

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

| |
|--|
| To: BORDEN LADNER GERVAIS LLP World Exchange Plaza 100 Queen Street, Suite 1300 OTTAWA, Ontario Canada, K1P 1J9 |
|--|

| | |
|--|--------------------------------|
| Date of mailing <i>(day/month/year)</i> | 10 September 2018 (10-09-2018) |
|--|--------------------------------|

| |
|---|
| Applicant's or agent's file reference PAT91583W90 |
|---|

| |
|--|
| FOR FURTHER ACTION See paragraph 2 below |
|--|

| | | |
|---|--|--|
| International application No. PCT/CA2018/050806 | International filing date <i>(day/month/year)</i> 29 June 2018 (29-06-2018) | Priority date <i>(day/month/year)</i> 29 June 2017 (29-06-2017) |
|---|--|--|

| |
|--|
| International Patent Classification (IPC) or both national classification and IPC IPC: C09J 201/00 (2006.01), B27N 1/02 (2006.01), B27N 3/02 (2006.01), C09J 103/02 (2006.01), C09J 11/06 (2006.01), C09J 189/00 (2006.01) |
|--|

| |
|--------------------------------|
| Applicant ECOSYNTHETIX INC. |
|--------------------------------|

| |
|--|
| <p>1. This opinion contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Rule 43<i>bis</i>.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application <p>2. FURTHER ACTION</p> <p>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 66.1<i>bis</i>(b) that written opinions of this International Searching Authority will not be so considered.</p> <p>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.</p> <p>For further options, see Form PCT/ISA/220.</p> |
|--|

| | | |
|---|--|---|
| Name and mailing address of the ISA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476 | Date of completion of this opinion 06 September 2018 (06-09-2018) | Authorized officer Orysia Zaporozan (819) 639-9424 |
|---|--|---|

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:

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*.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 13*ter*.1(a)).
- on paper or in the form of an image file (Rule 13*ter*.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 in 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) | Claims | 1-15 | YES |
| | Claims | none | NO |
| Inventive step (IS) | Claims | 1-15 | YES |
| | Claims | none | NO |
| Industrial applicability (IA) | Claims | 1-15 | YES |
| | Claims | none | NO |

2. Citations and explanations:

Reference is made to the following documents:

D1 WO 2016/101063 A1 (SALEHPOUR et al.) 30 June 2016 (30-06-2016),

D2 WO 2003/035740 A1 (CAPPS) 1 May 2003 (01-05-2003),

Novelty

Claims 1-15 are novel and therefore comply with PCT Article 33(2). Document D1 and D2 are considered to represent the closest prior art. Document D1 discloses a resin comprising water, an isocyanate and a biopolymer. The resin can also include a plasticizer which can be glycerol. Document D2 discloses a resin comprising an isocyanate, a polysaccharide such as corn syrup, a polyol such as glycerol, diethylene glycol or triethylene glycol, and water. However, none of the cited documents discloses the ratio of monomer/oligomer to biopolymer as defined in claim 1 and 11 or the total weight of the components of the composite material as defined in claim 15. Claims 1-15 are therefore novel.

Inventive Step

Claims 1-15 involve an inventive step and therefore comply with PCT Article 33(3). The feature of "wherein a ratio of the one or more monomers or oligomers to the one or more biopolymers is in the range of about 30:70 to about 80:20 by weight" and wherein the total weight of the components are in the amount of between 2% and 11% of weight of the wood on a dry basis would not have been obvious to a person skilled in the art from the cited documents, when taken individually or in any combination. Claims 1-15 therefore involve an inventive step.

Industrial Applicability

The subject matter of claims 1-15 is considered to be industrially applicable and thus complies with the requirements of PCT Article 33(4).

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:

Claims 1-14 do not comply with PCT Article 6. These claims describe a range which is out of the operative range disclosed in the description on page 25. The claims define that the amount of the one or more monomers or oligomers in the composition can be up to 80%. However, at paragraph [0093], it is disclosed that tack was measured and maintained for compositions with up to 75% monomer/oligomer. It is further disclosed that the data in Figure 1 "suggests that the target tack is likely maintained with up to at least 80% monomer/oligomer". Although it is suggested that the amount of monomer/oligomer could be extrapolated to be 80% or more, this appears to be speculative and therefore the instant claimed range is out of the operative range disclosed in paragraph [0093].

Claim 15 does not comply with PCT Article 6. This claim is not fully supported by the description. Specifically, the feature "collectively having a total weight between 2% and 11 % of the weight of the wood on a dry basis" is not present in the description.