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Datasheet for the decision of 19 November 2021

Case Number: T 1335/19 - 3.3.09

Application Number: 07853789.1

Publication Number: 2068641

IPC: A23G1/56, A23G1/00

Language of the proceedings: EN

Title of invention:
METHOD OF PRODUCING HIGH-BRIGHTNESS COCOA POWDER AND RELATED COMPOSITIONS

Patent Proprietor:
Olam International Limited

Opponents:
Barry Callebaut AG
Cargill, Incorporated

Headword:
High-brightness cocoa powder/OLAM

Relevant legal provisions:
EPC Art. 100(b), 83
RPBA Art. 12(4)
RPBA 2020 Art. 13(2)

Keyword:
Grounds for opposition - insufficiency of disclosure (yes)
Sufficiency of disclosure - auxiliary requests (no)
Late-filed evidence - admitted (no)

Decisions cited:

Catchword:

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Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1335/19 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 19 November 2021

Appellant: (Patent Proprietor)	Olam International Limited 7 Straits View Marina One East Tower No. 20-01 Singapore 018936 (SG)
Representative:	dompatent von Kreisler Selting Werner - Partnerschaft von Patent- und Rechtsanwälten mbB Deichmannhaus am Dom Bahnhofsvorplatz 1 50667 Köln (DE)
Respondent: (Opponent 1)	Barry Callebaut AG Pfingstweidstrasse 60 8005 Zurich (CH)
Representative:	Meissner Bolte Partnerschaft mbB Widenmayerstrasse 47 80538 München (DE)
Respondent: (Opponent 2)	Cargill, Incorporated 15407 Mcginty Road West Mail Stop 24 Wayzata, Minnesota 55391 (US)
Representative:	Dottridge, Cass A.C. Cargill R&D Centre Europe BVBA Bedrijvenlaan 9 2800 Mechelen (BE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 25 February 2019 revoking European patent No. 2068641 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	A. Haderlein
Members:	C. Meiners
	D. Rogers

Summary of Facts and Submissions

I. The appeal was filed by the patent proprietor (appellant) against the opposition division's decision to revoke European patent No. 2 068 641.

II. With their notice of opposition, opponents 1 and 2 (respondents 1 and 2) had requested that the patent be revoked in its entirety on, *inter alia*, the ground of insufficient disclosure (Article 100(b) EPC).

III. The opposition division held, *inter alia*, that the main request (claims as granted) did not meet the requirement of sufficiency of disclosure. The then auxiliary request 1 filed during the oral proceedings was admitted into the proceedings and found to meet the requirements of Articles 123(2) and 83 EPC but not of Article 84 EPC. Auxiliary request 2 filed during the oral proceedings was not admitted since it did not prima facie overcome the objections of insufficient disclosure (Article 83 EPC). Auxiliary requests 3 to 5 filed in electronic form on 29 August 2018 were found not to meet the requirements of Rule 80 EPC. Auxiliary request 6 filed during the oral proceedings was considered to be prima facie not clear and thus was not admitted into the proceedings either. Consequently, the patent was revoked. The opposition division admitted document D15 into the opposition proceedings.

IV. The following documents, filed by the parties in the opposition and appeal proceedings, are relevant to the present decision:

D15 Experimental report, filed by opponent 2 on 28 August 2018

D17 Experimental report, filed by the appellant with the statement setting out the grounds of appeal

D18 Brochure on Datacolor® 500 benchtop spectrophotometers, filed with the grounds of appeal

D19 Colour measurements on a cocoa powder under different measurement conditions, filed by the appellant on 19 October 2021

D20, D21 Experimental reports, filed by the appellant on 19 October 2021

V. In a response to the board's communication under Article 15(1) RPBA, the appellant filed documents D19 to D21 and requested that they be admitted into the proceedings.

VI. Wording of the relevant claims

Claim 1 as granted (main request) reads:

"A method of alkalizing cocoa beans, comprising:
sterilizing de-shelled cocoa beans;
alkalizing the de-shelled cocoa beans in an alkalizing mixture comprising the de-shelled cocoa beans, alkali and water, at an initial alkalization temperature of from 50°C to 85°C and an average alkalization temperature of between 50°C to 70°C, whereby an air flow is minimized and essentially no steam is added into the alkalization mixture, thus producing alkalized cocoa beans, wherein said alkalized cocoa beans are processed into a cocoa powder, having color values of L less than 16, of C greater than 20, and of H from 35 to

55 as determined according to CIE 1976 color standards; and a pH of greater than 7.0."

