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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 11/18/2010

ConocoPhillips Company - IP Services Group
Attention: DOCKETING
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Bldg. MA-1135
Houston, TX 77079

EXAMINER	
BOYLE, ROBERT C	

ART UNIT	PAPER NUMBER
1764	

NOTIFICATION DATE	DELIVERY MODE
11/18/2010	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

Baker Hughes Incorporated
Exhibit 1024
BAKER HUGHES v. LUBRIZOL
IPR2016-01896

Office Action Summary	Application No.	Applicant(s)	
	11/615,539	MILLIGAN ET AL.	
	Examiner	Art Unit	
	ROBERT C. BOYLE	1764	

-- 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 *27 August 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4a) Of the above claim(s) *97-112* is/are withdrawn from consideration.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) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/27/2010 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. The Declaration filed under 37 CFR 1.132 by Ray Johnston on 8/27/2010 ("Johnston Declaration") is hereby acknowledged. The Johnston Declaration has been provided to show that the species of 'heavy crude oil' is non-obvious over the genus of 'crude oil'. This is discussed below in the Response to Arguments section.

Claim Rejections - 35 USC § 102

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

5. As to claims 113-125, the rejection is adequately set forth in paragraphs 19-22 in the office action mailed on 6/15/2010 and is incorporated here by reference.

6. Regarding the limitation, added to claims 113 and 124-125, of asphaltene content and API gravity, this limitation describes heavy crude oil (see Johnston Declaration, ¶ 9). This is a species in the genus of "crude oil" and Inaoka teaches adding the polymer to crude oil (pg. 17, ln.

6-10). As the genus of 'crude oil' contains only three species, light, medium, and heavy, one of ordinary skill in the art would be able to "at once envisage" the specific species claimed (heavy crude oil). See MPEP 2131.02. Because the class of species is sufficiently limited, the genus of "crude oil" anticipates the claimed species "heavy crude oil".

7. Inaoka does not teach that the viscosity of the treated liquid hydrocarbon is not less than the viscosity prior to treatment. However, Inaoka teaches the same drag reducer in the same medium. It is therefore inherent that the composition after treatment would have the claimed property 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).

8. Claims 113-121, 124-125 are rejected under 35 U.S.C. 102(b) as being anticipated by **Castner** (US 4,736,005) as evidenced by the definition of "petroleum". As to claims 113-121, 124-125, the rejection is adequately set forth in paragraphs 16-18 in the office action mailed on 6/15/2010 and is incorporated here by reference.

9. Regarding the added limitation regarding heavy crude oil, Castner teaches petroleum, which is defined as being synonymous with crude oil (see definition of Petroleum). Thus, heavy crude oil is a species of the genus petroleum/crude oil.

10. As the genus of 'crude oil' contains only three species, light, medium, and heavy, one of ordinary skill in the art would be able to "at once envisage" the specific species claimed (heavy crude oil). See MPEP 2131.02. Because the class of species is sufficiently limited, the genus of "crude oil" anticipates the claimed species "heavy crude oil".

11. Castner does not teach that the viscosity of the treated liquid hydrocarbon is not less than the viscosity prior to treatment. However, Castner teaches the same drag reducer in the same medium. It is therefore inherent that the composition after treatment would have the claimed property 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).

12. Claims 113-114, 116-121, 124-125 are rejected under 35 U.S.C. 102(b) as being anticipated by **Ball** (US 5,021,526).

13. As to claims 113, 124-125, Ball teaches adding a terpolymer to water and heavy crude oil (col. 2, ln. 25-45) to form an emulsion, where the terpolymer is a acrylic ester based polymer (col. 4, ln. 38-62). The limitation regarding asphaltene content and API gravity describes heavy crude oil (see Johnston Declaration, ¶ 9).

14. Claims 113-114, 118-121, 124-125 recite properties of the liquid hydrocarbon regarding solubility parameters and that the viscosity of the treated liquid hydrocarbon is not less than the viscosity prior to treatment. Ball does not teach claimed properties. However, Ball teaches the liquid hydrocarbon is heavy crude oil, the same hydrocarbon as claimed and the claimed drag reducer. It is therefore inherent that the crude oil of Ball 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).

