Intellectual Property Office

BL O/0263/24

27 March 2024

PATENTS ACT 1977

APPLICANT	Corn Products Development Inc
ISSUE	Whether GB2110810.5 complies with Section 1(1) of the Patents Act1977
HEARING OFFICER	Stephen Brown

DECISION

Introduction

1 Patent Application GB 2110810.5 is the national phase of a PCT application published as WO 2020/139997 claiming a priority date of 28th December 2018. It was subsequently republished as GB 2595101 on 17th November 2021.

2 Despite several rounds of correspondence, the applicant has been unable to convince the examiner that the application is allowable under Section 2 of the Act. Specifically, this is in light of documents provided under Section 21 of the Act relating to a product, Claria® Elite, that were received by the IPO on 28th July 2023.

3 The resultant hearing took place on 12th October 2023 by video. The applicant was represented by Adam Coulson and Christopher McDonald of Willson Gunn. The hearing was also attended by the applicant's European representative, Johan Elkenbracht, and the applicants' Senior Intellectual Property Counsel, Jason Grauch. I was assisted by Nigel Hanley.

4 I would like to take this opportunity to thank Mr Coulson for his skeleton arguments. I would further like to thank him for his further submissions both prior to the hearing in reference to a request from myself regarding the use of parmeters in the claim and post hearing. I am also grateful for Mr Coulson for bringing to my attention the 3rd party observations filed with the EPO on their equivalent application and I hereby confirm that this decision takes account of his submissions to me on that matter.

The Application

5 The application is concerned with a method of producing a thermally inhibited corn starch product. Furthermore, it contains claims directed to a starch product having a "Hunter L" value of between 92 and 96.

The Claims

6 The current set of claims was filed on 14th July 2023 as the 'Main Request'. These contain three independent claims, which I have reproduced below as they as they appear on file:

Claim 1

A thermally inhibited starch, said thermally inhibited starch having a "Hunter L" value of from 92 to 96

Claim 9

An edible composition comprising the thermally inhibited starch as recited in any one of claims 1-8 and a second edible ingredient.

Claim 15

A thermally inhibited starch obtainable by a process comprising the steps of:

a Obtaining a starch slurry;

c adding a buffering agent to the starch slurry and soaking for more than a few minutes to obtain a buffered starch

d adjusting the PH of the slurry to from more than 4.0 to less than 6.0 and soaking the starch slurry and if necessary continuing to adjust the pH of the slurry until the slurry's pH stabilizes from, more than 4.0 to less than 6.0 to obtain a pH adjusted starch

e dehydrating the pH adjusted starch and

f thermally inhibiting the dried starch to obtain a thermally inhibited starch.

The Issues

7 The main issue before me is whether the application is novel and inventive under Section 1(1) of the Act.

The Law

8 Section 1(1) of the Act sets out what is required of a patentable invention as follows:

> *1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say-*
>
> *(a) the invention is new;*
>
> *(b) it involves an inventive step;*
>
> *(c) it is capable of industrial application;*
>
> *(d) the grant of a patent for it is not excluded by subsections (2) and (3) of Section 4A below;*
>
> *and references in this Act to a patentable invention shall be construed accordingly*

9 Section 2 of the Act sets out what 'new' means as follows:

> *2(1) An invention shall be taken to be new if it does not form part of the state of the art.*
>
> *2(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way*
>
> *2(3) The state of the Art in the case on an invention to which an application for a patent or a patent relates shall be taken also to comprise matter contained in an application for another patent which was published on or after the priority date of that invention, if the following conditions are satisfied, that is to say:-*
>
> *(a) That matter was contained in the application for that other patent both as filed and as published; and*
>
> *(b) The [priority date of that matter is earlier than that of the invention*

10 Section 3 of the Act states:

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

11 Furthermore, section 14(5) of the Act states:

The claim or claims shall:

(a) define the matter for which the applicant seeks protection;

(b) be clear and concise;

(c) be supported by the description;

(d) relate to one invention or to a group of inventions which are so linked as to form a single inventive concept

Analysis

12 Before I can make any decision on the novelty or inventiveness of the application, I first need to construe the claims. In doing so, there are a number of terms that I need to form a view on, as to their meaning and scope:

Thermally Inhibited Starch

13 This is very helpfully described in paragraph 0003 and 0004 of the specification. It is a starch that is modified to resist gelatinization. I am content that this is a term that would be readily understood by a person skilled in the art.

