

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (*day/month/year*)
24 July 2019

Applicant's or agent's file reference
PCT00827

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/IB2019/053769

International filing date (*day/month/year*)

08 May 2019

Priority date (*day/month/year*)

25 May 2018

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

A01N 57/20 (2006.01) A01N 33/02 (2006.01) A01N 25/24 (2006.01) A01N 25/02 (2006.01)

Applicant

UPL LTD

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

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|-------------------------------------|--------------|---|
| ☒ | 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 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 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

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Date of completion of this opinion

24 July 2019

Authorised Officer

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB2019/053769

Box No. I	Basis of this opinion
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- | | |
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| 1. | With regard to the language , this opinion has been established on the basis of:
<div style="margin-left: 20px;">☒ 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 (under Rules 12.3(a) and 23.1(b)).</div> |
| 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 <i>bis</i> .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:
<div style="margin-left: 20px;">a. ☐ forming part of the international application as filed:
<div style="margin-left: 40px;">☐ in the form of an Annex C/ST.25 text file.
☐ on paper or in the form of an image file.</div>
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:
<div style="margin-left: 40px;">☐ 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).</div></div> |
| 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/IB2019/053769									
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: 50%; vertical-align: top;"> Claims 10, 13-15 Claims 1-9, 11-12, 16-17 </td> <td style="width: 20%; text-align: center; vertical-align: top;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Inventive step (IS) </td> <td style="vertical-align: top;"> Claims NONE Claims 1-17 </td> <td style="text-align: center; vertical-align: top;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Industrial applicability (IA) </td> <td style="vertical-align: top;"> Claims 1-17 Claims NONE </td> <td style="text-align: center; vertical-align: top;"> YES NO </td> </tr> </table>			Novelty (N)	Claims 10, 13-15 Claims 1-9, 11-12, 16-17	YES NO	Inventive step (IS)	Claims NONE Claims 1-17	YES NO	Industrial applicability (IA)	Claims 1-17 Claims NONE	YES NO
Novelty (N)	Claims 10, 13-15 Claims 1-9, 11-12, 16-17	YES NO									
Inventive step (IS)	Claims NONE Claims 1-17	YES NO									
Industrial applicability (IA)	Claims 1-17 Claims NONE	YES NO									
2. CITATIONS AND EXPLANATIONS: <u>CITATIONS</u> D1: WO 2012/037207 A1 (DOW AGROSCIENCES LLC) 22 March 2012 D2: WO 02/32227 A1 (VICTORIAN CHEMICAL INTERNATIONAL PTY LTD) 25 April 2002 D3: US 7135437 B2 (PALLAS et al.) 14 November 2006 D4: US 5668085 A (FORBES et al.) 16 September 1997 D5: WO 2007/054540 A2 (RHODIA RECHERCHES ET TECHNOLOGIES) 18 May 2007 <u>NOVELTY (N)</u> The subject matter of claims 1-9, 11-12 and 16-17 do not meet the requirements of Article 33(2) of the PCT with regard to novelty. The present claims are directed herbicidal intermixtures, aqueous herbicidal compositions, and methods of making and using said intermixture in the control of unwanted plants. Each of the intermixtures and compositions defined by the current claims utilise either an electrolytic or phosphinic acid herbicide in combination with a multipart amine. As discussed in Box VIII of this opinion, the examiner has interpreted such a herbicide to be a derivative of glyphosate and/or glufosinate, and the multipart amine has been construed as a mixture of at least two amine components. D1 discloses a herbicide concentrate comprising tertiary amine based surfactants and glyphosate (see abstract). Example 1 discloses various surfactants such as Rhodamox®, a tertiary dimethyl alkyl amine containing C₁₂ and C₁₄ alkyl groups (considered to be a mixture of two amines consistent with the multipart amine feature of the present claims), which has been mixed with water. The surfactant solution is subsequently mixed with a glyphosate solution, which is considered to be consistent with current claim 12. It is further considered that the use of the herbicide concentrate for controlling unwanted plants in crop, non-crop and/or arid regions is implicit to the disclosure of D1. Therefore, D1 anticipates the subject matter of claims 1-4, 12 and 16-17. D2 discloses a liquid herbicide composition comprising a lipophilic herbicide such as glyphosate, one or more tertiary dimethylamines containing an alkyl group of at least 8 carbon atoms, and one or more essentially non-aqueous polar solvents (see abstract and claim 1). In particular, composition 36 discloses a herbicide composition comprising dimethylcocamine, diethanolamine, water and various organic solvents, whereby the ratio of glyphosate to multipart amine component appears to be commensurate with that of present claim 11 (see example 11). It is again also considered that the use of the herbicide concentrate for controlling unwanted plants in crop, non-crop and/or arid regions is implicit to the disclosure of D2. Therefore, D2 anticipates the subject matter of claims 1-9, 11 and 16-17. Each of D3-D5 further disclose herbicide compositions comprising glyphosate and mixtures of amines as presently claimed. In particular, it is considered that D3 anticipates the subject matter of claims 1-9, 11 and 16-17 (see field of the invention, columns 14-15, example 150, claim 1); D4 anticipates the subject matter of claims 1-4 and 16-17 (see abstract, column 4 lines 55-66, table 1); and D5 anticipates the subject matter of claims 1-9 and 16-17 (see abstract, pages 7-8, table II and claim 11). Claims 10 and 13-15 are considered novel in view of the cited prior art and interpretation of the present claims, and therefore comply with PCT Article 33(2). None of D1-D5 explicitly disclose a herbicidal composition comprising at least two tertiary											

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International Application No.

