

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)	12.08.2013
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Applicant's or agent's file reference 13PCT-0001
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FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/KR2013/003543	International filing date (day/month/year) 25.04.2013	Priority date (day/month/year) 26.04.2012
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International Patent Classification (IPC) or both national classification and IPC G02B 5/128 (2006.01) i
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Applicant KIM, Tae Il

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/KR	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2013/003543

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 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 filed or furnished:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purposes of search
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 in 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/KR2013/003543
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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
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1. Statement									
Novelty (N)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">1-10</td> <td style="width: 10%; padding: 2px;">YES</td> </tr> <tr> <td style="padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">None</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	1-10	YES	Claims	None	NO	
Claims	1-10	YES							
Claims	None	NO							
Inventive step (IS)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">None</td> <td style="width: 10%; padding: 2px;">YES</td> </tr> <tr> <td style="padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">1-10</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	None	YES	Claims	1-10	NO	
Claims	None	YES							
Claims	1-10	NO							
Industrial applicability (IA)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">1-10</td> <td style="width: 10%; padding: 2px;">YES</td> </tr> <tr> <td style="padding: 2px;">Claims</td> <td style="border-bottom: 1px solid black; padding: 2px;">None</td> <td style="padding: 2px;">NO</td> </tr> </table>	Claims	1-10	YES	Claims	None	NO	
Claims	1-10	YES							
Claims	None	NO							

2. Citations and explanations:	
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Reference is made to the following documents:

D1: JP 2005-208083 A (UNITIKA SPARKLITE KK) 04 August 2005

D2: KR 10-2011-0120012 A (INDUSTRY-ACADEMIC COOPERATION FOUNDATION GYEONGSANG NATIONAL UNIVERSITY et al.) 03 November 2011

D3: JP 2005-274983 A (UNITIKA SPARKLITE KK) 06 October 2005

D4: JP 11-305020 A (OGI, Hisao) 05 November 1999

2. Novelty and Inventive Step

2.1. Claims 1-10

Document D1 (figure 7), which is the most relevant prior art to the invention as in claim 1, comprises: a support sheet and a thermoplastic resin layer stacked on the support sheet; a minute sphere layer mounted on the thermoplastic resin layer in a buried form; and a transparent colored resin layer stacked on a primer layer formed on a minute sphere, wherein the primer layer and the transparent colored resin layer form an uneven structure so as to correspond to a protruding structure

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2013/003543

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

of the minute sphere. However, claim 1 differs from document D1 with respect to the feature of forming a transparent protective layer on a printing layer, but with respect to said difference, document D2 (figure 2c) discloses the feature of forming a protective layer to improve the durability by protecting a bead layer. Therefore, it would be obvious to a person skilled in the art to combine the invention disclosed in document D1 and the feature disclosed in document D2, and thus the invention as in claim 1 lacks an inventive step under PCT Article 33(3).

With respect to the additional features in claims 2 and 3 wherein at least one selected from among the thicknesses of an ink fixing layer, the printing layer and the transparent protective layer is less than 1/2 the height of a reflective bead and the ink fixing layer has the thickness of 0.1 to 300 μm , document D1 (paragraphs [0017]-[0019]) discloses the features wherein a sum of the thicknesses of the transparent resin layer and the primer layer is 10-30% of the diameter of the minute sphere and a buried ratio of the minute sphere into the thermoplastic resin layer is 40-60%.

Therefore, the invention as in claims 2 and 3 lacks an inventive step under PCT Article 33(3).

The invention as in claims 4 and 5 specifically delimits, as the additional features thereof, a primer, which is comprised in the ink fixing layer, and a base resin, but with respect to said additional features, document D1 (paragraph [0018]) discloses the features wherein a resin in the same group as the colored resin layer, a coupling

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2013/003543

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agent and the like can be used for the primer layer and urethane-, ester-, and ethylene vinyl acetate-group resins are used for the transparent colored resin layer. Therefore, the invention as in claims 4 and 5 lacks an inventive step under PCT Article 33(3).

The additional features of the invention as in claims 6 and 7, wherein the transparent protective layer comprises a transparent resin and a waterproof agent, differ from document D1, but said difference corresponds to the feature in document D2 (paragraph [0044]) wherein a transparent resin such as poly vinyl chloride, polyurethane, polyethylene or the like is used for a protective layer, and the feature of comprising a waterproof agent is merely the simple design change matter which could be added by a person skilled in the art in accordance with circumstances.

Therefore, the invention as in claims 6 and 7 lacks an inventive step under PCT Article 33(3).

The additional feature of the invention as in claim 8 of further comprising a delamination member on the transparent protective layer differs from documents D1 and D2, but with respect to said difference, document D3 (paragraph [0024]) discloses the feature wherein a colored retroflective medium intermediate body or an adherend (7) is adhered by a thermal transfer adherent layer (6), and it would be obvious to a person skilled in the art to combine the invention disclosed in document D1 and the features disclosed in documents D2 and D3.

Therefore, the invention as in claim 8 lacks an inventive step under PCT Article 33(3).

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INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2013/003543

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The invention as in claim 9 delimits, as the additional feature thereof, a method for forming a printing layer, but with respect to said additional feature, document D2 discloses the feature wherein a printing layer is formed by gravure printing, flexo printing, offset printing or screen printing.

Therefore, the invention as in claim 9 lacks an inventive step under PCT Article 33(3).

The invention as in claim 10 delimits the additional feature wherein a reflective film comprises a support layer and a buried reflective bead, the support layer comprising a white pigment or pearl, but with respect to said additional feature, document D1 (paragraph [0004]) discloses the feature wherein a retroreflective sheet comprises a titan pigment and a pearlescent pigment. Therefore, the invention as in claim 10 lacks an inventive step under PCT Article 33(3).

3. Industrial Applicability

The invention as in claims 1-10 is industrially applicable under PCT Article 33(4).