Hunter L Value

14 I am grateful for the additional submissions made by Mr Coulson on "Hunter L" values. They have provided much need clarity to what is meant by the term. The paper "*Evaluation of Hunter Color Values..*"[1] was of particular help. The second paragraph on page 362 of that document describes the Hunter Lab system where it states that "L is a measure of lightness of a sample color". Importantly, it makes the point that Hunter values are widely used in the food industry including the production of flour.

15 From the Hunter Labs website[2] the values of L, a and b have very specific values:

L Light v dark where 0-50 indicates dark and 51-100 light

a Red v green where positive number indicates red and negative green

[1] *Evaluation of Hunter Color Values L, a, and b of Mixed Powder*" by Kerui ZHU et al
[2] Measuring Color using Hunter L, a, b versus CIE 1976 L*a*b* - AN-1005b – Hunterlab

b Yellow v blue where a positive number indicated yellow and negative blue

16 In order to establish the Hunter L value for the starch a method of analysis is required. The specification, at paragraph 0084 helpfully sets this out when discussing figure 2 of the specification. Further assistance is provided by some additional information filed by the attorney in relation to Fig 2 on 22nd October 2022. In short, it is an established method that has been followed to "determine the colour of powder". I am thus satisfied that the term "Hunter L" is clear and requires no special construction. It is simply a measure of whiteness that would clearly be understood by those involved in making powders.

Construing the claims

17 In the following analysis, I will first construe the claims individually and then in the context of the application as a whole. I believe this is necessary given the very distinctive way the claims are framed:

Claim 1

18 Claim 1 is directed to a thermally inhibited starch having a Hunter L value of 92 to 96. I take the view that the skilled person would have no difficulty in construing this to mean a starch having a high whiteness factor. I am supported in this view by paragraph 0087 of the specification which refers to samples being tested and their whiteness recorded as a Hunter L value.

Claim 9

19 In so far as the claim is dependent on claim 1, this claim is directed to a foodstuff in which the starch of claim 1 has been added. Details of how the starch forms part of an edible product are seen in paragraphs 0055 – 0061 of the specification. Later in the specification from paragraph 0066, specific "illustrative recipes" are provided for yogurt, mayonnaise, spoonable dressing, cream soup and béchamel, amongst others.

20 This claim is construed as being an edible product comprising a starch having a Hunter L (whiteness) value of between 92 to 96 and at least a second edible ingredient.

Claim 15

21 Claim 15 is directed to a thermally inhibited starch obtained by a specified method of manufacturing. The method comprises several steps starting with obtaining a starch slurry to which a buffering agent is added. The description describes this buffering agent as a conjugate acid or salt of an organic acid and gives specific examples of a potassium citrate or tripotassium citrate. Of itself this presents no problem in construction.

The totality of the Claims.

22 Having considered each claim in turn it is clear that claim 1 and 9 are linked by the "Hunter L" value of the starch". Prima facie, that does not appear to be the case with the starch of claim 15 which is linked to a method of production. This leads me to the question of how all three independent claims are related.

23 I will return to paragraph 0084 and the subsequent paragraph 0085 of the description at this point and the discussion of Figure 2 for assistance. The description describes how samples of a starch made using a citrate buffer and PH adjustments of 5, 7 & 8 were dehydrated to 1% moisture. Samples of each starch were then thermally inhibited at temperatures of 155, 160 or 165 °C for time periods between an uninhibited state at 0 minutes through to 180 minutes of inhibition time and the results plotted.

