

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2018/056609

International filing date (day/month/year)
29.08.2018

Priority date (day/month/year)
29.08.2017

International Patent Classification (IPC) or both national classification and IPC
INV. B01D21/00 B01D35/027 B01D39/00

Applicant
HYDROBLOX LIMITED

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 and 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 usually 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:

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Date of completion of this opinion

see form
PCT/ISA/210

Authorized Officer

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Box No. I Basis of the 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:

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. 9, 10, 14, 15, 17, 19, 20

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. are so unclear that no meaningful opinion could be formed (*specify*):
- 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 the whole application or for said claims Nos. 9, 10, 14, 15, 17, 19, 20
- 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

Box No. IV Lack of unity of invention

1. In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- paid additional fees
 - paid additional fees under protest and, where applicable, the protest fee
 - paid additional fees under protest but the applicable protest fee was not paid
 - not paid additional fees
2. This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- complied with
 - not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- all parts.
 - the parts relating to claims Nos. 1-8, 11-13, 16, 18, 21, 22

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) | Yes: Claims | |
| | No: Claims | <u>1-8, 11-13, 16, 18, 21, 22</u> |
| Inventive step (IS) | Yes: Claims | |
| | No: Claims | <u>1-8, 11-13, 16, 18, 21, 22</u> |
| Industrial applicability (IA) | Yes: Claims | <u>1-8, 11-13, 16, 18, 21, 22</u> |
| | No: Claims | |

2. Citations and explanations

see separate sheet

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:

see separate sheet

Item IV

1 NON-UNITY

This Authority considers that the application does not meet the requirements of unity of invention and that there are 6 inventions covered by the claims as follows.

Group I: claim 1 (as far as related) and dependent claims 2-8, 11-13, 16, 18, 21 and 22 are directed to a method for retaining solids in a tank system by means of a permeable copolymer nodule sheet; it serves the purpose of retaining solids in a tank system and solves the problem of filtering a liquid;

Group II: claim 1 (as far as related) and dependent claims 9 and 15 are directed to portable tank systems comprising a permeable copolymer nodule sheet; it serves the purpose facilitating transportation of the tank system of operational readiness;

Group III: claim 1 (as far as related) and dependent claim 10 are directed to tank systems further comprising a non-leaching absorbent material; it serves the purpose of absorbing heavy metals/hydrocarbons/bacteria/pathogens from the solid suspension and solves the problem of further treating the solids for eliminating heavy metals/hydrocarbons/bacteria/pathogens;

Group IV: claim 1 (as far as related) and dependent claim 14 are directed to tank systems further comprising vibration means; it serves the purpose of shaking the partition for solid recovery and solves the problem of cleaning the permeable copolymer nodule sheet;

Group V: claim 1 (as far as related) and dependent claim 17 are directed to tank systems further comprising a method for sealing a permeable copolymer nodule sheet to the tank; it serves the purpose of sealedly placing the permeable copolymer nodule sheet in the tank and solves the problem of flow by-pass; and

Group VI: claim 1 (as far as related) and dependent claims 19 and 20 and directed to tank systems further comprising a method for fabricating a copolymer plastic nodule sheet; it serves the purpose of obtaining a sheet from a copolymer and serves the purpose of obtaining a permeable sheet.

The reasons, for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, is that the common matter linking together the dependent claims is already known from D1 as follows:

D1 describes a permeable copolymer nodule sheet §[0076] as a partition for retaining solids in a tank system §[0028] wherein any of its sides makes contact with the surface of the tank system (figs. 1-3).

Also, examining the possible correspondence by objective problem, one finds that the objective of each of the mentioned claim-groups I to VI are different. Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept as required by Rule 13.1 PCT.

Item VIII

2 CLARITY (Art. 6 PCT) (for all claims)

- 2.1 The term *permeable copolymer nodule sheet* is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claim unclear, Article 6 PCT. For the sake of efficiency, this term has been interpreted as any permeable sheet comprising copolymer nodules.
- 2.2 The formulation *sealedly attaching* of claim 1 attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.
- 2.3 The subject-claim 2 refers to "components of a partition" and it is not clear, whether the partition referred to in claim 2 is the same as the partition referred to in claim 1. Same problem applies to claim 5. A clarification is required.
- 2.4 Claim 6 is not supported by the description as required by Article 6 PCT, as its scope is broader than justified by the description and drawings. Claim 6 enumerates more than 25 different elements and their combination. They are very divergent in their function and do not seem to solve the same problem. Some of them are vague (mechanical parts, power source) and/or their functional/structural relationship with the key elements of claim 1 (tank and permeable copolymer nodule sheet) is not provided in the description.
- 2.5 Claim 17 concerns 20 different way for sealedly attaching a permeable copolymer nodule sheet and their combination without providing how two (or more) different methods can be combined. Same reasoning applies mutatis

mutandis to the subject-matter of claim 19. Therefore, claims 17 and 19 are not supported by the description as required by Article 6 PCT, as their scope is broader than justified by the description and drawings.

- 2.6 Claim 18 contains a reference to the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.
- 2.7 Claim 22 makes reference to a single polymer nodule sheet and it is not clear whether single qualifies the polymer or the sheet. A clarification is required.

Item V

Reference is made to the following documents:

- D1 US 2017/233275 A1 (SEGROVES THOMAS KYLE [US] ET AL) 17 August 2017 (2017-08-17)
- D2 WO 2004/076023 A1 (MADISON FILTER 981 LTD [GB]; ALLEN RICHARD FRAZER [GB]; JOHNSON JOSEPH) 10 September 2004 (2004-09-10)

3 NOVELTY (Art. 33(2) PCT)(for Group I)

- 3.1 The document D1 discloses a method of retaining solids in a tank system (claim 21) comprising the steps of: a) using a filter media trap comprising polyacrylamide co-polymer powder (powder = nodules) as a partition for retaining solids from a suspension of the solids in a liquid; b) and attaching said permeable sheet where any of its sides make contact with the surface of said tank system (fig 4 and 5); wherein two or more permeable sheets are used and its thickness is not less than 15 mm (§[0076]); wherein the tank system comprises multiple tanks one of them used as a a suspension receiving container (figs. 1-3). Further elements like baffles (claim 1), pumps (§[0018]), drainage pipe systems [180] are already known from D1.

The subject-matter of claims 1-8, 11-13, 16, 18 is not new in view of D1.

- 3.2 The document D2 discloses a method of retaining solids in a tank system (figs 1-6) comprising the steps of: a) using a permeable copolymer nodule sheet (fig. 6) as a partition (references [16] and [17] in fig. 1) for retaining

solids from a suspension of the solids in a liquid; b) sealedly attaching said permeable copolymer nodule sheet where any of its sides make contact with the surface of said tank system (page 8 line 12 to page 9, line 2).

3.3 The subject-matter of claims 21 and 22 is not new in view of D2.

3.4 **NOVELTY (for Group I)**