

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	08.08.2017
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Applicant's or agent's file reference 160235W001
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FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/JP2017/018901	International filing date (day/month/year) 19.05.2017	Priority date (day/month/year) 25.05.2016
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International Patent Classification (IPC) or both national classification and IPC C03C27/12 (2006.01) i, B32B17/10 (2006.01) i, B60J1/00 (2006.01) i
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Applicant ASAHI GLASS COMPANY, LIMITED
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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 or 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/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2017/018901

Box No. I 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 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/JP2017/018901

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	<u>1-6</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-6</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-6</u>	YES
	Claims	_____	NO

2. Citations and explanations:

Document 1: WO 2013/031884 A1 (SEKISUI CHEMICAL CO., LTD.) 07 March 2013, paragraphs [0013], [0056], [0131]-[0132], [0136]-[0137], table 2 & US 2014/0227489 A1, paragraphs [0015], [0064], [0143]-[0144], [0148]-[0149], table 2 & EP 2752396 A1 & CN 103781741 A

Document 2: WO 2016/052672 A1 (SEKISUI CHEMICAL CO., LTD.) 07 April 2016, paragraphs [0101]-[0103], [0109], table 1 (Family: none)

Document 3: WO 2012/050078 A1 (FUJIFILM CORPORATION) 19 April 2012, paragraph [0015] & JP 2012-101999 A

Document 4: JP 62-37148 A (NIPPON SHEET GLASS CO., LTD.) 18 February 1987, page 2, upper right column, lines 7-8 (Family: none)

The invention as in claims 1 to 6 is novel and involves an inventive step.

Regarding the invention as in claims 1 to 6, none of the documents cited in the ISR discloses an interlayer in

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2017/018901

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which skin layers with a glass transition point of equal to or greater than 15°C are alternately laminated with core layers with a glass transition point of less than 15°C, said interlayer having three or more of the core layers and containing 0.3 mg/mm² or more of a plasticizer per unit area of a principal surface of the interlayer measured in a region (referred to as region X hereinbelow) from 5mm to 6mm inwards from the edge of the interlayer, and this feature would not be obvious to a person skilled in the art.

Paragraphs [0013], [0056], [0131] and [0132], [0136] and [0137], and table 2 of document 1 cited in the ISR disclose a laminated glass that uses an interlayer in which skin layers and core layers are alternately laminated, said interlayer having five core layers.

Also, if paragraphs [0101] to [0103], [0109] and table 1 of document 2 are taken into consideration, the glass transition point of the core layers of document 1 is considered to be 0°C, and the glass transition point of the skin layers of document 1 is considered to be around 30°C.

However, document 1 neither indicates nor suggests that the amount of plasticizer per unit area of the principal surface of the interlayer measured at region X is 0.3 mg/mm² or more. Furthermore, if the thickness of the interlayer in example 3 of the description of the present application is taken into consideration, there is a high probability that the content by percentage of the plasticizer in region X of the laminated glass disclosed in document 1 falls outside the numerical range of the present invention.

Documents 3 and 4 cited in the ISR describe the

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2017/018901

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**

general state of the art related to interlayers for use
in laminated glass.