

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

TAY, Wee Chao

c/o Author IP, No. 2-3, Jalan Haji Jaib, Taman Arosa Muar,
Johor, 84000 Malaysia**PCT****NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION****(PCT Rule 44.1)**Date of mailing
(day/month/year) 15 July 2020 (15.07.2020)Applicant's or agent's file reference
PT-20-80115-PCT**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.

PCT/MY2020/050012

International filing date

(day/month/year) **08 March 2020 (08.03.2020)**

Applicant

HOE, Hui Huang et al.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.**How?** Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70**For more detailed instructions,** see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 - 9-011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90bis.1 and 90bis.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **22 months** from the priority date, the applicant may request that a supplementary international search be carried out by a different International Searching Authority, that offers this service (Rule 45bis.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/KR

International Application Division
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea

Facsimile No. 82-42-481-8578

Authorized officer

COMMISSIONER

Telephone No. 82-42-481-5571



* Attention

Copies of the documents cited in the international search report can be searched in the following Korean Intellectual Property Office English website for six months(expire date : **2021.01.15**) from the date of mailing of the international search report.

<http://www.kipo.go.kr/en/> => PCT ISA Portal => PCT Status

ID : PCT international application number

PW : **YY2WWFEH@**

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: TAY, Wee Chao c/o Author IP, No. 2-3, Jalan Haji Jaib, Taman Arosa Muar, Johor, 84000 Malaysia		Date of mailing (day/month/year) 15 July 2020 (15.07.2020)	
Applicant's or agent's file reference PT-20-80115-PCT		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/MY2020/050012	International filing date (day/month/year) 08 March 2020 (08.03.2020)	Priority date(day/month/year) 08 March 2019 (08.03.2019)	
International Patent Classification (IPC) or both national classification and IPC C08F 2/58(2006.01)i, C08F 2/01(2006.01)i, C08G 85/00(2006.01)i, C25B 3/00(2006.01)i			
Applicant HOE, Hui Huang et al.			

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input checked="" 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 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | 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, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Date of completion of this opinion 14 July 2020 (14.07.2020)	Authorized officer KWON, YONGKYONG Telephone No. +82-42-481-3371
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/MY2020/050012

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*.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 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/MY2020/050012

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application
☒ claims Nos. (See Supplemental Box.)

because:

- ☐ the said international application, or the said claims Nos. _____
relate to the following subject matter which does not require an international search (*specify*):

- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. (See Supplemental Box.)
are so unclear that no meaningful opinion could be formed (*specify*):
See Supplemental Box.

- ☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed (*specify*):

- ☒ no international search report has been established for said claims Nos. (See Supplemental Box.)

- ☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

- ☐ furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.
- ☐ furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.
- ☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13ter.1(a) or (b).

- ☒ See Supplemental Box for further details.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/MY2020/050012

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	(See below.)	YES
	Claims	(See below.)	NO
Inventive step (IS)	Claims	(See below.)	YES
	Claims	(See below.)	NO
Industrial applicability (IA)	Claims	(See below.)	YES
	Claims	(See below.)	NO

2. Citations and explanations :

1. Statement

Novelty (N)	Claims	<u>1-3, 14-16, 18-23, 30-38, 44-51, 80, 86, 88, 89, 95, 96, 101, 109, 122, 123, 127-131, 133, 134, 137, 138, 142, 143, 146, 152, 159-162</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>1-3, 14-16, 18-23, 30-38, 44-51, 80, 86, 88, 89, 95, 96, 101, 109, 122, 123, 127-131, 133, 134, 137, 138, 142, 143, 146, 152, 159-162</u>	YES
	Claims	<u>None</u>	NO
Industrial applicability (IA)	Claims	<u>1-3, 14-16, 18-23, 30-38, 44-51, 80, 86, 88, 89, 95, 96, 101, 109, 122, 123, 127-131, 133, 134, 137, 138, 142, 143, 146, 152, 159-162</u>	YES
	Claims	<u>None</u>	NO