Claim 1 of the first auxiliary request comprises the additional features:

"..., wherein measurement is conducted according to the following method
1. weigh 7.5 ± 0.1 g of cocoa powder in a 400 ml beaker;
2. add 100 ml demineralised water of 50 °C and stir with a stirring rod until a smooth slurry is obtained without lumps;
3. continue stirring using a magnetic stirrer for 10 minutes;
4. add 50 ml demineralised water of room temperature;
5. continue stirring for at least 1 minute;
6. pump the suspension through the quartz flow cuvette, while stirring;
and
7. read and record the L*-, C*- and h-values with a calibrated color spectrophotometer."

Claim 1 of the second auxiliary request contains, in addition to the features of the first auxiliary request, the following limitation:

"... measuring geometrics d/8 - specular excluded; illuminant D65; observer angle 10°."

Claim 1 of the third auxiliary request comprises, in addition to the features of claim 1 as granted, the restriction:

"..., relative to D11S cocoa powder having an L of 11.8, C of 18.4 and H of 43.95."

By contrast, claim 1 of the fourth auxiliary request is distinguished from claim 1 of the main request by the further feature:

"... measured using a Datacolor Spectraflash 500 Color spectrophotometer."

Claim 1 of the fifth auxiliary request is discerned from claim 1 of the main request by the added characteristic:

"... wherein the de-shelled cocoa beans are alkalized at an initial alkalization temperature that is higher than the average alkalization temperature."

The subject-matter of claim 1 of the sixth auxiliary request contains the further limitation over claim 1 of the main request:

"... wherein beans are cooled to between 65 and 85°C, alkali is added, and alkalization is continued at between 55°C and 60°C."

VII. The appellant's arguments, where relevant to the decision, may be summarised as follows.

(a) The main request (patent as granted) met the requirement of sufficiency of disclosure. Example 1 of the patent was a "multi-factorial design trial". The four parameters analysed were alkalisation temperature, alkalisation time, extra water added and air flow. A person skilled in the art could infer from a multi-factorial design trial which parameters had to be changed if the required values were not obtained.

(b) D15 apparently employed measuring conditions inconsistent with the opposed patent or was a single failure caused by unknown issues in the process. The experiments described in D20/D21 demonstrated that the required colour values could be obtained using the conditions described in the patent if reasonable colour measurements were used.

(c) Document D19 had been filed as a reaction to the board's preliminary opinion that the measuring conditions were not responsible for the results of D15. D19 showed that colour measurements were influenced by the measurement conditions. D20 and D21 had been filed as a reaction to the board's preliminary assessment that D17 was not close enough to the teaching of the patent. Documents D19 to D21 should thus be admitted.

(d) In auxiliary requests 1 to 4, the measurement conditions were further specified. As regards auxiliary request 4, the claimed subject-matter not only fulfilled the requirements of Article 83 EPC but also of Article 84 EPC. With regard to auxiliary request 5, the added feature that the beans are alkalised at an initial alkalisation temperature higher than the average alkalisation temperature was not mentioned in the experimental report D15, and this feature overcame the objections under Article 83 EPC.

VIII. The respondents' arguments, where relevant to the decision, may be summarised as follows.

(a) As to sufficiency of disclosure, the patent did not provide sufficient information on how to obtain a

cocoa powder with a C (chroma) value above 20. Studying the conditions of the method according to which the cocoa powders of table 3 of the patent were prepared, it seemed completely random whether the claimed method led to the cocoa powder of claim 1 as granted. There was thus evidence that the claimed method was insufficiently disclosed.

(b) The method described in D15 was well within the scope of the claims as granted. The fact that it was not possible to obtain the claimed C values in D15 and that it was not obvious how to modify the process described to achieve the desired effect demonstrated that insufficient information was provided in the patent to perform the claimed process over the entire scope of claim 1.