15. As to claims 116-117, Ball teaches monomers having an oxygen atom (col. 4, ln. 50).

Claim Rejections - 35 USC § 103

16. In the alternative, claims 113-125 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Inaoka** (EP 0882739).

17. 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.

18. Inaoka does not teach the specific genus of "heavy crude oil".

19. However, the species of "heavy crude oil" is obvious over the genus of "crude oil". See MPEP 2144.08.

20. The scope of the prior art includes the genus "crude oil" and the specific species that is analogous to light crude oil. It is noted that only three species are present in the genus, and that the properties of all three species are well known in the art.

21. The differences between the prior art and the claims is the specific species used. The prior art teaches the specific species, light crude oil, which has distinct properties different heavy crude oil, including API gravity and asphaltene content. However, similarities between the two species include both liquid petroleum and are from the same source. The level of ordinary skill in the art is high. The evidence of secondary considerations, the Johnston Declaration, is not persuasive as discussed above. One of ordinary skill in the art would have been motivated to select the claimed species because the size of the genus is very small (three species).

22. Claims 113-121, 124-125 state properties of the hydrocarbon and polymer. While Inaoka does not elaborate on the property, Inaoka teaches essentially the same the hydrocarbon and polymer and process as that of the claimed, and one of ordinary skill in the art would have a reasonable basis to believe the the hydrocarbon and polymer of Inaoka exhibits essentially the same properties. Since the PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobvious difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977). Thus, the instantly claimed composition is rendered obvious over the disclosures of Inaoka.

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

24. Claims 113-121, 124-125 are rejected under 35 U.S.C. 102(b) as being anticipated by **Castner** (US 4,736,005) as evidenced by the definition of "petroleum".

25. 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.

26. Regarding the added limitation regarding heavy crude oil, Castner teaches petroleum, which is defined as being synonymous with crude oil (see definition of Petroleum). Thus, heavy crude oil is a species of the genus petroleum/crude oil.

27. However, the species of "heavy crude oil" is obvious over the genus of "crude oil". See MPEP 2144.08.

28. The scope of the prior art includes the genus "crude oil" and the specific species that is analogous to light crude oil. It is noted that only three species are present in the genus, and that the properties of all three species are well known in the art.

29. The differences between the prior art and the claims is the specific species used. The prior art teaches the specific species, light crude oil, which has distinct properties different heavy crude oil, including API gravity and asphaltene content. However, similarities between the two species include both liquid petroleum and are from the same source. The level of ordinary skill in the art is high. The evidence of secondary considerations, the Johnston Declaration, is not persuasive as discussed above. One of ordinary skill in the art would have been motivated to select the claimed species because the size of the genus is very small (three species).

30. Claims 113-121, 124-125 state properties of the hydrocarbon and polymer. While Castner does not elaborate on the property, Castner teaches essentially the same the hydrocarbon and polymer and process as that of the claimed, and one of ordinary skill in the art would have a reasonable basis to believe the the hydrocarbon and polymer of Castner exhibits essentially the same properties. Since the PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobvious difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977). Thus, the instantly claimed composition is rendered obvious over the disclosures of Castner.

31. Claim 115 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ball** (US 5,021,526).

32. As to claim 115, Ball teaches adding a terpolymer to water and heavy crude oil (col. 2, ln. 25-45) to form an emulsion. The limitation regarding asphaltene content and API gravity describes heavy crude oil (see Johnston Declaration, ¶ 9). Ball does not teach the molecular weight or number of repeating units of the polymer.

33. However, Ball teaches that the desired molecular weight of the polymer will depend on the polymerization temperature (col. 5, ln. 41-48). It is the examiner's position that molecular weight (and hence repeating units) are result effective variables because changing them will clearly affect the type of product obtained. See MPEP 2144.05(B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to utilize the molecular weights and repeating units within the scope of the present claims so as to produce desired end results.

Response to Arguments

34. Applicant's arguments filed 8/27/2010 have been fully considered but they are not persuasive.

Johnston Declaration

35. The Johnston Declaration argues that heavy crude oil differs from medium and light crude oil, and that because of these differences, a drag reducer that works for one type of crude oil would not work for other types of crude oils (¶ 10).