24 Interpreting this information is of some importance given claims 1 and 9 relate to an inhibited starch having a very specific range of Hunter L values, i.e. 92 to 96. Although the evidence is somewhat limited there is a clear suggestion of a link between the inhibition time, the inhibition temperature and the buffer used in the method and the resulting "Hunter L" value. This suggests that using an acidic buffer in the production of a thermally inhibited starch leads to a higher Hunter L value, as compared to a carbonate or neutral buffer.

25 Given the context of this part of the description, I am satisfied that claim 15 is related to claims 1 & 9, in that if the steps of claim 15 are followed they are likely to result in a thermally inhibited starch with a high Hunter L value, such as the range specified in claim 1.

Novelty and Inventive Step

The Claria® Elite Citation

26 The prior art cited by the examiner against the claims was provided as third party observations under Section 21 and consists of a conference presentation by Tate & Lyle from 2015[3]. This presentation discloses a product, Claria® Elite, that was launched in 2014. In the presentation, Claria® Elite is described as 'a corn starch' for use in foods. It stays intact when cooked (i.e. it does not gelatinize). Also, it 'provides viscosity and creamy texture' and it 'has a white color profile that does not impart dark colours on the final product'.

27 Mr Coulson attempted to cast a degree of doubt over whether a commercial presentation at a small conference could really be considered prior art in the usual sense of the term. However, I disagree. The document is a record of a presentation given to 218 delegates[4], most of whom were not affiliated with Tate & Lyle. As such I believe that it is a valid public disclosure of a thermally inhibited corn starch suitable for use in food and with a good degree of whiteness and viscosity.

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[3] 2015 Clean Label Conference – CLARIA® Functional Clean -Label Starches", Frank Truong – Tate and Lyle

[4] 2015 Clean Label Conference - Clean Label Conference (globalfoodforums.com)

28 Mr Coulson though rightly pointed out that the presentation does not specify any Hunter L values. Neither does it disclose the process of claim 15. I accept both these points. Thus, I must conclude that claims 1 & 9 are novel over this citation in isolation.

29 However, the third party observations also included separate experimental evidence showing the Claria® Elite product to have a Hunter L value of 95.11 – i.e. right in the range specified by claim 1. It also shows the product having a hot peak viscosity of 384 MVU when measured by Micro-Visco-Amylograph (MVAG). I will return to this later when dealing with the auxiliary claims.

30 This experimental evidence causes me some difficulties, however. As far as I can ascertain, it is a series of private experiments performed at the request of the third party, apparently in response to the publication of the equivalent EP application to this application. As such it likely post-dates the priority of the current application and it is uncertain if it has ever been published. All I know for certain is that it was received by this Office on 28th July 2023. Thus, it cannot be a 'citation' in its own right.

31 From the written observations of the third party, I believe that the experimental evidence is meant to show that the Claria® Elite product has always had a Hunter L value of 95.11 and thus the product itself is a novelty destroying disclosure. The fact that its Hunter L value was not measured until after the priority date of the current application is arguably immaterial since, in combination with the conference presentation, it shows that a product with the claimed degree of whiteness was in the public domain since 2014.

32 I can see some merit in this line of reasoning. However, Mr Coulson argued strongly that the only link between the product disclosed in the 2015 conference presentation and that tested some time before July 2023 is the name 'Claria® Elite'. Since this is merely a trademark, he argued that there is no guarantee that the two products had exactly the same composition and therefore the same degree of whiteness.

33 I agree with Mr Coulson here. A Trade Mark serves to distinguish the origin of goods or services[5]. It does not define a product's technical properties. Furthermore, it is well known for trademarked products to change significantly over time. For example, Windows® is a well known computer product that has changed significantly since it first appeared on the market despite maintaining the same trademark. While I doubt that a corn starch will have changed as much as Windows®, nonetheless I cannot be certain that the product tested in 2023 was the exact same one that was on sale in 2014. As a consequence, on the evidence before me, I am forced to consider claims 1 & 9 to be novel.