Reference is made to the following documents:

D1: HOE, HUI HUANG et al. "Electrosynthesis of glycerol carbonate from glycerol and potassium carbonate on nickel electrodes", ECS Transactions, 07 July 2017 (Publication date), Vol. 77, No. 11, pages 1393-1408

D2: US 2005-0173242 A1 (ELGRESSY, GABI) 11 August 2005

D3: WO 2005-033378 A1 (COMMISSARIAT A L'ENERGIE ATOMIQUE) 14 April 2005

D4: KR 10-2005-0071554 A (GEN3 PARTNERS, INC.) 07 July 2005

D5: JP 2006-101876 A (GREEN KANKYO TECHNOLOGY:KK) 20 April 2006

D6: US 5792328 A (GIVON, MENACHEM) 11 August 1998

I . Novelty and Inventive Step (PCT Article 33(2) and (3))

The subject matter of claim 1 differ from that of these prior art documents D1-D6 in that an electrode moves in such a manner that its position remains, and the size of the surface area of a first portion that is immersed in an electrolyte solution and a second portion that is not immersed in the electrolyte solution remains while the surface area of the electrode is deposited

Continued on Supplemental Box

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/MY2020/050012

Box No. VII Certain defects in the international application

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

Claims 4-6, 24, 25, 27, 39 and 163 do not comply with PCT Rule 6.4(a) because multiple dependent claims shall not serve as a basis for any other multiple dependent claim.

Claims 78, 81, 82, 87, 97, 102, 103, 105, 120, 124-126, 132, 135, 139, 153-156, 158 and 168 do not comply with PCT Rule 6.4(a) because the multiple dependent claims do not refer to other claims in the alternative.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/MY2020/050012

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:

Claim 97 is referring to itself. Therefore, claim 97 does not comply with PCT Article 6.

Claim 163 relates to a "system", but claims 198-209, 212-215, 219, 220, 227 and 228 directly or indirectly dependent on claim 163 relate to a "method". As claims 198-209, 212-215, 219, 220, 227 and 228 do not clearly define the matter for which protection is sought, these claims do not comply with PCT Article 6.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/MY2020/050012

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of :Box No. III

☒ claims Nos. 4-13, 17, 24-29, 39-43, 52-79, 81-85, 87, 90-94, 97-100, 102-108, 110-121, 124-126, 132, 135, 136, 139-141, 144, 145, 147-151, 153-158, 163-228

because:

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 7-13, 17, 26, 28, 29, 40-43, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 164-228 are so unclear that no meaningful opinion could be formed (*specify*):

Regarding claims 17, 28, 29, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 188-197, 210, 211, 216-218 and 221-226, see Form ISA/224 mailed on 22 June 2020. PCT Article 6 states that the claims shall be clear and concise. Claims 17, 28, 29, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 188-197, 210, 211, 216-218 and 221-226 do not meet this requirement, even assuming for the sake of argument that the individual claims are clear and concise in themselves, because the lack of clarity of the claims as a whole arises from the lack of conciseness. No international search report will be established for claims 17, 28, 29, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 188-197, 210, 211, 216-218 and 221-226.

As claims 7-13, 26, 40-43, 164-187, 198-209, 212-215, 219, 220, 227 and 228 directly or indirectly refer to unsearchable claims which do not comply with PCT Rule 6.4(a), claims 7-13, 26, 40-43, 164-187, 198-209, 212-215, 219, 220, 227 and 228 are unclear (PCT Article 6).

(Note: Claims 227 and 228 are assumed to be dependent on claim 219 since no international search report will be established for claim 222.)

☒ no international search report has been established for said claims Nos. 4-13, 17, 24-29, 39-43, 52-79, 81-85, 87, 90-94, 97-100, 102-108, 110-121, 124-126, 132, 135, 136, 139-141, 144, 145, 147-151, 153-158, 163-228

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of : Box No. V

with products formed from an electrochemical reaction and a reactor comprises a removal device disposed in contact with the electrode for removing the deposited products from the electrode. And it is not obvious to a person skilled in the art over the documents D1-D6, when taken individually or in any combination. Therefore, claim 1 is novel and involves an inventive step.