While the values of L (lightness), H (hue) and pH in D15 were within the claimed ranges, the values for C were significantly lower than required in claim 1. D17 could not disqualify the results of D15 as the value for the air flow was markedly higher than in the examples of the patent (as displayed e.g. in table 2).

(c) The subject-matter of the auxiliary requests did not overcome, *inter alia*, the objections of insufficiency of disclosure raised against the main request. In auxiliary request 1, it was not plausible that a different measurement method would result in a difference in the obtained values in the range of more than six units. The patent mentioned measurement differences between different spectrometers in the range of ±0.5 units.

The feature added in claim 1 of auxiliary request 5 was inherently present in claim 1 of the main request. Moreover, no different result compared to D15 was plausibly obtained by the feature that the initial alkalisation temperature must be higher than the average alkalisation temperature without indicating any time spans or temperature differences relating to this feature. In addition, D15 did not include a cooling step between sterilisation and alkalisation.

(d) Documents D17 to D21 should not be admitted into the proceedings because they were late filed.

IX. Final requests

The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted (main request) or, alternatively, upon the basis of any of auxiliary requests 1 to 6, all filed with the grounds of appeal.

The respondents requested that the appeal be dismissed.

Reasons for the Decision

1. Admissibility of documents D17 and D18 (Article 12(4) RPBA 2007)

1.1 Respondent 1 requested that documents D17 and D18 not be admitted because they had been filed late.

1.2 Document D17 was filed with the statement setting out the grounds of appeal on 8 July 2019. In view of the transitional provisions laid down under Article 25(2) RPBA 2020, the provisions of Article 12(4) RPBA 2007 apply. According to the appellant, D17 demonstrated that the method of the claimed invention could also be performed with, for example, beans from Nigeria.

The board holds that the experimental results filed in D17 are prima facie relevant to sufficiency of disclosure in view of the mentioned purpose of its filing. Moreover, the board considers its filing a legitimate reaction to the decision under appeal since the preliminary opinion of the opposition division was favourable on sufficiency of disclosure and because document D15 was filed relatively shortly before the first-instance oral proceedings. It is for these reasons that the board takes D17 into account (Article 12(4) RPBA 2007).

1.3 Likewise, document D18 was filed by the appellant with the grounds of appeal to support its line of argument on the clarity of the subject-matter of auxiliary request 4. This request corresponds to the auxiliary request 1 filed in the first-instance proceedings which, according to the opposition division, infringed the requirements of Article 84 EPC. The opposition division held that the use of a trade mark or similar expression in claim 1, here relating to the spectrophotometer employed, was objectionable. The reason was that the device's specifications could change over the term of the patent.

According to the appellant, D18 supported that it was rather uncommon for a company to modify a device without changing the model name. There were further

devices featured in D18, but these had been given new names.

D18 was thus filed as a reaction to the impugned decision. Consequently, the board takes D18 into account (Article 12(4) RPBA 2007).

2. Admissibility of documents D19 to D21 (Article 13(2) RPBA 2020)

2.1 Documents D19 to D21 were filed by the appellant on 19 October 2021 and thus after notification of the summons to oral proceedings. Their filing is therefore an amendment to the appellant's appeal case, and the provisions of Article 13(2) RPBA 2020 apply. The respondents requested that these late-filed documents not be admitted.

2.2 The appellant stated that document D19 had been filed after further consultation with colour measurement experts as a reaction to the board's preliminary opinion in which it had been argued that the measuring device and conditions employed in D15 could not be responsible for the results obtained in D15. In its preliminary opinion, the board referred to page 7, lines 17 to 19 of the patent.

This passage states: "The color values recited herein are approximate in the sense that color measurements may vary from spectrophotometer-to-spectrophotometer, typically in the range of ±0.5 for L, C and H values."

The board observes that the accuracy of colour measurements on cocoa powders was already the subject of the first-instance proceedings, as detailed in point 26.4 of the impugned decision. Point 26.4 referred to

divergent results of colour measurements in the context of the significance of the colour values achieved in D15. In preparation for the oral proceedings before the department of first instance, colour measurement experts could have been consulted by the patent proprietor regarding the key influences determining the reading values of colour measurements.

