Commissioner=s Decision # 1342
Décision du Commissaire # 1342

TOPICS: A20
SUJETS: A20

Application No. : 2,237,960

Demande n^o. : 2,237,960

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,237,960 having been rejected under subsection 30(3) of the *Patent Rules*, has been reviewed in accordance with subsection 30(6) of the *Patent Rules* by the Patent Appeal Board and the Commissioner of Patents. The findings of the Board and the decision of the Commissioner are as follows:

Agent for the Applicant:

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INTRODUCTION

[1] This decision deals with a review of the rejection of patent application number 2,237,960 entitled AMANUFACTURE OF PRECIPITATED CALCIUM CARBONATE OF IMPROVED COLOUR WITH STABLE CRYSTALLINE FORM@ filed by the Applicant Goldcorp Inc. on 19 May 1998.

BACKGROUND

[2] The subject application relates to a method for the manufacture of precipitated calcium carbonate (PCC) from impure calcium oxide (lime).

[3] Precipitated calcium carbonate is a widely used industrial filler. In some applications, the brightness of the PCC is of minor importance. However, in a number of end uses, for example as a filler in paper-making processes, coating agent or pigment, it is critical that the PCC have a high degree of brightness.

[4] Conventional processes for preparing PCC by carbonation of lime slurries result in the formation of PCC having low brightness and comprising a variety of crystalline forms. Although a number of techniques are known to produce PCC with acceptable properties, these methods involve admixing of lime with ammonium salts to dissolve or complex the calcium into solution. The problem with such methods is that when carbon dioxide is used to precipitate the calcium carbonate it becomes contaminated with ammonia. Thus a significant cost of the process is the scrubbing of ammonia in order to recover the carbon dioxide.

[5] The instant description teaches a method for the manufacture of PCC having high brightness and a stable crystalline form of spherical calcite resembling vaterite which does not involve the use of ammonium salts. Instead, the method relies on admixing impure calcium oxide with the salt of an organic amine or alkanolamine to dissolve the calcium. The high brightness is then achieved by the addition of a reducing agent, while the type of crystal obtained is temperature dependent. Under certain reaction conditions the addition of the reducing agent was shown to inhibit the temperature-dependent conversion of vaterite into other crystalline forms.

PROSECUTION HISTORY

[6] On 17 January 2007, the Examiner issued a Final Action in which all of the claims were considered to violate the prohibition on Adouble patenting@ drawing a comparison of the present claims with those of Canadian patent 2,208,150 (hereafter >150). The rejection was based on Aobviousness@ double patenting and alleged that the present claims were not patentably distinct from those of the granted patent.

[7] In the response to the Final Action, dated 17 July 2008, the Applicant opted not to amend the claims but instead continued to argue that the claims are not obvious over the claims of the >150 patent. The Examiner did not consider the arguments persuasive and maintained the rejection of the claims; accordingly, a Summary of Reasons (SOR) was prepared and the matter was referred to the Patent Appeal Board (PAB).

[8] Subsequent to the SOR, the Applicant was invited to attend an oral hearing and/or provide further written submissions. The Applicant did not respond to the opportunity to be heard. Consequently, in a letter dated 29 November 2012, the Applicant was informed that PAB would conduct the review on the basis of the record as it stands. A panel of three PAB members was established (the panel) to complete the review.

THE ISSUES

[9] In view of the grounds for rejection cited by the Examiner and the Applicant=s arguments in response to the Final Action the panel is faced with a single issue to resolve:

> Are claims 1 to 18 unpatentable in view of the prohibition against Aobviousness@ double patenting in view of the claims of patent 2,208,150?

AOBVIOUSNESS@ DOUBLE PATENTING

Legal principles of Aobviousness@ double patenting

[10] The prohibition against double patenting is judge made law intended to prevent the issuance

of more than one patent to an applicant for the same invention or obvious variations of the same invention. The leading authority on double patenting is considered to be *Whirlpool Corp. v. Camco Inc.*, 2000 SCC 67 [*Whirlpool*]. In *Whirlpool*, the Supreme Court clearly explained the rationale behind the rule against double patenting and reviewed the two branches under which the rule could be applied.

[11] The first branch is called Asame invention@ double patenting and applies in situations where the claims under comparison are considered identical or conterminous.