Inventive Step by Parameter

34 The next issue to consider is whether claim 1, and consequently claim 9, are inventive given that they are claims to known products, rendered novel only by

[5] See Section 1(1)(b) Trade Marks Act 1994

having a given range of a parameter. Rephrased, given that it is known[3] to have thermally inhibited starch with a 'white colour profile', is it inventive merely to specify a particular *range* of whiteness?

35 I will turn to the decision in Raychem Corp's Patents[6] to help here. At line 47 of page 46 of this decision it was held that (my emphasis):

> *These claims therefore add nothing but a parameter which is likely to be exhibited by many PTC compositions which are of value and many which are not. It will also exclude many PTC compositions which are of value and many which are not. It is essentially arbitrary and has little technical significance.* ***The selection of a group of compositions by reference to such a parameter does not involve any inventive step.*** *Although it may not be obvious, in the common use of that word, to limit a claim by reference to this particular meaningless and arbitrary parameter, that has nothing to do with patentability. Patents are not given for skill in inventing technically meaningless parameters. Many PTC compositions having obviously desirable characteristics will happen to fall within the limits of these claims. As such they cover what is obvious and would be invalid for this reason.*

36 Prior to the hearing I raised this decision with Mr Coulson, regarding the use of parameters in the claims of this application. He responded with an additional skeleton argument on 12th October 2023. In this response he provided reference to two more papers[7] and used them to argue that the use of Hunter L values was not an "unusual" parameter to assess the whiteness of starch. Rather, it is well known and widely understood. I agree on this point, but I fear that Mr Coulson may have misunderstood the reference to 'arbitrary' parameters in Raychem[6]. I take the teaching to be that something defined by a certain range of a parameter, where substances having values outside the range were likely to provide an equally effective technical result, would not provide the required inventive step.

37 I believe that this interpretation is reinforced by page 41 of the decision, line 44 onwards, where Laddie J. (as he then was) states:

> *What has to be determined is what technical contribution to the art has been made by the patentee. If that contribution is obvious then it is not protectable under patent law. If the patent claim consists of no more than a product or process selected by reference to a set of obviously desirable parameters, then the technical contribution is the selection of those parameters. Since that selection is obvious, so is the claim. It is permissible to look at the teaching in the specification to see what the patentee has put forward as his technical contribution. Where, as Mr Silverleaf argues is the case here, the teaching indicates that nothing novel by way of materials or processing has been used, it reinforces the conclusion that the patentee has done no more than select the obviously useful products out of the range of those which can be made*

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[6] Raychem Corp's Patents [1998] RPC 31

[7] "Evaluation of Hunter Colour Values L, a and b of Mixed Powder", ZHU et Al 2010; & "Starch Properties as affected by sorghum grain chemistry". BETA et al 2000

with existing technology. In such a case, the patent is just for any good product.

38 At line 2 of page 42, he continues:

> *On the other hand, where the invention involves the use of new materials or a new process, such as a new way of using known materials, to achieve a known or obvious goal, the inventive concept (per Windsurfing) or technical contribution (per AgrEvo) is the materials or process. If the materials or process are not obvious, a claim of permissible width directed to or dependent on the materials or process is not obvious either. Although the claims will give protection to products or processes which meet obvious desiderata, it is the materials or methods for getting there which supports that protection. Here also, the teaching in the specification will be directed at the new materials or processes and will reinforce the conclusion that the claims are directed to a protectable technical contribution.*

39 I believe that the relevance of this precedent to the current application is clear. The Claria® Elite citation[3] shows that it is known to use a thermally inhibited starch with a 'white colour profile' as a food ingredient. The skilled person would readily appreciate that an ingredient with a high Hunter L value, such as 92 to 96, would be desirable. In the words of Raychem[6], since claims 1 and 9 are only distinguished from the prior art by *obviously desirable parameters,* it follows that they are obvious. I therefore decide that these claims lack an inventive step.