Furthermore, respondent 1 discussed the significance of the results of the colour measurements obtained in D15 in its reply to the statement setting out the grounds of appeal. Respondent 1 stated under point 3.3.2 of this submission:

"While the values for L (Lightness), H (Hue) and pH are within the claimed ranges, the values for C (Chroma) significantly differ as the highest obtainable value for C was 13.67, which is more than 6 units below the claimed value. On page 10, line 21 of the description as filed, it is mentioned that it is well known that the measurements differ from spectrometer to spectrometer in the range of ±0.5. Hence, even admitting such a tolerance, the values for C are still far outside of the claimed range."

However, the mentioned passage on page 10, line 21 indicates a variation of the L, C and H values from spectrometer to spectrometer in the range of ±0.5. It thus coincides with the passage on page 7, lines 17 to 19 of the patent, cited in the preliminary opinion of the board. Hence, the line of argument that, even admitting such a measurement tolerance, the values of C in D15 are still far outside the claimed range stems from respondent 1 and does not amount to a new aspect raised by the board. The argument was put forward by respondent 1 about two years in advance of the oral

proceedings before the board. The appellant could thus have filed D19 at the latest in direct reply to respondent 1's reply to the statement setting out the grounds of appeal. Therefore, the board's reference in the preliminary opinion to this argument of respondent 1 cannot qualify as "exceptional circumstances, which have been justified with cogent reasons" within the meaning of Article 13(2) RPBA 2020. Hence, the board does not take document D19 into account.

2.3 The appellant also put forward that the experimental reports D20 and D21 had been submitted as a reaction to the preliminary opinion of the board arguing that D17 was not close enough to the teaching of the patent. The preliminary opinion had criticised D17 for using a higher air flow than the patent in suit. However, this higher air flow had been chosen intentionally to show that the air flow range described in paragraph [0027] of the patent of 240 to 3000 ml/min/kg was suitable for the claimed method. As a reaction to the criticism in the preliminary opinion, the experiments had been repeated using an air flow of 720 ml/min/kg and 240 ml/min/kg.

The board does not agree. In view of respondent 1's criticism that D17 could not disqualify D15 due to the markedly different air flow rates employed, the appellant could have reacted by filing additional experiments (using the same air flow rates as employed in D15 and the examples featured in table 2 of the patent, i.e. 240 or 720 ml/min/kg) as a direct reaction to this criticism. The latter, however, had already been put forward in respondent 1's reply to the grounds of appeal.

Thus, the board concludes that there are no exceptional circumstances as required by Article 13(2) RPBA 2020 which would justify the admission of documents D20 and D21 into the appeal proceedings. Documents D20 and D21 are thus not taken into account by the board.

3. Sufficiency of disclosure - Main request

3.1 Multi-level factorial design trials

3.1.1 The appellant argued that example 1 of the patent in suit related to a "multi-level factorial design trial". Such design trials were used to determine the effects of different parameters in one study. The four parameters to be varied were alkalisation temperature, alkalisation time, extra water added and air flow, whereas other parameters (such as the amount and type of alkali) had not been changed. The results in table 3 of the patent demonstrated that lower alkalisation temperature and lower air flow gave rise to higher C values. According to page 6, lines 3 to 4 of the patent, increasing the amounts of air and steam in the alkalisation mixture resulted in a greyer, less bright product. In addition, mathematical models for a great variety of process conditions had been provided in example 1.

D15, which the opposition division held to be evidence casting doubt on the sufficiency of disclosure, apparently employed measuring conditions inconsistent with the opposed patent or was a single failure caused by unknown issues in the process.

3.1.2 The board is not convinced by these arguments.

Claim 1 requires, besides a pH of the cocoa powder of

greater than 7.0, specific ranges of L, C and H values of the cocoa powder obtained as effects to be achieved.

The method of claim 1 requires as limitations i) an initial alkalisation temperature of from 50 to 85°C, ii) an average alkalisation temperature of between 50°C and 70°C, iii) minimisation of the air flow, and iv) essentially no steam addition into the alkalisation mixture.