Claims 2, 3, 14-16, 18-23 and 30-38 are directly or indirectly dependent on claim 1. Therefore, claims 2, 3, 14-16, 18-23 and 30-38 are novel and involve an inventive step.

The subject matter of claim 44 differ from that of these prior art documents D1-D6 in that a process for an electrochemical reaction for producing polymers comprises: establishing a voltage differential between a reaction electrode and a counter electrode; mixing at least one reactant in an electrolyte solution; polymerizing the reactant, the resulting polymer depositing on the reaction electrode; and removing the deposited products from the reaction electrode. And it is not obvious to a person skilled in the art over the documents D1-D6, when taken individually or in any combination. Therefore, claim 44 is novel and involves an inventive step.

Claims 45-51, 80, 86, 88, 89, 95, 96, 101, 109, 122, 123, 127-131, 133, 134, 137, 138, 142, 143, 146, 152 and 159-162 are directly or indirectly dependent on claim 44. Therefore, claims 45-51, 80, 86, 88, 89, 95, 96, 101, 109, 122, 123, 127-131, 133, 134, 137, 138, 142, 143, 146, 152 and 159-162 are novel and involve an inventive step.

II. Industrial Applicability (PCT Article 33(4))

Claims 1-3, 14-16, 18-23, 30-38, 44-51, 80, 86, 88, 89, 95, 96, 101, 109, 122, 123, 127-131, 133, 134, 137, 138, 142, 143, 146, 152 and 159-162 are industrially applicable.

[Note]

- The phrase "a electrochemical reaction" of claim 1 is an error for "an electrochemical reaction".
- It is recommended that the expression "the electrolyte and" in claim 1 be replaced with "the electrolyte solution and".
- The phrase "the tank" of claim 1 is considered to be an error for "the vessel" since the phrase has not been previously defined, and the phrase "the vessel/tank" of claims 30 and 37

Continued on The Next Page

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/MY2020/050012

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of : Previous Page

is considered to be an error for "the vessel".

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PT-20-80115-PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/MY2020/050012	International filing date (<i>day/month/year</i>) 08 March 2020 (08.03.2020)	(Earliest) Priority Date (<i>day/month/year</i>) 08 March 2019 (08.03.2019)
Applicant HOE, Hui Huang et al.		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out 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))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. 7

☐ as suggested by the applicant.

☒ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/MY2020/050012

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: (See extra page.)
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
(See extra page.)

3. ☒ Claims Nos.: (See extra page.)
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of any additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/MY2020/050012**A. CLASSIFICATION OF SUBJECT MATTER****C08F 2/58(2006.01)i, C08F 2/01(2006.01)i, C08G 85/00(2006.01)i, C25B 3/00(2006.01)i**

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C08F 2/58; C12M 1/00; C12P 7/62; C25D 017/00; C25D 13/08; C25D 17/00; H01M 4/04; C08F 2/01; C08G 85/00; C25B 3/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: electrochemical reaction, deposited product, polymerization, electrolyte solution, electrode, removal device, movement

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HOE, HUI HUANG et al., "Electrosynthesis of glycerol carbonate from glycerol and potassium carbonate on nickel electrodes", ECS Transactions, 07 July 2017 (Publication date), Vol. 77, No. 11, pages 1393-1408 See pages 1393-1397, 1406; and figure 4.	1-3, 14-16, 18-23 , 30-38, 44-51, 80, 86 , 88, 89, 95, 96, 101 , 109, 122, 123 , 127-131, 133, 134 , 137, 138, 142, 143 , 146, 152, 159-162
A	US 2005-0173242 A1 (ELGRESSY, GABI) 11 August 2005 See paragraphs [0032]-[0049]; and figure 1.	1-3, 14-16, 18-23 , 30-38, 44-51, 80, 86 , 88, 89, 95, 96, 101 , 109, 122, 123 , 127-131, 133, 134 , 137, 138, 142, 143 , 146, 152, 159-162