An aside about technical contribution

40 The above conclusion is reinforced if I go 'back to basics' and consider what technical contribution to the art has been made by the patentee. As worded, claims 1 and 9 claim a monopoly of all possible compositions of thermally inhibited starches with Hunter L values of 92 to 96, but is this really what the patentee has contributed?

41 In the description I can only see one method of making a thermally inhibited starch, which, for the sake of argument, I will assume will end up having a Hunter L value in the required range. While not claimed as such, this starch will have a specific chemical composition. To my mind it is likely that other methods exist, which could produce thermally inhibited starches with different compositions but having Hunter L values in the specified range. This leads me to conclude that what the patentee has actually contributed to the art is the specific thermally inhibited starch that is produced by the method detailed in the application, and no more. That is the *new material,* and the method detailed in claim 15 is *the new process* that is arguably not obvious, following the teaching of Raychem[6].

42 Put another way, I have decided above that defining a thermally inhibited starch by obviously desirable parameters is obvious. What is not so obvious, however, is the claimed method of getting there.

43 This analysis would also seem to indicate that claims 1 and 9 are not supported by the description across the entirety of their scope. However, since this issue was not

raised at the hearing and I have already found these claims to be obvious, I will do no more than note it before moving on. Explicitly, I will not consider support as part of this decision.

Novelty of claim 15

44 Claim 15 is to a thermally inhibited starch obtained by a specified chemical process. The applicant's own explanations show that the range of Hunter L values of the final product can vary significantly with the time and temperature of the inhibition stage. Indeed, for higher temperatures and longer times the product that arises from the acidic slurry mix can fall outside the specified range.

45 However, from the context of the description as a whole, I will accept that the method of claim 15 will result in a thermally inhibited starch with high Hunter L value in the range specified in claim 1. In the absence of any close prior art, I cannot see how the entirety of the method of claim 15 could be considered obvious. However, the claim itself is not to the method but to the product produced thereby. Thus, I must consider the issue of 'product by process'.

Product by Process

46 It is established law that a claim to a product obtained by a certain process should be construed as being to the product itself. This was established in *Kirin-Amgen*[8] before the House of Lords. In paragraph 98 of this decision, Lord Hoffman stated:

> *The first requirement is that the product must be new and that a difference in the method of manufacturing an identical product does not make it new. It is only if the product is different, but the difference cannot in practice be satisfactorily defined by reference to its composition, etc that a definition by process of manufacture is allowed.*

47 The product in claim 15 is simply 'a thermally inhibited starch'. As this was a known product, claim 15 is arguably not novel. Following Lord Hoffman, claim 15 could be allowable if the only way to define the composition of the product is via its process of manufacture. I am not convinced that this is the case here.

48 As discussed above, I believe that the thermally inhibited starch produced by the method of claim 15 will have a specific chemical composition. While it is likely to be a fairly complex mixture of organic chemicals, it is theoretically possible that it could be defined in a claim.

49 I thus decide that claim 15 lacks novelty as relating to no more than 'a thermally inhibited starch'. However, my reasoning leads me to believe that the method, as

[8] Kirin-Amgen Inc v Hoechst Marion Roussel Ltd [2005] RPC 9

defined in claim 15, could be, prima facie, novel and inventive over Claria® Elite[3] were it to be claimed in its own right. I will return to this point below.

The Auxiliary Claims

50 As I stated earlier, the applicant has filed five sets of auxiliary claims. In the normal course of events, I would consider this number to be excessive and would have asked the applicant to identify which set they considered most relevant. Such an approach was set out by my colleague in *Emerson Process Management*[9]. However, in this case, given the Examiner has already considered all the auxiliary claims, I will do the same even if I disapprove of the practice of filing large numbers of such claims.