[12] The second branch is called Aobviousness@ double patenting and is Aa more flexible and less literal test@ which applies in situations where the claims are not Apatentably distinct@ (*Whirlpool* at para. 66). To avoid a finding of obviousness-type double patenting requires that a claim exhibit inventive ingenuity over the claim under comparison (*Bayer Schering Pharma Aktiengesellschaft v. Canada (Attorney General)*, 2010 FCA 275 at para. 30).

[13] Obviousness-type double patenting is similar in a number of aspects to an obviousness determination. However, in an obviousness-type double patenting analysis, each claim at issue is evaluated in view of a claim in a patent document from the same applicant, with the aim of preventing the same applicant from claiming an obvious variant of what has been claimed in the other document.

[14] In contrast, in an obviousness assessment, each claim at issue is evaluated in view of the teachings of one or more prior art references representing the state of the art, with the aim of preventing anyone from claiming an obvious variant of the state of the art.

[15] While the current framework for assessing obviousness is the four-step approach adopted by the Supreme Court in *Apotex Inc. v. Sanofi-Synthelabo Canada Inc.*, 2008 SCC 61 [*Sanofi*], in view of the above mentioned differences, this approach would require modification in order to be suitable for an obviousness-type double patenting analysis which relies on a claim-by-claim comparison. We also note that in *Sanofi*, the Court also dealt with an allegation of obviousness-type double patenting without using the four-step approach. Accordingly, we will address the question of obviousness-type double patenting by applying a claim-by-claim comparison.

ANALYSIS

The Final Action and SOR

[16] The Final Action asserts that A[t]he subject matter of the claims on file for the present application is not patentably distinct, due to a lack of inventive ingenuity, over the subject matter claimed in patent CA 2,208,150.@ The Examiner acknowledges that independent claim 1 differs from the claims of the >150 patent in that it stipulates that:

> a) the carbonation step is carried out at a temperature of at least 50EC, and
> b) the reducing agent is added subsequent to the separation step.

[17] However, with regard to each difference, the Examiner argues that these represent Aa mere minor variation of the same invention@ claimed in the >150 patent. In particular, with respect to the temperature of the carbonation step, the Examiner makes reference to the following statement that is present in the description of both the instant application and the >150 patent:

> The PCC obtained by the process of the present invention may be prepared in a variety of crystalline forms, depending on the temperature of crystallization, as is well known in the art.

[18] In view of this, the Examiner held that the temperature required to obtain a specific crystalline form is within the purview of the person skilled in the art to determine. Further, in the SOR, the Examiner elaborated that the selection of a carbonation temperature over 50EC Asimply represents the identification of an operational constraint easily determined by the skilled worker, not an inventive advantageous selection.@

[19] With respect to the step of adding a solution of a reducing agent occurring subsequent to the separation step, the Examiner makes reference to the following statement that is present in the description of the instant application:

> The solution may be filtered prior to the addition of the reducing agent and/or after such addition.

[20] The Examiner held that this statement provides a Aclear suggestion that the invention is nonetheless operable regardless of when the filtration takes place with respect to the addition of reducing agent.@ In the SOR, the Examiner also argued that Athe placement of a filtration step prior to addition of reducing agent is a >preferred embodiment=, however, the description does not establish, by example or otherwise, that any clear advantage is

realized by performing these method steps in such a sequence over the sequence claimed in the >150 patent.@

The Applicant=s position

[21] In response to the Final Action, the Applicant maintained that the temperature restriction in the carbonation step results in an advantageous selection as temperatures below 50EC could lead to undesirable gel formation. Further, the Applicant argued that the presently claimed threshold temperature would not be obvious from a reading of the claims of the >150 patent given that Athere is <u>no temperature recited</u> in independent claim 1@ and A[t]he only recitation of temperature is provided in claim 8 of the patent where it is recited to be at least 70EC.@

[22] The Applicant also asserted Athat there is no overlapping subject matter between the two cases@ because A[t]he order of the steps of the >150 patent is different to that claimed with respect to the adding of a reducing agent.@ Ultimately, the Applicant asserted that the claims are not obvious over the claims of the >150 patent because the two methods comprise different ordered steps and the presently claimed temperature restriction in the carbonation step results in an advantageous selection.

