cited	Application/Control No. 11/615,539	Applicant(s)/Patent Under Reexamination MILLIGAN ET AL.	
	Examiner ROBERT C. BOYLE	Art Unit 1796	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
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	I	US-			
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	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Choi, Polymer-Induced Turbulent Drag Reduction, Ind. Eng. Chem. Res. 1996, 35, 2993-2998
	V	Gharagheizi, Effect of Calculation Method on Values of Hansen Solubility Parameters of Polymers, Polymer Bulletin, 57, 377-384, (2006).
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.