51 I will take auxiliary claim sets 2, 3 & 5 first. Each of these claim sets defines a thermally inhibited starch by a range of Hunter L values. Set 2 also defines such a starch obtained by a specified chemical process. Applying the reasoning set out above, I am bound to reach identical conclusions for these claim sets. Namely, that the claims lack novelty and/or an inventive step.

52 This leaves auxiliary claim sets 1 and 4. These two sets are essentially the same except that set 1 includes claims to a starch obtained by a specified chemical process and set 4 does not. Again, I find that the 'obtained by' claims lack novelty, leaving me just the independent claim 1's to consider. These claims define thermally inhibited starches defined by various ranges of "hot peak viscosity" each in combination with various ranges of Hunter L values.

Hot Peak Viscosity and MVU

53 Paragraphs 0022-0026 of the specification set out what is meant by the measurement of hot peak viscosity. It is measured by a Micro-Visco-Amylograph (MVAG) and measured in Micro-Visco-Amylograph Units (MVU). One way of obtaining the result is to use a system available from Brabender GmbH & Co KG. In and of itself, I believe it would be well understood by the skilled person that this is a known measurement and one that is obtained easily using the appropriate equipment.

54 I note that, as with the Hunter L value, there appears to be a link with the method of claim 16 of set 1 in so far as a variation of time, temperature and acidity all have an impact on the viscosity of the end product. Fig 1c shows this in a graphical form.

55 So, does adding a range of viscosities alter the conclusion I have expressed above with regards to Hunter L values? I do not believe that it does. The skilled person would appreciate that thermally inhibited starches are often added to food products to thicken them. To do this a given level of viscosity is clearly desirable. I thus conclude that defining a thermally inhibited starch in terms of both viscosities and Hunter L values only distinguishes it from the prior art by *obviously desirable*

[9] *Emerson Process Management Power and Water Solutions (BL O/283/18)*

parameters. I therefore decide that claim 1 in each case, and claim 9 by dependence, lack inventive steps.

3rd Party Observations filed with the EPO

56 On 20th November 2023 3rd party observations were filed with the EPO concerning the applicants corresponding application EP19839240.9. I am very grateful to Mr Coulson for bringing them to my attention and for his detailed response to them.

57 These new observations attempt to build on the documents referenced above in order to reinforce the argument that Claria® Elite was available to the public prior to the priority date of the EP application and destroys its novelty by having the claimed properties before that date. Mr Coulson, for his part, refutes this argument in some detail.

58 I will discuss neither the new observations, nor Mr Coulson's response in any more detail. What I will say, is that having read the new observations, I can see nothing that undermines the reasoning I have set out above or that might help the applicants in any way. Similarly, I can see nothing in Mr Coulson's response to change my conclusions.

59 I thus maintain my reasoning as set out above. For the avoidance of doubt this is based solely on the material set before me at the hearing and takes no account of the new observations.

60 However, I will note that the new observations also allege that the method set out in claim 15 lacks novelty over certain pieces of prior art. I will not rule on that here, partly because I am not skilled enough in chemistry to do so, but more importantly because the applicants have not had an opportunity to be heard on that issue. Rather, I will leave this point to be dealt with by the examiner should the application be remitted to them.

Conclusion

61 I find that the independent claims lack novelty and/or an inventive step, as set out above. Further, I have come to the same conclusion in respect of all the auxiliary sets of claims.

62 I can see nothing in any of the claim sets that could form the basis of an allowable amendment. However, as I mentioned above, I do consider that claims based on the method itself, and not on a product obtained by such a process, could be prima facie allowable. I hereby give the applicants 28 days from the date of this decision to make such amendments, should they wish to. If they do, I direct that the application be remitted back to the Examiner for further consideration. Otherwise, I direct that this application should be refused under section 18(3).

63 Finally, I hereby exercise discretion to allow the applicants to extend the compliance period by filing the relevant form and fee should they need to, to take advantage of the above opportunity to amend.