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

14 July 2020 (14.07.2020)

Date of mailing of the international search report

15 July 2020 (15.07.2020)

Name and mailing address of the ISA/KR

International Application Division

Korean Intellectual Property Office

189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea



Facsimile No. +82-42-481-8578

Authorized officer

KWON, YONGKYONG

Telephone No. +82-42-481-3371



INTERNATIONAL SEARCH REPORT

International application No.

PCT/MY2020/050012

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2005-033378 A1 (COMMISSARIAT A L'ENERGIE ATOMIQUE) 14 April 2005 See pages 15, 16; claims 1-13; and figure 1.	1-3, 14-16, 18-23 , 30-38, 44-51, 80, 86 , 88, 89, 95, 96, 101 , 109, 122, 123 , 127-131, 133, 134 , 137, 138, 142, 143 , 146, 152, 159-162
A	KR 10-2005-0071554 A (GEN3 PARTNERS, INC.) 07 July 2005 See paragraphs [0010]-[0053]; and figure 1.	1-3, 14-16, 18-23 , 30-38, 44-51, 80, 86 , 88, 89, 95, 96, 101 , 109, 122, 123 , 127-131, 133, 134 , 137, 138, 142, 143 , 146, 152, 159-162
A	JP 2006-101876 A (GREEN KANKYO TECHNOLOGY:KK) 20 April 2006 See paragraphs [0033]-[0076]; and figures 1-4.	1-3, 14-16, 18-23 , 30-38, 44-51, 80, 86 , 88, 89, 95, 96, 101 , 109, 122, 123 , 127-131, 133, 134 , 137, 138, 142, 143 , 146, 152, 159-162
A	US 5792328 A (GIVON, MENACHEM) 11 August 1998 See columns 6-9; and figures 1-6.	1-3, 14-16, 18-23 , 30-38, 44-51, 80, 86 , 88, 89, 95, 96, 101 , 109, 122, 123 , 127-131, 133, 134 , 137, 138, 142, 143 , 146, 152, 159-162

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Information on patent family members

International application No.

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Continuation of: Box No. II

2. ☒ Claims Nos.: 7-13, 17, 26, 28, 29, 40-43, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 164-228

because they relate to parts of the national application that do not comply with the prescribed requirements to such an extent that no meaningful international-type search can be carried out, specifically:

Regarding claims 17, 28, 29, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 188-197, 210, 211, 216-218 and 221-226, see Form ISA/224 mailed on 22 June 2020. PCT Article 6 states that the claims shall be clear and concise. Claims 17, 28, 29, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 188-197, 210, 211, 216-218 and 221-226 do not meet this requirement, even assuming for the sake of argument that the individual claims are clear and concise in themselves, because the lack of clarity of the claims as a whole arises from the lack of conciseness. No international search report will be established for claims 17, 28, 29, 52-77, 79, 83-85, 90-94, 98-100, 104, 106-108, 110-119, 121, 136, 140, 141, 144, 145, 147-151, 157, 188-197, 210, 211, 216-218 and 221-226.

As claims 7-13, 26, 40-43, 164-187, 198-209, 212-215, 219, 220, 227 and 228 each refer to unsearchable claims which do not comply with PCT Rule 6.4(a), claims 7-13, 26, 40-43, 164-187, 198-209, 212-215, 219, 220, 227 and 228 are unclear (PCT Article 6).

(Note: claims 227 and 228 are assumed to be dependent on claim 219 since no international search report will be established for claim 222.)

3. ☒ Claims Nos.: 4-6, 24, 25, 27, 39, 78, 81, 82, 87, 97, 102, 103, 105, 120, 124-126, 132, 135, 139, 153-156, 158, 163, 168

because they dependent claims are not drafted in accordance with second and third sentences of Rule 6.4(a)