

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: SULLIVAN, MICHAEL J. KIMBERLY-CLARK WORLDWIDE, INC. 2300 WINCHESTER ROAD NEENAH WI 54956 USA

Date of mailing (day/month/year) 27 May 2015 (27.05.2015)

Applicant's or agent's file reference 64952690PC01	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/US2014/052834	International filing date (day/month/year) 27 August 2014 (27.08.2014)	Priority date(day/month/year)
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International Patent Classification (IPC) or both national classification and IPC A47K 7/00(2006.01)i, D21H 21/14(2006.01)i

Applicant KIMBERLY-CLARK WORLDWIDE, INC.
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1. This opinion contains indications relating to the following items:

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|-------------------------------------|--------------|---|
| ☒ | 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/KR International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea Facsimile No. +82-42-472-7140	Date of completion of this opinion 26 May 2015 (26.05.2015)	Authorized officer LEE, Myung Jin Telephone No. +82-42-481-8474
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2014/052834

Box No. 1 Basis of this 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*. I(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*. I(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*. I(a)).
☐ on paper or in the form of an image file (Rule 13*ter*. I(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/US2014/052834

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)	Claims	2,4-20	YES
	Claims	1,3	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 2013-0071655 A1 (ZWICK, K. J. et al.) 21 March 2013

D2: US 5635028 A (VINSON, K. D. et al.) 03 June 1997

2.1 Novelty and Inventive Step

2.1.1 Independent Claim 1

D1, which is considered to be the closest prior art to the subject matter of independent claim 1, discloses a single ply comprising a tissue web by utilizing wet-pressing having a CD tensile greater than about 450 g/3" and CD stretch greater than about 6 percent (See paragraphs [0049]-[0056] and [0086]-[0093]; TABLE 2.).

As all of the features of claim 1 are disclosed in D1, this claim is anticipated by D1. Therefore, claim 1 lacks novelty under PCT Article 33(2).

2.1.2 Dependent Claims 2-7

2.1.2.1 Concerning Claim 3

The additional feature of claim 3 is identical to the feature of D1 that the single ply has a CD stretch from about 6 to about 8 percent (See paragraphs [0049]-[0056] and [0086]-[0093]; TABLE 2.).

As all of the features of claim 3 are disclosed in D1, this claim is anticipated by D1. Therefore, claim 3 lacks novelty under PCT Article 33(2).

2.1.2.2 Concerning Claims 2 and 4-7

The additional features of claims 2 and 4-7 relate to defining physical properties of a

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Box No. VII Certain defects in the international application

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

The unit of measure (g/3") employed in claims 1 and 13 is not additionally expressed in terms of the units stipulated by PCT Rule 10.1(a).

Supplemental Box

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single ply wet-pressed tissue product, which are not disclosed in D1. However, these features would be readily foreseeable by a person skilled in the art, considering that a method of D1, which substantially corresponds to a method of forming the single ply wet-pressed tissue product of claims 2 and 4-7, comprises the steps of: dispersing cellulosic fibers comprising a northern softwood kraft (NSWK) pulp and a eucalyptus hardwood kraft (EHWK) pulp to form a slurry; dispersing cellulose cotton having a curl index from about 0.15 to about 0.25; pumping the slurries to a headbox having manifolds to form a wet sheet; adhering the wet sheet to a Yankee dryer; drying; and creping (See paragraphs [0049]-[0056] and [0086]-[0093]; TABLE 2.).

Accordingly, claims 2 and 4-7 would have been obvious over D1. Consequently, claims 2 and 4-7 lack an inventive step under PCT Article 33(3).

2.1.3 Independent Claim 8

The subject matter of claim 8 is substantially the same as that of claim 1 except that a product has a basis weight from about 16 to about 20 gsm and Durability Index from about 18.0 to about 22.0. However, these features would be readily foreseeable by a person skilled in the art, considering that a method of D1 comprises the steps of: dispersing cellulosic fibers comprising a northern softwood kraft (NSWK) pulp and a eucalyptus hardwood kraft (EHWK) pulp to form a slurry; dispersing cellulose cotton having a curl index from about 0.15 to about 0.25; pumping the slurries to a headbox having manifolds to form a wet sheet; adhering the wet sheet to a Yankee dryer; drying; and creping (See paragraphs [0049]-[0056] and [0086]-[0093]; TABLE 2.).