Appeal

64 Any appeal must be lodged within 28 days after the date of this decision.

Dr Stephen Brown

Auxiliary Claims Set 1

Claim 1

An improved thermally inhibited starch, said thermally inhibited starch having:

a) A hot peak viscosity (slurry at 6% solids and pH 6) of 50 - 500 MVU and a Hunter L value of at least 91, or from 91-94; or

b) A hot peak viscosity (slurry at 6% solids and pH 6) of 50 - 1200 MVU and a Hunter L value of 93 - 95; or

c) A hot peak viscosity (slurry at 6% solids and pH 6) of 1200 - 2000 MVU and a Hunter L value of 94 – 96

Wherein the hot peak viscosity refers to the hot peak viscosity as determined by the method defined in the specification, further wherein the thermally inhibited starch is obtained from the group consisting of corn and waxy corn.

Claim 10

An edible composition comprising the thermally inhibited starch as recited in any one of claims 1-8 and a second edible ingredient.

Claim 16

A thermally inhibited starch obtainable by a process comprising the steps of:

a Obtaining a starch slurry;

c adding a buffering agent to the starch slurry and soaking for more than a few minutes to obtain a buffered starch

d adjusting the PH of the slurry to from more than 4.0 to less than 6.0 and soaking the starch slurry and if necessary continuing to adjust the pH of the slurry until the slurry’s pH stabalizes from, more than 4.0 to less than 6.0 to obtain a pH adjusted starch

e dehydrating the pH adjusted starch and

f thermally inhibiting the dried starch to obtain a thermally inhibited starch.

Auxiliary Claim Set 2

Claim 1

A thermally inhibited starch, said thermally inhibited starch having a “Hunter L” value of from 92 - 95

Claim 9

An edible composition comprising the thermally inhibited starch as recited in any one of claims 1-8 and a second edible ingredient.

Claim 15

A thermally inhibited starch obtainable by a process comprising the steps of:

a Obtaining a starch slurry;

c adding a buffering agent to the starch slurry and soaking for more than a few minutes to obtain a buffered starch

d adjusting the PH of the slurry to from more than 4.0 to less than 6.0 and soaking the starch slurry and if necessary continuing to adjust the pH of the slurry until the slurry’s pH stabalizes from, more than 4.0 to less than 6.0 to obtain a pH adjusted starch

e dehydrating the pH adjusted starch and

f thermally inhibiting the dried starch to obtain a thermally inhibited starch.

Auxiliary Claim set 3

Claim 1

A thermally inhibited starch, said thermally inhibited starch having a “Hunter L” value of from 92 - 96

Claim 9

An edible composition comprising the thermally inhibited starch as recited in any one of claims 1-8 and a second edible ingredient.

Auxiliary Claim Set 4

Claim 1

An improved thermally inhibited starch, said thermally inhibited starch having:

a) A hot peak viscosity (slurry at 6% solids and pH 6) of 50 - 500 MVU and a Hunter L value of at least 91, or from 91-94; or

b) A hot peak viscosity (slurry at 6% solids and pH 6) of 50 - 1200 MVU and a Hunter L value of 93 - 95; or

c) A hot peak viscosity (slurry at 6% solids and pH 6) of 1200 - 2000 MVU and a Hunter L value of 94 – 96

Wherein the hot peak viscosity refers to the hot peak viscosity as determined by the method defined in the specification, further wherein the thermally inhibited starch is obtained from the group consisting of corn and waxy corn.

Claim 10

An edible composition comprising the thermally inhibited starch as recited in any one of claims 1-8 and a second edible ingredient.

Auxiliary Claim Set 5

Claim 1

A thermally inhibited starch, said thermally inhibited starch having a “Hunter L” value of from 92 - 95

Claim 9

An edible composition comprising the thermally inhibited starch as recited in any one of claims 1-8 and a second edible ingredient.