

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

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/US2016/066254

International filing date (day/month/year)
13.12.2016

Priority date (day/month/year)
18.12.2015

International Patent Classification (IPC) or both national classification and IPC
INV. B32B27/18 B32B27/30 B32B27/32 B32B27/34 B65D65/40

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:



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this opinion

see form
PCT/ISA/210

Authorized Officer

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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>1-15</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-15</u>
Industrial applicability (IA)	Yes: Claims	<u>1-15</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** **WO 2004/024433 A2 (DOW GLOBAL TECHNOLOGIES INC [US]; SAAVEDRA JOSE V [US]; PATEL RAJEN [U] 25 March 2004**
- D2** **EP 1 747 882 A1 (GUNZE KK [JP]) 31 January 2007 (2007-01-31)**
- D3 DE 102 38 515 A1 (TICONA GMBH [DE]) 4 March 2004 (2004-03-04)
- D6=D5' US 2005/244665 A1 (RIVETT JANET W [US] ET AL) 3 November 2005
- D4 EP 2 351 644 A1 (KUHNE ANLAGENBAU GMBH [DE]) 3 August 2011
- D5 WO 2007/075473 A1 (CRYOVAC INC [US]; RIVETT JANET [US]) 5 July 2007

1) Novelty

The present application does not satisfy the criterion set forth in Article 33(2) PCT because the subject-matter of **Claim 1** is not novel in respect of prior art as defined in the regulations (Rule 64(1)-(3) PCT).

Pres. Claims (in bold only obligatory terms of independent claims) and description define a multilayer film for use in thermoforming applications:

[A] 1st layer comprising polypropylene, polyethylene, or blends thereof;

[B] 3rd layer between 1st layer & 2nd layer:

also PP, PE, blends thereof;

[C] 2nd layer: also PP, PE, blends thereof.

wherein the **multilayer film as a whole comprises between 1 and 5 weight percent cyclic olefin copolymer (COC)** based on the total weight of the film.

PP = rcPP, HIPP, ICPP, HMS-PP, iPP, sPP, propylene-alpha-olefin copolymer, VERSIFY, VISTAMAXX, PP-plastomer, PP-elastomer (PBE, PBPE)

PE = LDPE, MDPE, HDPE, UHDPE, HMS-HDPE, LLDPE, ATTANE, DOWLEX, ULDPPE, ELITE, VLDPE, mPE

COC = TOPAS, APEL, ARTON, ZEONEX, ZEONOR

CONCEPT: COC imparts greater secant) modulus and/or stiffness, facilitating film's usage in thermoforming, improved toughness, puncture resistance, downgauging = thickness & cost reduction.

optional other layers: PA, EVOH, barrier layers

opt.: tie layer, additives

D1 discloses all that, but with the difference has higher %-ages of COC in its layer.

Therewith the **novelty of subject-matter of all claims not is taken away**.

Mutatis mutandis discloses **D2** 3-layered laminates which all can comprise COC+PO (= PP, PE).

Because of the different thicknesses of **intermediate (5-45 % COC)** and outer layer (**55-95 % COC**), and possible further layer, the COC-%-content has to be calculated. It appears that taking into account these features, the overall **%-age COC** is not lower than 9%, hence pres. claims are novel over D2.

2) Inventive Step

The present application does not satisfy the criterion set forth in **Article 33(3) PCT** because the **subject-matter of Claims 1-15 does not involve an inventive step (Rule 65(1)(2) PCT)**.

However, Comparative Example of D2 discloses also the option of only 3% COC in the intermediate layer. In combination with D1, the **subject-matter of present claims therewith seems obvious**, especially

- if the only objective problem of D1 was to find an alternative,
- as no further effect has been demonstrated,
- effects as toughness/puncture/strength-improvements of the amorphous polymer COC are already well-known, and
- seem to be proportional its content.
- Hence, if the skilled person would like to have *less* improvement of a simple/standard 3-layered PP, PE-film, then s/he will add *less* COC.

Re Item VII

Certain defects in the international application

4) Contrary to requirements of **Rule 5.1(a)(ii) PCT**, the **documents**

D1 to D5 are not yet identified in the description and the relevant background art disclosed therein has not yet been briefly discussed.

Re Item VIII

Certain observations on the international application

3) Clarity

The application does not meet the requirements of **Article 6 PCT** because Claims 11-12 are not clear, because the units mils, inch etc. expressed there do not meet the requirements of Rule 10.1 (..C..) PCT (C = (a) or (b) or (d) or (e)) and should be replaced by the appropriate SI units.

The present expressions should, however, be retained in parentheses after the replacement expressions.