Claim comparison

[23] The rule against double patenting is based on a comparison of the claims. However, claim comparison is not to be done on a literal construction of the claims. Instead, claims are to be given a purposive construction, Abased on a knowledgeable reading of the whole specification through the eyes of the skilled addressee@ (*Whirlpool* at para. 48). The intent is to clarify the scope of claims and the meanings of the terms used therein: *Free World Trust v Electro Sante Inc*, 2000 SCC 66 [*Free World Trust*]. During purposive construction, the elements of the claimed invention are identified as either essential or non-essential. In order for an element to be considered Anon-essential@, Ait must be shown either (i) that on a purposive construction of the words of the claim it was clearly *not* intended to be essential, or (ii) that at the date of publication of the patent, the skilled

addressees would have appreciated that a particular element could be substituted without affecting the working of the invention@ (*Free World Trust* at para. 55). However, when doing so it is important to recognize that purposive construction should be focused on the points at issue or Awhere the shoe pinches@: *Laboratoires Servier v. Apotex*, 2008 FC 825; *Shire Biochem Inc. v. Canada (Minister of Health)*, 2008 FC 538.

[24] As indicated above, the Examiner objected to claims 1 to 18 of the instant application as not being patentably distinct over the claims of the >150 patent. However, the panel notes that the Examiner=s arguments in the Final Action and the SOR only make reference to the differences between independent claim 1 of the present application and Athe claims of >150 patent.@

[25] Claim 1 of the present application is the only independent claim and is therefore the broadest claim. Although the Examiner did not provide a claim-by-claim comparison, having reviewed the claims of the >150 patent, the panel finds that claim 8 provides the most appropriate basis for comparison. As indicated by the Applicant, claim 8 is the only claim which recites a temperature, therefore, it most closely resembles claim 1 of the present application. Further, as present claim 1 is the only independent claim, it follows that dependent claims 2-17 are read to include all the features of claim 1 and any reasoning applied in respect of claim 1 also extends to these claims. Similarly, the claims of the >150 patent which are used in the claim-by-claim comparison below all depend on claim 8 and are read to include all of the features of claim 8.

[26] The following table represents the panel=s views as to the appropriate claim comparisons between the present application and the >150 patent:

Present claims	>150 Patent Claims
1	claim 8 (when dependent on claim 2)
2	claim 8 (when dependent on claims 4, 3 and 2)
3	claim 8 (when dependent on claims 4, 3 and 2)

4	claim 8 (when dependent on claim 2)
5	claim 8 (when dependent on claim 2)
6	claim 8 (when dependent on claims 3 and 2)
7	claim 8 (when dependent on claims 4, 3 and 2)
8	claim 8 (when dependent on claims 6, 4, 3 and 2)
9	claim 8 (when dependent on claims 4, 3 and 2)
10	claim 9 (when dependent on claims 8, 4, 3 and 2)
11	claim 10 (when dependent on claims 9, 8, 4, 3 and 2)
12	claim 11 (when dependent on claims 8, 4, 3 and 2)
13	claim 12 (when dependent on claims 8, 4, 3 and 2)
14	claim 13 (when dependent on claims 8, 4, 3 and 2)
15	claim 14 (when dependent on claims 8, 4, 3 and 2)
16	claim 8 (when dependent on claims 4, 3 and 2)
17	claim 8 (when dependent on claim 2)
18	claim 8 (when dependent on claim 2)

Table 1: Claim comparisons for double patenting analysis

[27] We will start our analysis with the subset of claims which specifically reference the order in which a reducing agent is added (claims 1, 4 and 5) or feature a temperature restriction of the carbonation step (claims 1 and 9). Once a determination has been made in respect of these two features we will then consider additional features defined by the remaining claims. The claims at issue are reproduced in Appendix A.

[28] To aid in our analysis, present claim 1 and claim 8 of the >150 patent have been reproduced below. Claim 8 of the >150 patent has been re-written in independent form incorporating claims 2 and 1 upon which it depends. The differences between the claims, i.e. with respect to a temperature restriction and the order in which a reducing agent is added, are highlighted in bold.