It is clear in view of the results obtained in example 1 of the patent that not each and every method of alkalising cocoa beans meeting limitations i) to iv) and otherwise falling within the ambit of claim 1 brings about the desired product properties (pH value and colour values as specified in claim 1). The respondents referred for instance to run 6 in table 3 of the patent, exhibiting a C value of about 18.8.

3.1.3 As conceded by the appellant, suitable conditions for meeting the sought product properties can be determined by multi-level factorial design trials, varying certain process parameters and keeping the others constant.

3.1.4 It follows from the results obtained in example 1 that, *inter alia*, alkalisation temperature, added water, air flow and alkalisation time can influence the obtained C value. In example 1, the amount of alkali is kept constant (6% potassium carbonate as an aqueous solution).

3.1.5 As put forward by the respondents, every example of the patent has its own process parameters, including production scale (laboratory or factory). As a result, from the process parameters applied in example 1 of the patent, process conditions are proposed for factory

scale operation in paragraph [0059]. Those include, *inter alia*, an air flow of 240 ml/min/kg.

3.1.6 The board notes that, as put forward by the respondents, different useful air flow rates are indicated in the patent. In paragraph [0011] of the patent, a "minimal amount of air" refers to less than about 3000 ml/min/2.5 kg of cocoa beans and more typically from 240 to 720 ml/min/2.5 kg of cocoa beans. In contrast, paragraph [0027] proposes values for the air flow from 240 to 3000 ml/min/kg and more typically from 240 to 720 ml/min/kg. As argued by the respondents, air flow values are also provided in ml/min/2.5 kg or ml/s/2.5 kg in the examples. Thus, divergent ranges for useful air flow rates are indicated in the patent, and the different indications of air flow rates are not occasioned by printing errors.

The injected air serves as a coolant and an oxidising agent for the beans (see paragraph [0027] of the patent). Hence, the amount of air injected is effective for lowering the temperature from sterilisation temperature to alkalisation temperature. What is more, the amount of air has to be sufficient to oxidise the beans but insufficient to cause lightening of the beans (increased L value). In contrast to the teaching of example 1 to minimise the air flow to 240 ml/min/kg (also proposed for factory trials in [0059]) during nib alkalisation to increase C values, paragraph [0077] states that less air dosage reduced C values in charges 6 to 9 of example 2.

The appellant's counter-arguments that example 2 related to a factory scale, that the wrong air dosage was used a few times and that the C value was still in

the claimed range do not invalidate the finding of divergent and contradictory teachings on the required "air flow" in the patent and its impact on the C values of the obtained cocoa powders. As countered by the respondents, the fact that the adjustment of the needed air flow during the alkalisation treatment of the beans is also scale dependent complicates the determination of useful parameter combinations for meeting the product specifications of claim 1 even further. Whether the air flow was reduced intentionally in runs 6 to 9 of example 2 has no bearing on the impact of air flow on product properties.

Likewise, paragraph [0133] of the patent suggests that higher air flow (expressed in table 28 as total air injected), lower alkali and longer alkalisation time at a lower alkalisation temperature leads to a brighter (higher C values, see paragraph [0030] of the patent) and redder cocoa powder. The argument of the appellant that only a few experiments were described in table 28 and that more than one parameter had been varied at the same time cannot invalidate the mentioned qualitative assessment put forward in paragraph [0133], pointing towards increasing the air flow instead of minimising it (as suggested in example 1 and required by claim 1).

As argued by the respondents in the oral proceedings before the board, a further pointer towards increasing the air flow during alkalisation treatment is indicated in paragraph [0168] of the patent. There, it is stated that adding more air increased the C value. Likewise, for the fifth blender, changing the alkalisation recipe by adding more air and less potash resulted in a colour in the desired direction.

3.1.7 As pointed out by respondent 2, table 20 of the patent displays an L value for run 7 of example 3 of 16.1, thus outside the scope of claim 1. The appellant's argument that an alkalisation time of 300 minutes had been applied in run 7 and that embodiments not falling within the scope of the claims were not claimed do not overcome the objection. The matrix of parameter set points displayed in table 20 shows that, under differently set parameter combinations, even for an alkalisation time of 300 minutes, the desired L value of less than 16 can be reached. All these set parameters do not form part of the features of claim 1.