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dimethyl alkylamines as defined by claim 10, whereby at least one is present in an amount of at least 50% by weight of the amine mixture; or the combination of a multipart amine, water and an organic solvent into which the electrolytic herbicide is subsequently added.

INVENTIVE STEP (IS)

The subject matter of claims 1-9, 11-12 and 16-17 are considered to lack an inventive step for the reasons stated above.

The problem to solve is the improvement of the effectiveness of glyphosate and/or glufosinate herbicides in arid environments.

D2 can be considered as the closest prior art to claim 10, whereby the disclosure of D2 is provided *supra*.

D2 differs from claim 10 in that it does not explicitly disclose a composition comprising at least two tertiary dimethyl alkylamines, whereby at least one dimethyl alkylamine is present in at least in an amount of about 50% of the multipart amine. However, D2 clearly teaches the use of one or more tertiary dimethylamines and whilst a specific combination is not exemplified meeting this criteria, it is considered the skilled addressee would routinely optimise the amount of tertiary dimethylamines and arrive at the composition defined by claim 10 without any inventive capacity.

D1 can be considered as the closest prior art to claims 13-15, whereby the disclosure of D1 is provided *supra*.

D1 differs from the present claims in that the addition of one or more organic solvents during the preparation process is not explicitly disclosed. However, employing organic solvents in order to improve the solubility and stability of various components within herbicidal composition is well known in the art (see for example D2), and thus simply represents a matter of routine variation of the composition of D1 which would be obvious to the skilled addressee.

Therefore, the subject matter of claims 13-15 cannot be considered to involve an inventive step in view of D1.

It is further considered that remaining claims insofar as they have been deemed novel in view of any one of D1-D5, are further not inventive for substantially the same reasons discussed above, or in the alternative are simply routine variations of the disclosed compositions which would be obvious to the skilled addressee.

Therefore, the subject matter of claims 1-17 is obvious and thus does not comply with the requirements of Article 33(3) of the PCT.

INDUSTRIAL APPLICABILITY (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY Box No. VIII Certain observations on the international application	International Application No. PCT/IB2019/053769
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: The invention defined by independent claims 1, 5, 12, 16 and 17 (and relevant appended claims) do not comply with Articles 5 and 6 of the PCT. The present claims define a herbicidal intermixture or an aqueous herbicidal composition comprising a multipart amine component. As an initial point, the term 'multipart amine' does not appear to be a term known or used in the art and no definition has been provided by the specification. In addition, the applicant has failed to provide an example which clearly and unambiguously specifies what such a component could be. The only reference in the specification to the multipart amine component is that it is preferred to be at least one tertiary amine having various sized alkyl groups. Such a preferred embodiment does not clarify exactly what falls within the full scope of multipart amine, as this could give rise to a number of interpretations. For example, it could be considered that multipart amine could be construed as: • At least two different amine compounds; • At least one carbon chain of the amine compound has at least two carbon atoms (the chain is 'multipart'); • The amine is not primary ('multipart' refers to multiple carbon chains substituting the N atom); • At least two of the substituents at N are different (ie not tertiary with all substituents the same – multiple different substituents at N). Consequently, it is considered that the scope of the term 'multipart amine' is unclear and the description does not disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by the person skilled in the art. For the purposes of search and examination, the term 'multipart amine' has been interpreted as a mixture of at least two different amine compounds. It is noted that should the applicant propose to amend the present claims and/or description to resolve this objection, it is likely that an additional original search may be required, and would further appear unlikely to meet the requirements of Article 19 or 34 of the PCT. The present claims also refer to the incorporation of an electrolytic or phosphinic acid herbicide as part of the defined intermixtures / compositions, whereas the present description only utilises derivatives of glyphosate and/or glufosinate as the herbicide active. However, the broad class of electrolytic and/or phosphinic acid herbicides extends to a vast array of species which are well beyond that supported by the present description. It is not reasonable to expect that all other electrolytic and/or phosphinic acid herbicides as part of the presently claimed compositions would produce a herbicidal composition with the requisite activity against weeds in arid environments. For the purposes of search and examination, the terms electrolytic and/or phosphinic acid herbicides has been interpreted as derivatives of glyphosate and/or glufosinate only.	