Claim 1 of the present application	Claim 8 of the >150 patent
1. A method for the manufacture of precipitated calcium carbonate from impure calcium oxide, comprising: (a) admixing said impure calcium oxide with an aqueous solution consisting essentially of a salt of at least one compound selected from the group consisting of organic amines of the formula RNH_2 and alkanolamines of the formula $NH_2(R^1OH)$, where R and R^1 are alkyl groups of 1-4 carbon atoms, and hydrochloric or nitric acid, said salt being used in at least the stoichiometric amount to dissolve the calcium oxide; (b) separating the solution so obtained from insoluble matter therein; and (c) **treating the solution at a temperature of at least 50EC** with (i) carbon dioxide or (ii) the carbonate of said amine or alkanolamine of step (a), **said process additionally comprising the step of adding a solution of a reducing agent subsequent to step (b)**.	8. A method for the manufacture of precipitated calcium carbonate with a high brightness from impure calcium oxide, comprising: (a) admixing said impure calcium oxide with an aqueous solution consisting essentially of a salt of at least one compound selected from the group consisting of organic amines of the formula RNH_2 and alkanolamines of the formula $NH_2(R^1OH)$, where R and R^1 are alkyl groups of 1-4 carbon atoms, and hydrochloric or nitric acid; in which the salt is added in at least the stoichiometric amount to dissolve the lime; (b) **adding a solution of a reducing agent to the solution of (a)**; (c) separating the solution so obtained from insoluble matter therein; and (d) treating the solution with (i) carbon dioxide or (ii) the carbonate of said amine or alkanolamine of step (a); **in which the temperature of the solutions is at least 70EC**.

<u>Order in which the reducing agent is added relative to filtration</u>*:*

Present claim 1 v. Claim 8 (when dependent on claim 2) of the >150 patent

[29] Claim 1 of the present application specifies that the reducing agent is added subsequent to step (b) i.e. the filtration step. Claim 8 of the >150 patent specifies that the reducing agent is added prior to filtration.

[30] As indicated above, the Applicant has argued that the claims are directed to different methods because the steps are recited in a certain order which is different between the two methods. In the Final Action, the Examiner argued in response that Athis does not negate the need to construe the claims in light of the description. In this instance, the description

suggests interchangeability of the order of operations without affecting the operability of the method.@ Although present claim 1 specifies that the reducing agent is added subsequent to filtration, it is clear from the present description that addition of the reducing agent is considered interchangeable: A[t]he solution may be filtered prior to addition of the reducing agent and/or after such addition.@ Further, Example II of the present description suggests that the order in which the reducing agent is added relative to filtration does not matter: A[a]ny precipitate formed prior to carbonation was filtered.@

[31] In view of the above, we consider the order in which the reducing agent is added relative to filtration to be non-essential. Therefore, this feature does not patentably distinguish present claim 1 from claim 8 (when dependent on claim 2) of the >150 patent.

Present claim 4 v. Claim 8 (when dependent on claim 2) of the >150 patent

[32] Claim 4 of the present application specifies the additional feature that the reducing agent is added subsequent to step (b) but prior to step (c). Therefore, the reducing agent is added following filtration, but before carbonation. However, as indicated above, the order in which the reducing agent is added relative to filtration was construed to be non-essential. Therefore, inclusion of this feature does not patentably distinguish present claim 4 from claim 8 (when dependent on claim 2) of the >150 patent.

Present claim 5 v. Claim 8 (when dependent on claim 2) of the >150 patent

[33] Claim 5 of the present application specifies the additional feature that the reducing agent is added subsequent to step (c). Therefore, the reducing agent is added following filtration and carbonation. We find that there is nothing patentably distinct about adding the reducing agent after the precipitated calcium carbonate has been formed. The present description refers to conventional processes for preparing PCC, including U.S. Patent 4,900,533, which discloses that brightening of PCC can be achieved by addition of a reducing agent either during carbonation or post-carbonation. Therefore, the skilled person based on their common general knowledge would appreciate that they could also add the reducing agent post-carbonation and still produce PCC having the required brightness. It follows that the inclusion of this feature does not patentably distinguish present claim 5 from claim 8 (when dependent on claim 2) of the >150 patent.

Temperature at which the carbonation step is performed:

Present claim 1 v. Claim 8 (when dependent on claim 2) of the >150 patent

[34] Claim 1 of the present application specifies a carbonation temperature of at least 50EC. Claim 8 of the >150 patent specifies Athe temperature of the solutions is at least 70EC.@ In view of Example II of the >150 patent, which discloses that following admixing of impure calcium oxide with the salt of an organic amine or alkanolamine the solution obtained was heated to 80EC and this temperature was maintained during the subsequent steps of addition of a reducing agent, filtration and carbonation, it is clear that the temperature restriction of at least 70EC applies to the carbonation step as well.