3.1.8 The board therefore concurs with the respondents that each example of the patent has its own set of process parameters which influence the colour values and pH of the cocoa powders obtained. Such a set of parameters needs to be determined by multi-level factorial design trials of a plethora of factors influencing the product properties, such as the alkalisation temperature and time, extra water added, amount of added base, type of cocoa beans, air flow (in terms of air flow rate expressed in ml/min/kg cocoa beans and total air added), and production scale.

3.1.9 Therefore, a skilled person wishing to carry out the subject-matter of claim 1 across the full breadth of the claim using their common general knowledge is left to undertake a multi-parametric research programme to determine suitable parameter combinations for obtaining cocoa powders exhibiting the desired colour and pH values.

3.1.10 The absence of a selection rule other than performing multi-parametric trial-and-error experiments in multi-level factorial design trials, varying some of the

process parameters and keeping others constant, constitutes nothing more than an invitation to find suitable reaction conditions for achieving the desired technical effect (here the combinations of specific colour and pH values). Therefore, it amounts to an undue burden to find suitable parameter combinations across the full breadth of claim 1. Hence, the subject-matter of claim 1 is insufficiently disclosed.

3.1.11 This finding is not remedied by the filing of document D17, not forming part of the information content of the patent. What can be derived from D17 is that it is possible to find suitable process parameter combinations for arriving at the desired colour and pH values also for cocoa beans from Nigeria. This, however, is not the point in view of the conclusion of the absence of a suitable selection rule for reducing the claimed subject-matter to practice over the full breadth of claim 1 without imposing an undue burden.

3.2 Colour measurements and significance of D15

3.2.1 The appellant submitted that the colour measurements conducted in D15 had been accomplished inconsistently with the patent in suit.

3.2.2 The appellant also drew attention to the comparative data presented by opponent 2/respondent 2 in its letter of 28 August 2018 in which the L values for a given cocoa powder, measured on two different spectrophotometers using the CIE 1976 colour standards, differed by a factor of 2.2. An L value of 29 had been determined on an X-Rite device, whereas a HunterLab spectrophotometer gave an L value of about 13 (see also point 26.4 of the impugned decision in this regard). Likewise, the C values which could be calculated from

the a and b values indicated were about 19 and 9 for the X-Rite and the HunterLab device, respectively. The pertinent indications provided in paragraph [0033] of the patent obviously related to measurement variations using the same type of devices under identical test conditions. In contrast, the HunterLab device would, according to the appellant, yield entirely different measurement values.

3.2.3 The board is not convinced by this line of argument. As correctly pointed out by the respondents, the other colour values measured in D15, besides the C values, fall within the scope of claim 1. Those are the L value (lightness of colour) and H value (hue, according to the explanations provided in paragraph [0030] of the patent, the colour in daily speech such as red, yellow or blue). Even in view of a possible variation of reading values for colour values from spectrometer to spectrometer of ± 0.5 units, the values for C (chroma) obtained in D15 would still be far outside the claimed range. Moreover, the reading values described in the table of opponent 2's submission dated 28 August 2018 for the L value determined on the X-Rite colorimeter are more than twice as high as those measured on the HunterLab colorimeter. Hence, the board concludes that it is not plausible that the difference between the values obtained in D15 for the C values of the cocoa powders and the threshold C value of greater than 20 specified in claim 1 of six units could merely be ascribable to the measurement differences, including using a different colorimeter.

In addition, preferred values for the air flow were applied in D15 (see paragraph [0027] of the patent). Moreover, the alkalisation temperatures, alkalisation times, amount of alkalisation agent and added water

employed in D15 were in line with the levels set in example 1 of the patent. Consequently, the experimental conditions applied in D15 are representative of the patent.

In the view of the board, the experiments conducted in D15 demonstrate that the required C values were not obtained when carrying out a method of alkalising cocoa beans as characterised in claim 1 of the patent in suit. They thus support that the subject-matter of claim 1 is insufficiently disclosed.

3.2.4 The appellant also argued that D15 did not disclose any details of the colour measurements when using a HunterLab Colorflex colorimeter for carrying out the measurements in D15. It was, however, also known that reference materials, such as the cocoa powder D11S mentioned in table 4 of the patent, or standards were often used to compare the results of different colour measurements. D15 must thus have used measurement techniques inconsistent with the opposed patent.