Accordingly, claim 8 would have been obvious over D1. Therefore, claim 8 lacks an inventive step under PCT Article 33(3).

2.1.4 Dependent Claims 9-12

Claims 9-12 define physical properties of a single ply wet-pressed tissue product. However, these features would be readily foreseeable by a person skilled in the art, considering that a method of D1 comprises the steps of: dispersing cellulosic fibers comprising a northern softwood kraft (NSWK) pulp and a eucalyptus hardwood kraft (EHWK) pulp to form a slurry; dispersing cellulose cotton having a curl index from about 0.15 to about 0.25; pumping the slurries to a headbox having manifolds to form a wet sheet; adhering the wet sheet to a Yankee dryer; drying; and creping (See paragraphs

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[0049]-[0056] and [0086]-[0093]; TABLE 2.).

Although the physical properties of the single ply wet-pressed tissue product are not explicitly disclosed in D1, it is obvious to a person skilled in the art that the physical properties of the resulting product would be controlled and selected by routine experimental means.

Accordingly, claims 9-12 would have been obvious over D1. Therefore, claims 9-12 lack an inventive step under PCT Article 33(3).

2.1.5 Independent Claim 13

D1, which is considered to be the closest prior art to the subject matter of independent claim 13, discloses a method of forming a single ply tissue, comprising the steps of: dispersing cellulosic fibers comprising a northern softwood kraft (NSWK) pulp and a eucalyptus hardwood kraft (EHWK) pulp to form a slurry; dispersing cellulose cotton having a curl index from about 0.15 to about 0.25; pumping the slurries to a headbox having manifolds to form a wet sheet; adhering the wet sheet to a Yankee dryer; drying; and creping, wherein the single ply tissue has a CD tensile greater than about 450 g/3" and CD stretch greater than about 6 percent (See paragraphs [0049]-[0056] and [0086]-[0093]; TABLE 2.).

Claim 13 differs from D1 in that a method comprises the steps of: pressing a multi-layered fibrous web against a felt to form a partially dewatered web; and drying the web to a consistency greater than about 90 percent. However, these features would be derived from D2 in that a method for forming a single-ply creped tissue paper comprises the step of: blending northern softwood Kraft fibers and hardwood fibers comprising eucalyptus Kraft fibers to form an aqueous slurry of 2.1paper making fibers; pumping the slurry to a three-chambered headbox; depositing the papermaking fibers on a foraminous surface so that excess water used to form the slurry is removed forming an embryonic web; transferring the embryonic web to a carrier surface upon which the water removal continues forming a semi-dry web, said carrier surface being selected from the group consisting of papermaking felts and forming fabrics; transferring the semi-dry web and securing it to the surface of a Yankee dryer upon which the drying is continued until the web reaches a substantially dry condition; removing the dried web from the Yankee dryer by means of a creping blade; and winding a creped web on a reel, wherein the moisture content of the semi-dry web at the point of transfer to the Yankee surface is less than

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about 40% (See column 10, line-column 15, line 63 and column 18, line 55-column 20, line 16; figure 1.).

Accordingly, claim 13 would have been obvious over D1 in view of D2. Therefore, claim 13 lacks an inventive step under PCT Article 33(3).

2.1.6 Dependent Claims 14-20

The additional features of claims 14 and 15, relating to a third fiber slurry and amounts of cellulosic fibers, would be regarded as some of the straightforward possibilities from which a person skilled in the art would select, in accordance with circumstances, without the exercise of inventive skill.

The additional feature of claim 16, relating to curled eucalyptus hardwood kraft fibers having a curl index greater than about 2.0, is not described in D1 or D2. However, the use of the curled eucalyptus hardwood kraft fibers would be a simple substitution of the cotton of D1 by a person skilled in the art, if necessary, since the curled eucalyptus hardwood kraft fiber corresponds to the cotton of D1 in terms of their effects and functions and a eucalyptus hardwood kraft fiber is widely used for producing a tissue product.

The additional features of claims 17-20 would be considered to be simple design options when general technical knowledge in the art is used.

Accordingly, claims 14-20 would have been obvious over D1 in view of D2. Therefore, claims 14-20 lack an inventive step under PCT Article 33(3).

2.2 Industrial Applicability

Claims 1-20 are industrially applicable under PCT Article 33(4).