

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
see form PCT/ISA/220

PCT

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

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/US2018/067903	International filing date (day/month/year) 28.12.2018	Priority date (day/month/year) 29.12.2017
International Patent Classification (IPC) or both national classification and IPC INV. A23L19/10 A21D2/18 A21D10/00 A21D13/06 A23L29/212 A21D13/043 A21D2/36 A21D13/80 ADD. C08B31/14		
Applicant CORN PRODUCTS DEVELOPMENT, 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 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 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 66.1bis(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:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Shadid, Rania Telephone No. +49 89 2399-0
--	--	--



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. 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	<u>2-8, 10-12, 15, 16, 20-23, 25, 26, 28-30, 33</u>
	No: Claims	<u>1, 9, 13, 14, 17-19, 24, 27, 31, 32, 34</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-34</u>
Industrial applicability (IA)	Yes: Claims	<u>1-34</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

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

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

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. PRIOR ART

Reference is made to the following documents:

- D1 KANNO S ET AL: "Bakery products e.g. breads, cakes, doughnuts, baked confectionery, or unfermented breads, prepared by taking starch as starting material, and adding waxy tapioca starch and/or processed waxy tapioca starch",
WPI / 2017 CLARIVATE ANALYTICS,,
vol. 2015, no. 63, 11 September 2015 (2015-09-11), XP002784396, ; &
CN 106 163 287 A (MATSUTANI KAGAKU KOGYO KK; SIAM
MODIFIED STARCH CO LTD; SIAM QUALITY S) 23 November 2016
(2016-11-23)
- D2 US 2001/055638 A1 (TAKASHIMA HIROE [JP]) 27 December 2001
(2001-12-27)

2. NOVELTY

Taking into consideration below mentioned lack of clarity, the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 9, 13, 14, 17-19, 24, 27, 31, 32 and 34 is not new in the sense of Article 33(2) PCT.

2.1 Document D1 discloses in the abstract a **bakery product** prepared by taking starch as starting material, and adding 0.5-**100 pts.** mass **waxy** tapioca starch and/or **processed "waxy tapioca starch"** with respect to 100 pts. mass starch. The processed tapioca starch is a "**pregelatinized**" tapioca starch (i.e. pregelatinized waxy cassava starch cf. § 7 of the application as filed). The bakery product has excellent soft texture and quality, and is chewy and suitable for cold-storage. The independent claims relate to a starch material mix for preparing the above-mentioned bakery product; and method for preparing the above-mentioned bakery product (claim 8). The bakery products may be **breads, cakes, doughnuts, baked confectionery, or unfermented breads**. It appears from embodiments 56-57 and 58-59 that the

amount of waxy tapioca starch or processed (gelatinized) waxy tapioca starch is ~ 3,4% or 3% of the total amount of components in the cookie mixes ($[20/588] \times 100 = 3,4\%$ and $[7/236] \times 100 = 3\%$) and that the cookie mixes comprises wheat flour.

Taking into consideration that the amounts used in example 1 (2% starch in cookies) and example 2 (2,3%) of the application as filed will result in baked goods comprising 1-10% or 1-5% pregelatinized waxy cassava starch, it can be deducted in an analogical manner that the baked cookies of D1 will also have an amount of pregelatinized waxy cassava starch within said range.

Thus, the subject-matter of claims 1, 9, 13, 14, 17-18, 24, 27, 31 and 34 does not appear to be new in view of the disclosure of D1 (Article 33(2) PCT).

2.2 Document D2 discloses in example 3 a cake premix of the composition given below was mixed by an ordinary method so as to obtain a **cake premix** for cooking by a microwave oven: 6 g tapioca starch, 5 g **pregelatinized tapioca starch** (i.e. pregelatinized waxy cassava starch, cf. § 7 of the application as filed), 18 g sugar, 3 g baking powder, 4 g powdered fat and oil, 0.2 g Table salt. According to § 7 of the application as filed waxy cassava starch is called tapioca starch i.e. D2 discloses **13,8% pregelatinized waxy cassava starch in the dry mix**. Then about 50 g of chicken egg were added to prepare a sponge cake in the microwave ($= 5/86 \times 100 = 5,8\%$ **pregelatinized waxy cassava starch in the mix**). The batter was heated for 1 minute and 40 seconds in a microwave oven having an output of 600 W.

Taking into consideration that the amounts used in example 1 (2% starch in cookies) and example 2 (2,3%) of the application as filed will result in baked goods comprising 1-10% or 1-5% pregelatinized waxy cassava starch, it can be deducted in an analogical manner that the baked cookies of D2 will also have an amount of pregelatinized waxy cassava starch within said range.

Thus, the subject-matter of claims 1, 13, 14, 17-19, 24, 31, 32 and 34 does not appear to be new in view of the disclosure of D2 (Article 33(2) PCT).

