

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

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

To:

see form PCT/ISA/220

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/EP2018/071404

International filing date (day/month/year)
07.08.2018

Priority date (day/month/year)
08.08.2017

International Patent Classification (IPC) or both national classification and IPC
INV. C08G65/26 C09D11/326 C08G63/664 C08G63/91

Applicant
BYK-CHEMIE GMBH

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:



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Date of completion of this opinion

see form
PCT/ISA/210

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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>6, 10-13, 15</u>
	No: Claims	<u>1-5, 7-9, 14, 16-19</u>
Inventive step (IS)	Yes: Claims	<u>6, 10-13, 15</u>
	No: Claims	<u>1-5, 7-9, 14, 16-19</u>
Industrial applicability (IA)	Yes: Claims	<u>1-19</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

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 2012/059088 A1 (HILFIGER MATTHEW [US] ET AL) 8 March 2012 (2012-03-08)
- D2 WO 99/55763 A1 (AVECIA LTD [GB]; THETFORD DEAN [GB]; FAWKES DAVID MELVILLE [GB]) 4 November 1999 (1999-11-04)
- D3 US 2013/312636 A1 (FORNARA DARIO [IT] ET AL) 28 November 2013 (2013-11-28)

1.0 Document D1 discloses random lactone/alkylene oxide copolymers for use as oilfield demulsifiers (see claim 1 in D1) . Further, Examples 1-6 in D1 disclose the preparation of said copolymers by a method involving the random polymerisation (i.e. it can be assumed that "*R*" as defined in present claim 2 is less than 1.0) of a mixture of epsilon caprolactone and propylene oxide onto a polyethyleneimine starter molecule. Ratios of lactone to alkylene oxide of 1:4 to 1:5 are used in said Examples. The copolymers in D1 can be safely assumed to have "*a sum of at least three ether and ester units*" as said copolymers are disclosed as having molecular weights in excess of 2000 in claim 5 of D1. Therefore the subject-matter of present claims 1,2,7-9,14,16-19 does not meet the requirements of Art 3(2) PCT since it not new with respect to D1.

2.0 With respect to the subject-matter of present claims 3-5, the reliance on the unusual "*R*" parameter makes meaningful comparison with the prior art all but impossible. It is also to be noted here that since (a) no method for measuring this parameter has been given in the application as filed and (b) no concrete values for said parameter are actually quoted in the present Examples, the subject-matter of present claims 3-5 is not considered to meet the requirements of either Art 5 or 6

PCT. Given this, the subject-matter of said claims cannot be used to distinguish the present application from the prior art and on this basis the subject-matter of said claims is not regarded as meeting the requirements of Art 33(2) PCT.

3.0 The subject-matter of present claims 6,10-13 and 15 meets the requirements of Art 33(2) and (3) as said subject-matter is neither directly disclosed in nor fairly suggested by any of the prior art documents recovered when taken singly or in combination.

Re Item VII

Certain defects in the international application

1.0 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in Documents D1-D3 is not mentioned in the description, nor are these documents identified therein.

Re Item VIII

Certain observations on the international application

1.0 The wording of present claim 14 is unclear as it refers twice to a starter molecule which comprises an amine group (Art 6 PCT)