[35] We must consider whether the presently claimed threshold temperature of at least 50EC is patentably distinct. In respect of this feature, the Applicant has argued that restricting the temperature to 50EC is required to avoid gel formation and that this threshold would not be obvious from a reading of the claims of the >150 patent. The Examiner disagreed and characterized the gel formation as an operational constraint and held that the temperature of crystallization is within the purview of the person skilled in the art to determine.

[36] However, as indicated by the Examiner, the description of the >150 patent discloses that APCC obtained by the process of the present invention may be prepared in a variety of crystalline forms, depending on the temperature of crystallization, as is well known in the art.@ The description of the >150 patent also makes clear that it was common general knowledge that crystalline forms of PCC can be obtained at temperatures far below 50EC: Aat 10 to 15EC, the product is obtained as rhombohedral crystals, while at 35 to 40EC vaterite crystals are obtained.@ Since, based on the aforementioned common general knowledge, the skilled person would expect that crystals would be properly formed at temperatures as low as 10EC, the specification of a lower limit at 50EC to avoid gel formation would be counterintuitive.

[37] We also have no evidence that it was common general knowledge that gel formation occurred at temperatures below 50EC. Indeed, gel formation is not a consequence of conventional processes used for the production of PCC. The formation of gel is a

specific by-product of passing carbon dioxide into a solution of impure calcium oxide and the salt of an organic amine or alkanolamine, which solution was first proposed by the Applicant in Canadian patent application 2,203,210 which was published after the filing date of the present application. It follows that such gel formation cannot be considered part of the common general knowledge of the person skilled in the art.

[38] We therefore find the identification of a threshold temperature of at least 50EC, which is required to avoid gel formation, to be patentably distinct.

[39] As will be seen, our full analysis has not identified any additional feature that can render a claim patentably distinct from the cited claims of the >150 patent. Therefore, in view of the above, we find that specifying a threshold carbonation temperature of at least 50EC does patentably distinguish present claim 1 from claim 8 (when dependent on claim 2) of the >150 patent. However, in order to avoid overlap with claim 8 (when dependent on claim 2) of the >150 patent, present claim 1 must limit the upper range for the temperature of carbonation to below 70EC.

Present claim 9 v. Claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent

[40] Present claim 9 specifies the additional feature Athe temperature of the solutions is in the range of 50EC to 80EC.@ As we noted earlier, the temperature restriction of at least 70EC that is specified in claim 8 of the >150 patent is also in respect of all of the solutions.

[41] As indicated above, the presently claimed threshold temperature of at least 50EC was determined to be patentably distinct.

[42] However, in order to be considered patentably distinct from claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent, present claim 9 must specify that the temperature range is at least 50EC to below 70EC.

Additional features defined by the remaining dependent claims:

Present claim 2 v. Claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent

[43] Present claim 2 specifies the additional feature that the reducing agent is sodium hydrosulphite. As this feature is also defined in claim 4 of the >150 patent it cannot be used to patentably distinguish present claim 2 from claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent.

Present claim 3 v. Claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent

[44] Present claim 3 specifies the additional feature that the reducing agent is sodium sulphite. This feature is not specifically defined in claim 2 or claim 4 of the >150 patent which specify generally Aa reducing agent@ (claim 2) and that the reducing agent is sodium hydrosulphite (claim 4). We have determined with respect to present claim 2 that the feature that the reducing agent is sodium hydrosulphite does not patentably distinguish that claim from the corresponding claim of the >150 patent. Further, from the context in which the particular reducing agents are described in the present description, i.e. A[e]xamples of the reducing agent include sodium hydrosulphite, also known as sodium dithionite ($Na_2S_2O_4$), and sodium sulphite,@ the skilled person would view these alternatives as equivalent to one another. Therefore, absent any evidence of a new and unexpected result in selecting sodium sulphite, this feature cannot be used to patentably distinguish present claim 3 from claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent.

Present claim 6 v. Claim 8 (when dependent on claims 3 and 2) of the >150 patent

[45] Present claim 6 specifies the additional feature that the reducing agent is added in an amount effective to reduce the colour of the solution of (a). As this feature is also defined in claim 3 of the >150 patent it cannot be used to patentably distinguish present claim 6 from claim 8 (when dependent on claims 3 and 2) of the >150 patent.

