

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US2018/060812	International filing date (day/month/year) 13.11.2018	Priority date (day/month/year) 14.11.2017
International Patent Classification (IPC) or both national classification and IPC INV. B01D17/04 C08G65/26 C08G65/331		
Applicant DOW GLOBAL TECHNOLOGIES LLC		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Fax: +31 70 340 - 3016	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Lapeyrière, Jean Telephone No. +31 70 340-0
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☐ forming part of the international application as filed:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
 - ☐ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-7</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-7</u>
Industrial applicability (IA)	Yes: Claims	<u>1-7</u>
	No: Claims	

2. Citations and explanations

see separate sheet

1 **Re Item V**

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1 US 2017/114287 A1 (ROUSE SEAN PHILIP NIGEL [GB] ET AL) 27 April 2017 (2017-04-27)
- D2 EP 0 429 892 A2 (BAYER AG [DE]) 5 June 1991 (1991-06-05)
- D3 WO 2004/067594 A2 (NALCO ENERGY SERVICES LP [US]) 12 August 2004 (2004-08-12)
- D4 DE 15 95 320 A1 (BASF AG) 9 April 1970 (1970-04-09)

- 1.1 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of **claim 1** is not inventive.

- 1.1.1 D1 discloses:

A method of demulsifying crude oil (page 1, line 16-22), said method comprising the step of:
reacting an amount of crude oil with a demulsifier,
said demulsifier having two sequences of EO PO EO (see page 3, §60-63) linked by a dimer fatty acid.

- 1.1.2 Claim 1 differs in that the spacer R3 is aromatic.

There is no technical effect with said difference. The problem to be solved is considered to provide an alternative spacer for the EO PO EO sequences

The document D2 discloses a demulsifier having two sequences of poloyalkylenoxide amino modified linked by a diacid which can be a terephtalat acid (page 4, line 46). Therefore it is considered htat the skilled person would consider to use the terephtalic acid as a linker or spacer.

- 1.1.3 The subject matter of claim 1 is considered to lack an inventive activity over the combination of D1 and D2 (Art. 33(3)PCT).

- 1.2 Dependent claims 2-7 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.
- 1.2.1 Concerning **claim 2**, none of the documents discloses a branched polyol but it is not clear what is the technical effect of this difference therefore the claim is considered to lack an inventive activity (Art. 33(3)PCT). Should the applicant provide an technical effect, it could be possible to reconsider this opinion.
- 1.2.2 Concerning **claims 3-7**, their subject matter appear to come within the normal practice of the skilled person therefore their subject matter lack also an inventive activity (Art. 33(3)PCT).