

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: 200233 China 435 Guiping Road, Shanghai SHANGHAI PATENT & TRADEMARK LAW OFFICE, LLC

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 18A053PCWO	Date of mailing <i>(day/month/year)</i> 19 August 2019	
FOR FURTHER ACTION See paragraph 2 below		
International application No. PCT/CN2018/118894	International filing date <i>(day/month/year)</i> 03 December 2018	Priority date <i>(day/month/year)</i>
International Patent Classification (IPC) or both national classification and IPC C09D 163/00(2006.01)i		
Applicant DOW GLOBAL TECHNOLOGIES LLC et al		

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 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/ National Intellectual Property Administration, PRC China 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088	Date of completion of this opinion 13 August 2019	Authorized officer GE, Chen
Facsimile No. (86—10) 62019451	Telephone No. 86-(10)-53962768	

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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 43*bis*.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 13*ter*.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 13*ter*.1(a)).
 - on paper or in the form of an image file (Rule 13*ter*.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:

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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**

1. Statement

Novelty (N)	Claims	<u>1-15</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>None</u>	YES
	Claims	<u>1-15</u>	NO
Industrial applicability (IA)	Claims	<u>1-15</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations :

[1] **I. Cited document:**

[2] D1: WO2018081943 A1 11 May.2018 (11.05.2018)

[3] D2: WO2016095583 A1 23 Jun.2016 (23.06.2016)

[4] D1 discloses a polymeric dispersant comprising, by weight based on the dry weight of the polymeric dispersant, i) from 15% to 80% of a monomer having an anti-agglomerating functional group, ii) from 0% to 10% of an α , β -ethylenically unsaturated carboxylic acid monomer and iii) from 30% to 95% of an α , β -ethylenically unsaturated nonionic monomer. Examples of the monomer i) include phosphoethyl methacrylate, sodium styrene sulfonate and acrylamide-methyl-propane sulfonate. Examples of the monomer iii) include hydroxyethyl (meth) acrylate and styrene. The polymeric dispersant has a weight average molecular weight of from 500 to 40,000 Daltons. In another aspect, D1 provides a coating composition and preparation method thereof. The coating composition comprising: a component A and a component B comprising a curing agent, wherein the component A comprises a waterborne epoxy dispersion, the polymeric dispersant as described above, and pigments and/or extenders. The amount of the polymeric dispersant is from 0.01% to 5% based on the total dry weight of the component A. The waterborne epoxy resin is an aqueous dispersion of acrylic polymer particles imbibed with an epoxy compound. The ratio of the component A and the component B is 90:1 to 2:1 by weight. The components A and B are mixed together and then the paint is waiting for application (see page 2 line 13 to page 6 line 10, page 8 lines 1 to 3).

[5] D2 discloses an oligomer used as a dispersant for pigment and/or extender in an aqueous coating composition. The oligomer comprising, based on the weight of the oligomer, from 2.1% to 10% of diacetone acrylamide (DAAM) as polymerized units. The diacetone acrylamide may be used as a self-crosslinking agent (see page 2 lines 15 to 27, page 4 lines 21 to 30).

[6] **II. Novelty:**

[7] The independent claim 1 relates to a polymeric dispersant, the independent claim 11 relates to a two-component epoxy coating composition, the independent claim 15 relates to a method of preparing a two-component epoxy coating composition. D1 is regarded as being the closest prior art to claims 1-15. D1 does not disclose the subject matter of claims 1, 11 and 15. Therefore, claims 1-15 meet the requirement of PCT Article 33(2).

[8] **III. Inventive step:**

[9] The independent claim 1 differs from D1 in the structural units of a carbonyl-containing

[10] functional monomer. A polymeric dispersant comprising 2.1-10% DAAM polymerized units (a carbonyl-containing functional monomer) is disclosed by D2. It would be obvious to the person skilled in the art, to use a polymeric dispersant comprising the structural units defined in claim 1. Therefore, claim 1 does not meet the criteria set out in PCT Article 33(3).

[11] The additional features of dependent claims 2-10 are disclosed by D1, D2, or considered to be obvious for the skilled person. Therefore, claims 2-10 do not meet the criteria set out in PCT Article 33(3).

[12] The independent claim 11 relates to a two-component epoxy coating composition comprising the polymeric dispersant of any one of claims 1-10, the independent claim 15 relates to a method of preparing

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Box No. V

Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability;
citations and explanations supporting such statement

the coating composition. Because the subject matter of the claims 1-10 does not involve an inventive step, claims 11 and 15 do not meet the criteria set out in PCT Article 33(3).

[13] The additional features of dependent claims 12-14 are disclosed by D1, or considered to be obvious for the skilled person. Therefore, claims 12-14 do not meet the criteria set out in PCT Article 33(3).

[14] **IV: Industry applicability:**

[15] Claims 1-15 have industrial applicability as defined by PCT Article 33(4) because the polymeric dispersant, the two-component epoxy coating composition and preparation method thereof can be made or used in industry.