Present claim 7 v. Claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent

[46] Present claim 7 specifies the additional feature that the reducing agent is sodium hydrosulphite, which is added in an amount to effect a reduction in colour of the solution subjected to separation in step (b) and an improvement in the brightness of the PCC obtained in step (c). As this feature is also defined in claim 4 of the >150 patent it cannot be used to patentably distinguish present claim 7 from claim 8 (when dependent on claims

4, 3 and 2) of the >150 patent.

Present claim 8 v. Claim 8 (when dependent on claims 6, 4, 3 and 2) of the >150 patent

[47] Present claim 8 specifies the additional feature that the ratio of the salt of organic amine or alkanolamine to water, on a weight basis, is in the range of 1:1 to 1:3. As this feature is also defined in claim 6 of the >150 patent it cannot be used to patentably distinguish present claim 8 from claim 8 (when dependent on claims 6, 4, 3 and 2) of the >150 patent.

Present claim 10 v. Claim 9 (when dependent on claims 8, 4, 3 and 2) of the >150 patent

[48] Present claim 10 specifies the additional feature that the precipitated calcium carbonate has a brightness of at least 95%. As this feature is also defined in claim 9 of the >150 patent it cannot be used to patentably distinguish present claim 10 from claim 9 (when dependent on claims 8, 4, 3 and 2) of the >150 patent.

Present claim 11 v. Claim 10 (when dependent on claims 9, 8, 4, 3 and 2) of the >150 patent

[49] Present claim 11 specifies the additional feature that the precipitated calcium carbonate has a brightness of at least 97%. As this feature is also defined in claim 10 of the >150 patent it cannot be used to patentably distinguish present claim 11 from claim 10 (when dependent on claims 9, 8, 4, 3 and 2) of the >150 patent.

Present claim 12 v. Claim 11 (when dependent on claims 8, 4, 3 and 2) of the >150 patent

[50] Present claim 12 specifies the additional feature that the solution is treated, in step (c), with an alkanolamine carbonate. As this feature is also defined in claim 11 of the >150 patent it cannot be used to patentably distinguish present claim 12 from claim 11 (when dependent on claims 8, 4, 3 and 2) of the >150 patent.

Present claim 13 v. Claim 12 (when dependent on claims 8, 4, 3 and 2) of the >150 patent

[51] Present claim 13 specifies the additional feature that the solution is treated, in step (c), with an amine carbonate. As this feature is also defined in claim 12 of the >150 patent it cannot be used to patentably distinguish present claim 13 from claim 12 (when

dependent on claims 8, 4, 3 and 2) of the >150 patent.

Present claim 14 v. Claim 13 (when dependent on claims 8, 4, 3 and 2) of the >150 patent

[52] Present claim 14 specifies the additional feature that the solution is treated, in step (c), with carbon dioxide. As this feature is also defined in claim 13 of the >150 patent it cannot be used to patentably distinguish present claim 14 from claim 13 (when dependent on claims 8, 4, 3 and 2) of the >150 patent.

Present claim 15 v. Claim 14 (when dependent on claims 8, 4, 3 and 2) of the >150 patent

[53] Present claim 15 specifies the organic amine is ethanolamine. As this feature is also defined in claim 14 of the >150 patent it cannot be used to patentably distinguish present claim 15 from claim 14 (when dependent on claims 8, 4, 3 and 2) of the >150 patent.

Present claim 16 v. Claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent

[54] Present claim 16 specifies the additional feature that the solution is admixed subsequent to step (b) with a solution of sodium hydrosulphite in an amount in excess of the amount required to reduce the colour. Claim 4 of the >150 patent specifies the reducing agent is sodium hydrosulphite, which is added in an amount to effect a reduction in colour of the solution subjected to separation in step (c) and an improvement in the brightness of the PCC obtained in step (d).

[55] Present claim 16 does not define a specific result to be achieved by the addition of an excess of sodium hydrosulphite. Further, the present description emphasizes that it is the presence of a reducing agent that is important rather than the amount: Ahydrosulphite treated mixtures had a high brightness but were not transformable to rhombohedral calcite, whereas in the <u>absence</u> of hydrosulphite, low brightness was obtained but the transformation did occur.@ Therefore, the person skilled in the art would expect that adding more sodium hydrosulphite than Aan amount to effect a reduction in colour of the solution@ and Aan improvement in the brightness of the PCC obtained@ would simply produce a further reduction in colour and a further improvement in brightness.