3. INVENTIVE STEP

3.1 Since claims 1, 9, 13, 14, 17-19, 24, 27, 31, 32 and 34 are not novel, their subject-matter also does not involve an inventive step in the sense of Article 33(3) PCT. Furthermore, even if the novelty objections were overcome there appears to be a problem with inventive step over D1-D2 (attention is drawn to the fact that for the "amounts of pregelatinized waxy cassava starch in the baked good" a selection can

only be regarded as inventive, if this amount leads unexpected effects or properties compared to other amounts (cf. PCT-EPO GL G-VI. 8)); it is also noted that the application does not give any explanation with regard to a superior or unexpected technical effect and does not contain any comparative examples showing an unexpected effect over prior art).

3.2 Notwithstanding the below-mentioned lack of clarity, the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 2-8, 10-12, 15-16, 20-23, 25, 26, 28-30 and 33 does not involve an inventive step in the sense of Article 33(3) PCT.

Dependent claims 2-8, 10-12, 15-16, 20-23, 25-26, 28-30 and 33 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to novelty and/or inventive step, since they are already well known in the state of the art and/or lie within the reach of the customary practice followed by persons skilled in the art (claims 2, 3, 12, 25, 33). The technical features of said claims **have not been shown to substantiate a technical effect in a non-obvious manner nor** has it been shown that a problem has been solved by the application of these features

In particular it is considered that the subject-matter of claims 4-8, 10-11 and 15-16, 20-23, 26, 28-30 (relating to the crumb firmness) is considered to lie within the reach of the customary practice followed by persons skilled in the art.

Re Item VII

Certain defects in the international application

To meet the requirements of Rule 5.1(a)(ii) PCT, at least documents **D1-D2** should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

Re Item VIII

Certain observations on the international application

4. CLARITY

The application does not meet the requirements of Article 6 PCT, because the subject-matter of claims 1, 4-8, 10-11, 13, 15-16, 20-23, 26, 23, 28-30 and 31 is not clear.

4.1 The terms "baked good comprising 1-10 or 1-5% by weight pregelatinized waxy cassava starch and a second conventional bakery ingredient" and "starch mixture comprising 0,1-10% pregelatinized waxy cassava starch and a second starch or flour" in claims 1 and 31 are vague (as it is not clear if the defined amount of 1-10% or 1-5% refers to i) the pregelatinized waxy cassava starch or to ii) the pregelatinized waxy cassava starch and the second conventional bakery ingredient / second starch or flour) 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. Taking into account claim 14 and 24 as well as the amounts of the other starchs and of pregelatinized waxy cassava starch defined in examples 1-2, claims 1 and 31 were for the time being interpreted as referring to i) when assessing novelty and inventive step.

Specific attention should be paid, when amending these claims (deletion or modification of claimed subject-matter) so as not to introduce subject-matter which extends beyond the content of the application as filed.

4.2 It is further noted that the term "starch mix comprising" in claim 31 is vague as it is unclear if the mix comprises only starches or also other bakery components e.g. flour, egg, salt, baking soda, yeast or water and if it refers to a dry premix, wet mix, batter mix or dough mix. This 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.

This feature of claim 31 has been broadly interpreted as referring to a "mix" when assessing novelty and inventive step.

4.3 The term "crumb firmness" in claims 4-8, 10-11, 15-16, 20-23, 26, 23 and 28-30 is vague and unclear (as the measurement conditions are not defined) 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 (reference is made to § 20 of the application as filed and to claim 10). It is noted that a product is not automatically rendered novel, because the parameter is not disclosed in the prior art. Thus, if a cited document does not specifically disclose the "crumb

firmness", this does not automatically mean that the product disclosed in cited documents does not fall in the scope of claimed product. It is up to the applicant to prove that there is a real difference (e.g. by comparative tests if no other means).

4.4 Although claims 1 and 31 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

Specific attention should be drawn to the final amounts of pregelatinized waxy cassava starch in the mix and the final baked product (amounts should commensurate with each other e.g. 0,1% pregelatinized waxy cassava starch in a mix will not lead to a baked product with 1% pregelatinized waxy cassava starch can not be obtained from a mix with 0,1% pregelatinized waxy cassava starch).

4.5 It is clear from the description that the amount of pregelatinized waxy cassava starch is essential to the definition of the invention. Since independent claim 13 does not contain this feature it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention (cf. claim 14).

4.6 There appears to be a contradiction between the description (examples 1-2) and the claims. According to the examples 1 and 2 pregelatinized and modified waxy cassava starches (which fall under the definition of "pregelatinized waxy cassava starches") do not lead the desired firmness after baking and storage for 10 weeks in cookies or the desired crumb firmness in bread after freeze thawing. This introduces ambiguity and does not allow to properly delimit the claim from prior art. The feature "pregelatinized waxy starch" in claims 1-34 was interpreted in its broadest sense, when assessing novelty and inventive step.