36. For support of this argument, ¶ 11 of the declaration recites a number of drag reducers marketed by ConocoPhilips. Specifically, LP 100, 300, and 400 are listed as not working in heavy crude oil. However, ExtremePower is used as a drag reducer for heavy crude oil, and 'does not work very effectively' for light or medium crude oils. This runs counter to the Applicant's argument, because if the drag reducer 'does not work very effectively', this means that the drag reducer does work, just not as well as possible. Thus, Applicant has shown that a drag reducer can work for all the species in the genus, even if it works best with one specific species.

37. Applicant argues that it is necessary to test the drag reducers in the actual heavy crude oil, and that it is not practical to test drag reduction in the laboratory, but must take place in the field in large diameter pipelines due to the high viscosity and requirement for turbulence. See ¶ 13. First, the requirement for rebuttal evidence is not eliminated because laboratory experiments cannot be done.

38. Second, after stating that heavy crude oil cannot be tested in the laboratory, Applicant then criticizes Inaoka for testing the drag reducer in xylene and kerosene (comparable to light crude oil). See ¶ 14. The drag reducers of Inaoka cannot be dismissed merely because they provided some experimental evidence of the species that is not claimed, especially as the claimed species cannot be tested in the laboratory.

39. Applicant states that prior to 2006, one skilled in the art would not have considered any drag reducer capable of operating in heavy crude oil. However, attention is drawn to US

4,876,018, published in 1989, which teaches an additive for reducing the drag. Thus, Applicant's argument is not persuasive.

Castner

40. Applicant's arguments regarding Castner are not persuasive because the pat of Castner cited by the Applicant is in the Background section (col. 2, ln. 9-12) and therefore does not necessarily apply to the invention of Castner. There is no evidence outside the Background section that the invention of Castner will increase the viscosity of the petroleum.

Inaoka

41. It is noted that secondary considerations are irrelevant under anticipation rejections. See MPEP 2131.04. As the genus of 'crude oil' contains only three species, light, medium, and heavy, one of ordinary skill in the art would be able to "at once envisage" the specific species claimed (heavy crude oil). See MPEP 2131.02. Because the class of species is sufficiently limited, the genus of "crude oil" anticipates the claimed species "heavy crude oil".

42. In the alternative, the species of "heavy crude oil" is obvious over the genus of "crude oil". See MPEP 2144.08.

43. The scope of the prior art includes the genus "crude oil" and the specific species that is analogous to light crude oil. It is noted that only three species are present in the genus, and that the properties of all three species are well known in the art.

44. The differences between the prior art and the claims is the specific species used. The prior art teaches the specific species, light crude oil, which has distinct properties different heavy

crude oil, including API gravity and asphaltene content. However, similarities between the two species include both liquid petroleum and are from the same source. The level of ordinary skill in the art is high. The evidence of secondary considerations, the Johnston Declaration, is not persuasive as discussed above. One of ordinary skill in the art would have been motivated to select the claimed species because the size of the genus is very small (three species).

45. This establishes a prima facie case of obviousness which has not been overcome. Merely because a drag reducer does not operate well in all three species does not rebut a finding of obviousness. Rather, one of ordinary skill might chose a single drag reducer that would operate in all three species, thus allowing the addition of only a single drag reducer.

46. Regarding the conception and enablement of Inaoka, conception is present when Inaoka used the term of the genus 'crude oil' because only three species are present in the genus. Regarding enablement, Inaoka anticipates or makes obvious all the elements of the claimed invention, therefore the reference is presumed to be operable. See MPEP 2121(I). Applicant's argument that when a given drag reducer works in light crude oil it would not work for heavy crude oil is not persuasive (see above). Therefore, the argument of inoperability that relies on this logic is also not persuasive.

Conclusion

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 1764

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1764

Notice of References Cited	Application/Control No. 11/615,539	Applicant(s)/Patent Under Reexamination MILLIGAN ET AL.	
	Examiner ROBERT C. BOYLE	Art Unit 1764	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,876,018	10-1989	Karydas, Athanasios	507/205
*	B	US-5,021,526	06-1991	Ball, Lawrence E.	526/240
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	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	Definition of "Petroleum" - 2002
	V	
	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.