[56] In view of the above, we consider specifying the addition of an excess of sodium hydrosulphite does not patentably distinguish present claim 16 from claim 8 (when

dependent on claims 4, 3 and 2) of the >150 patent.

Present claim 17 v. Claim 8 (when dependent on claim 2) of the >150 patent

[57] Present claim 17 specifies the additional feature that Athe temperature of the solution in step (a) is at least 50EC.@ As indicated above, the temperature restriction of at least 70EC that is specified in claim 8 of the >150 patent is in respect of all of the solutions and includes the solution in step (a).

[58] As previously indicated, the presently claimed threshold temperature of at least 50EC was determined to be patentably distinct. However, in order to be considered patentably distinct from claim 8 (when dependent on claim 2) of the >150 patent, present claim 17 must specify that the temperature range is at least 50EC to below 70EC.

Present claim 18 v. Claim 8 (when dependent on claim 2) of the >150 patent

[59] Claim 18 of the present application specifies the additional feature that a spherical calcite is obtained, which is stable when heated in water at 80EC for one hour. As written, the claim is simply directed to the result of carrying out the method of claim 1, which cannot be used to patentably distinguish present claim 18 from claim 8 (when dependent on claim 2) of the >150 patent.

FINDINGS AND RECOMMENDATION

[60] In summary, the panel finds that in accordance with the proscription on obviousness double patenting the feature relating to the order in which the reducing agent is added relative to the filtration step does not patentably distinguish present claims 1, 4 and 5 from claim 8 (when dependent on claim 2) of the >150 patent.

[61] Similarly, the additional features defined by dependent claims 2, 3, 6-8, 10-16 and 18 of the present application do not patentably distinguish these claims from the cited claims of the >150 patent.

[62] However, with respect to the feature relating to the temperature of carbonation, it is clear from our analysis that performing the carbonation step at a temperature of at least 50EC to below 70EC was considered patentably distinct in view of the claims of the >150 patent.

Therefore, in order to avoid the Aobviousness@ double patenting proscription, independent claim 1 must define a temperature range for carbonation of at least 50EC to below 70EC. Further, this patentably distinct temperature range was found in respect of all of the solutions present at each step in the method and must also be included in dependent claims 9 and 17 of the present application in order to patentably distinguish over claim 8 (when dependent on claims 4, 3 and 2) of the >150 patent.

[63] Although dependent claims 2-8, 10-16 and 18 as currently drafted have been determined to define additional features that are not patentably distinct over the cited claims of the >150 patent, some of these claims depend on claim 9, and all of these claims ultimately depend on claim 1. Accordingly, once claims 1 and 9 have been amended to restrict the temperature range, these claims will also define subject matter that is patentably distinct over the cited claims of the >150 patent.

[64] We recommend that the Applicant be informed in accordance with paragraph 31(*c*) of the *Patent Rules*, that the following amendments, and only the following amendments, of the application are necessary for compliance with the *Patent Act* and *Patent Rules*:

1) amendment of claim 1 to specify a carbonation temperature of at least 50EC to below 70EC;

2) amendment of claim 9 to specify the temperature of the solutions is in the range of at least 50EC to below 70EC; and

3) amendment of claim 17 to specify the temperature of the solution in step (a) is at least 50EC to below 70EC.

Christine Teixeira	Stephen MacNeil	Paul Fitzner
Member	Member	Member

DECISION OF THE COMMISSIONER

[65] I concur with the findings and recommendation of the Patent Appeal Board. Accordingly, I invite the Applicant to make the above amendments, and only the above amendments, within three months from the date of this decision, failing which I intend to refuse the application.

Sylvain Laporte
Commissioner of Patents

Dated at Gatineau, Quebec,
this 25th day of April, 2013

Appendix A, CD 1342

Claims of the present application 2,237,960

1. A method for the manufacture of precipitated calcium carbonate from impure calcium oxide, comprising:
(a) admixing said impure calcium oxide with an aqueous solution consisting essentially of a salt of at least one compound selected from the group consisting of organic amines of the formula RNH_2 and alkanolamines of the formula $NH_2(R^1OH)$, where R and R^1 are alkyl groups of 1-4 carbon atoms, and hydrochloric or nitric acid, said salt being used in at least the stoichiometric amount to dissolve the calcium oxide;
(b) separating the solution so obtained from insoluble matter therein; and
(c) treating the solution at a temperature of at least 50EC with (i) carbon dioxide or (ii) the carbonate of said amine or alkanolamine of step (a), said process additionally comprising the step of adding a solution of a reducing agent subsequent to step (b).

