

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference P1618PC00	FOR FURTHER ACTION		See item 4 below
International application No. PCT/CA2019/051739	International filing date (<i>day/month/year</i>) 03 December 2019 (03.12.2019)	Priority date (<i>day/month/year</i>) 03 December 2018 (03.12.2018)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant CARBONET NANOTECHNOLOGIES INC.			

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> . I(a).																								
2.	This REPORT consists of a total of 7 sheets, including this cover sheet.																								
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																									
3.	This report contains indications relating to the following items: <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;">☒</td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	☒	Box No. I	Basis of the report	☒	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 Article 35(2) 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
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44 <i>bis</i> .3(c) and 93 <i>bis</i> .1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44 <i>bis</i> .2).																								

	Date of issuance of this report 08 June 2021 (08.06.2021)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Athina Nickitas-Etienne e-mail pct.team4@wipo.int

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

To:
C6 PATENT GROUP INCORPORATED, OPERATING AS
THE "CARBON PATENT GROUP"
64 HOLLAND ST W, SUITE 1
P.O. BOX 173
BRADFORD, Ontario
Canada, L3Z 2A8

Date of mailing 27 February 2020 (27-02-2020)
(day/month/year)

Applicant's or agent's file reference
P1618PC00

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/CA2019/051739

International filing date (day/month/year)

03 December 2019 (03-12-2019)

Priority date (day/month/year)

03 December 2018 (03-12-2018)

International Patent Classification (IPC) or both national classification and IPC

IPC: **C02F 1/52** (2006.01), **B01J 20/22** (2006.01), **C02F 1/00** (2006.01), **C02F 1/26** (2006.01), **C02F 1/28** (2006.01)

Applicant

CARBONET NANOTECHONOLOGIES INC.

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 43*bis*.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 66.1*bis*(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/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

21 February 2020 (21-02-2020)

Authorized officer

Amy Westgate (819) 639-8587

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(b))

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:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/CA2019/051739

Box No. II

Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

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	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;">Novelty (N)</td> <td style="width: 40%; vertical-align: top;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Claims</td> <td style="width: 20%;">None</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td>1-97</td> <td></td> <td></td> <td style="text-align: right;">NO</td> </tr> </table> </td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td style="vertical-align: top;">Inventive step (IS)</td> <td style="vertical-align: top;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Claims</td> <td style="width: 20%;">None</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td>1-97</td> <td></td> <td></td> <td style="text-align: right;">NO</td> </tr> </table> </td> <td></td> <td></td> </tr> <tr> <td style="vertical-align: top;">Industrial applicability (IA)</td> <td style="vertical-align: top;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Claims</td> <td style="width: 20%;">1-97</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td>None</td> <td></td> <td></td> <td style="text-align: right;">NO</td> </tr> </table> </td> <td></td> <td></td> </tr> </table>	Novelty (N)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Claims</td> <td style="width: 20%;">None</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td>1-97</td> <td></td> <td></td> <td style="text-align: right;">NO</td> </tr> </table>	Claims	None			YES	Claims	1-97			NO			Inventive step (IS)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Claims</td> <td style="width: 20%;">None</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td>1-97</td> <td></td> <td></td> <td style="text-align: right;">NO</td> </tr> </table>	Claims	None			YES	Claims	1-97			NO			Industrial applicability (IA)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Claims</td> <td style="width: 20%;">1-97</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td>None</td> <td></td> <td></td> <td style="text-align: right;">NO</td> </tr> </table>	Claims	1-97			YES	Claims	None			NO		
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2. Citations and explanations:	<u>Cited Document</u> D1: US5391300 (WEBB et al.) 21 February 1995 (21-02-1995) <u>Brief Description of the Cited Document</u> D1 discloses a method for the removal of halogenated organic compounds from an environment comprising contacting the contaminated medium with an aqueous surfactant solution to disperse the compound, contacting the solution containing the dispersed compound with a sorbent polymeric material for selectively sorbing the halogenated organic compounds from the surfactant solution, separating the polymeric material and sorbed organic compounds from the surfactant solution and recycling the surfactant solution into contact with the contaminated medium. <u>Novelty (Article 33(2) of the PCT)</u> The subject matter of claims 1-97 is not novel and therefore does not comply with Article 33(2) of the PCT. The subject matter of claims 1-97 does not appear to be novel as it appears to be disclosed in D1. D1 discloses removing a contaminant from an aqueous solution wherein the composition comprises a surfactant, a polymer and a precipitate. <u>Inventive Step (Article 33(3) of the PCT)</u> The subject matter of claims 1-97 does not involve an inventive step and therefore does not comply with Article 33(3) of the PCT. As the subject matter of claims 1-97 is not considered to be novel, it cannot be considered to involve an inventive step and therefore does not comply with Article 33(3) of the PCT. <u>Industrial Applicability (Article 33(4) of the PCT)</u> The subject matter of claims 1-97 has industrial applicability and therefore does comply with Article 33(4) of the PCT.																																										

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CA2019/051739

Box No. VI **Certain documents cited**

1. Certain published documents (Rules 43*bis*.1 and 70.10)

<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
WO2018218374	06 December 2018 (06-12-2018)	01 June 2018 (01-06-2018)	

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>
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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, 31 and 62 do not comply with PCT Article 6 due to a lack of clarity. A claim containing a negative expression, such as “not selected from the group consisting of...”, is objectionable in that claims should generally set forth what the alleged invention is or does, and not what it isn’t or does not do.

Claims 4-11, 25-27, 33-40, 54-56, 67-73 and 87-89 do not comply with PCT Article 6. These claims are unclear as the independent claims on which they depend previously define the surfactant group from which the surfactant is to be selected. The surfactants further defined in these claims are broader than the surfactant group previously defined.