

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 216615PCWO	FOR FURTHER ACTION See item 4 below	
International application No. PCT/CN2021/129192	International filing date (<i>day/month/year</i>) 08 November 2021 (08.11.2021)	Priority date (<i>day/month/year</i>)
International Patent Classification (IPC) or national classification and IPC See relevant information in Form PCT/ISA/237		
Applicant DOW GLOBAL TECHNOLOGIES LLC		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	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 Article 35(2) 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

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

	Date of issuance of this report 02 May 2024 (02.05.2024)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Xin Wang e-mail pct.team2@wipo.int

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)

Date of mailing

(day/month/year)

25 May 2022

Applicant's or agent's file reference

216615PCWO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/CN2021/129192

International filing date (day/month/year)

08 November 2021

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC

B32B 15/085(2006.01)i; B32B 7/12(2006.01)i; B32B 27/00(2006.01)i; C09J 175/06(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

20 May 2022

Authorized officer

ZHANG, Yuanyuan

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/CN2021/129192

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:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/CN2021/129192

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	1-13	YES
	Claims	None	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-13	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims	None	NO

2. Citations and explanations :

[1] I. Citations

[2] D1:US 2016144603A1, 26 May 2016(26.05.2016)

[3] D2:JP 5942032B1, 29 Jun. 2016(29.06.2016)

[4] II. Explanations

[5] i) Novelty

[6] D1 discloses a multi-layer structure (laminate) comprising: (a) a skin layer comprising at least 50% by weight of an ethylene/alpha-olefin interpolymer composition. (b) a metal layer disposed on the skin layer to form a metalized film; and (c) at least one substrate layer laminated onto the metalized film; the metalized film is laminated onto the substrate by adhesive lamination or extrusion lamination. The at least one substrate layer comprises at least one selected from the group consisting of polyethylene et al.(See claims 1, 3, 5)

[7] D2 discloses an adhesive composition comprising two-component curable polyester urethane adhesive agent comprising aromatic polyester urethane polyol containing plant-derived component as main component and polyfunctional isocyanate compound as curing agent. The aromatic polyester urethane polyol comprises 30-99% mass acid component of aromatic polyester polyol (P1) comprising plant-derived component and 1-70% mass acid component of aromatic polyester polyol (P2) comprising petroleum-derived component. The number average molecular weight of the polyester polyol (P1) is 400-8000. The content of aromatic polyfunctional carboxylic acid in polyester polyol (P1) is 30-80 mol%. The number average molecular weight of polyester polyol (P2) is 400-8000. The content of aromatic polyfunctional carboxylic acid in polyester polyol (P2) is 40-80 mol%. The weight ratio of main component to polyfunctional isocyanate compound is NCO/OH=1-10. The adhesive composition is used for forming laminate. Plant-derived organic solvent could be used in the adhesive composition.(See description, paragraphs [0010], [0011], [0013], [0015]).

[8] ii) Inventive step

[9] Claim 1 differs from D1 in that D1 does not disclose the two-component solvent-based polyurethane adhesive composition. However, for the difference, according to D2, a person skilled in the art would be motivated to use the two-component polyurethane adhesive composition to laminate the metalized film onto the substrate. According to D2, a person skilled in the art would make a common choice to obtain the concentration of fatty acids, the content of aromatic rings in backbone of polyester polyol, the Mw of polyester polyol and the weight ratio of the polyester to the polyisocyanate.

[10] Therefore, claim 1 does not involve an inventive step in the sense of PCT Article 33(3).

[11] For the same reason, claims 12 and 13 do not involve inventive steps in the sense of PCT Article 33(3).

[12] Additional feature of dependent claim 3 has been disclosed by D1. Additional features of dependent claims 2, 4-11 are common technical means in the art. Therefore, claims 2-11 do not involve inventive steps in the sense of PCT Article 33(3).

[13] iii) Industrial Applicability

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/CN2021/129192

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**

- [14] The industrial applicability can be acknowledged for claims 1-13 under PCT Article 33(4) because the inventions of claims 1-13 can be used in the technical field of preparing laminate materials.