2. The method of claim 1 in which the reducing agent is sodium hydrosulphite.

3. The method of claim 1 in which the reducing agent is sodium sulphite.

4. The method of claim 2 in which the reducing agent is added subsequent to step (b) but prior to step (c).

5. The method of claim 2 in which the reducing agent is added subsequent to step (c).

6. The method of claim 2 in which the reducing agent is added in an amount effective to reduce the colour of the solution of (a).

7. The method of claim 1 in which the reducing agent is sodium hydrosulphite, which is added in an amount to effect a reduction in colour of the solution subjected to separation in step (b) and an improvement in the brightness of the PCC obtained in step (c).
8. The method of claim 7 in which the ratio of the salt of organic amine or alkanolamine to water, on a weight basis, is in the range of 1:1 to 1:3.

9. The method of claim 7 in which the temperature of the solutions is in the range of 50-80EC.

10. The method of claim 9 in which the precipitated calcium carbonate has a brightness of at least

95%.

11. The method of claim 10 in which the brightness is at least 97%.

12. The method of claim 9 in which the solution is treated, in step (c), with an alkanolamine carbonate.

13. The method of claim 9 in which the solution is treated, in step (c), with an amine carbonate.

14. The method of claim 9 in which the solution is treated, in step (c), with carbon dioxide.

15. The method of claim 9 in which the organic amine is ethanolamine.

16. The method of claim 1 in which the solution is admixed subsequent to step (b) with a solution of sodium hydrosulphite in an amount in excess of the amount required to reduce the colour.

17. The method of claim 1 in which the temperature of the solution in step (a) is at least 50EC.

18. The method of claim 1 in which a spherical calcite is obtained which is stable when heated in water at 80EC for one hour.

Claims of patent 2,208,150

1. A method for the manufacture of precipitated calcium carbonate with a high brightness from impure calcium oxide, comprising:
(a) admixing said impure calcium oxide with an aqueous solution consisting essentially of a salt of at least one compound selected from the group consisting of organic amines of the formula RNH_2 and alkanolamines of the formula $NH_2(R^1OH)$, where R and R^1 are alkyl groups of 1-4 carbon atoms, and hydrochloric or nitric acid;
(b) adding a solution of a reducing agent to the solution of (a);
(c) separating the solution so obtained from insoluble matter therein; and
(d) treating the solution with (i) carbon dioxide or (ii) the carbonate of said amine or alkanolamine of step (a).

2. The method of Claim 1 in which the salt is added in step [a] in at least the stoichiometric

amount to dissolve the lime.

3. The method of Claim 1 or Claim 2 in which the reducing agent is added in an amount effective to reduce the colour of the solution of (a).

4. The method of claim 3 in which the reducing agent is sodium hydrosulphite, which is added in an amount to effect a reduction in colour of the solution subjected to separation in step (c) and an improvement in the brightness of the PCC obtained in step (d).

5. The method of any one of Claims 1-4 in which the sodium hydrosulphite is added to the aqueous solution in step (a) prior to admixing of the impure calcium oxide.

6. The method of any one of Claims 1-5 in which the ratio of the salt of organic amine or alkanolamine to water, on a weight basis, is in the range of 1:1 to 1:3.

7. The method of any one of Claims 1-6 in which the solution of (a) is additionally treated for separation of insoluble matter therein prior to step (b).

8. The method of any one of Claims 1-7 in which the temperature of the solutions is at least 70EC.

9. The method of Claim 8 in which the precipitated calcium carbonate has a brightness of at least 95%.

10. The method of Claim 9 in which the brightness is at least 97%.

11. The method of any one of Claims 1-10 in which the solution is treated, in step (d), with an alkanolamine carbonate.

12. The method of any one of Claims 1-10 in which the solution is treated, in step (d), with an amine carbonate.

13. The method of any one of Claims 1-10 in which the solution is treated, in step (d), with carbon dioxide.

14. The method of any one of Claims 1-13 in which the organic amine is ethanolamine.