The board observes that claim 1 of the main request neither requires a certain standard or reference material nor a certain type of colorimeter nor a specific measurement methodology to be applied for making the measurements. The patent itself does not appear to require the use of the cocoa powder D11S as a reference standard for colorimeter calibration either. This line of argument is therefore not convincing.

3.2.5 The appellant also put forward that D15 even comprised incorrect data calculations as it reported the a/b average, but the C value was calculated from the arctan (b/a) and not a/b. The board observes that the H value is calculated from the arctan (b/a) and not the C

value, as is outlined in paragraph [0031] of the patent in suit.

3.2.6 What is more, the appellant mentioned that the experiments featured in D15 were not in accordance with example 1 of the patent. The pH values of the obtained cocoa powder were not in line with the patent, being almost 9 and not between 7 and 8. It was not clear which example of the patent had allegedly been repeated in D15. It had similarities with example 1 but lacked the design study part. Different beans had also been employed, and the alkalisation step of D15 also differed from the one described in the patent.

However, the board observes that the example provided in D15 falls within the scope of claim 1 (apart from the C values being too low). It is thus irrelevant whether it is an exact reproduction of example 1 of the patent (or any other of its examples).

3.3 Consequently, the ground of opposition under Article 100(b) EPC prejudices the maintenance of the patent as granted.

4. Sufficiency of disclosure - Auxiliary requests

4.1 The features inserted into claim 1 of auxiliary requests 1 to 4 concern details of the colour measurements. The lack of information on the colour measurement, however, is not the core issue of the objection of lack of sufficiency. The issue is the lack of guidance in the patent on selecting suitable process parameter combinations for obtaining the desired C values for all variants encompassed by claim 1.

Furthermore, the board concluded above that it is not plausible that the difference of six units between the values obtained in D15 for the C values of the cocoa powders and the threshold C value of greater than 20 set out in claim 1 could merely be the result of the measurement differences, including a different colorimeter, relative to the colour measurements undertaken in the patent.

Consequently, the considerations and conclusions made above under points 3.1, 3.2.1 to 3.2.3, 3.2.5 and 3.2.6 apply mutatis mutandis to the subject-matter of claim 1 of auxiliary requests 1 to 4, which is thus insufficiently disclosed. The subject-matter of claim 1 of auxiliary requests 1 to 4 does thus not meet the requirements of Article 83 EPC.

4.2 The subject-matter of claim 1 of auxiliary requests 5 and 6 further specifies the process steps of the claimed method. No further arguments in favour of sufficiency of disclosure of these requests were put forward by the appellant in the oral proceedings before the board.

4.3 With regard to the subject-matter of claim 1 of auxiliary request 5, the remarks made above under point 3.1 apply. The reason is that a higher initial alkalisation temperature relative to the average alkalisation temperature does not impinge on the above finding of a multi-parametric trial-and-error scenario with regard to claim 1 of the main request. This scenario involves the undue burden of having to select suitable parameter combinations when wishing to carry out the subject-matter of claim 1 across the full breadth of the claim.

With regard to the significance of the considerations made under points 3.2.1 to 3.2.6 above, the board concurs with the respondents' conclusion that a cooling step of the beans after sterilisation, followed by reheating during alkalisation, is not described in D15. As argued by respondent 2, "it would be contrary to scientific principles to omit steps from a described method". According to D15, "the nibs were placed in the IKA conical dryer" after the sterilisation step. Hence, the board considers that D15 inherently describes the added feature of claim 1.

Thus, the remarks made in points 3.2.1 to 3.2.6 also apply to claim 1 of the fifth auxiliary request.

4.4 Regarding the subject-matter of claim 1 of auxiliary request 6, the board takes the view that the added features "wherein the beans are cooled to between 65 and 85°C, alkali is added, and alkalization is continued at between 55°C and 60°C" does not overcome the objections regarding insufficiency put forward under point 3.1 either.

These objections are based on the finding that different combinations of parameter values (at least of air flow, alkalisation time, alkalisation temperature and amount of extra water added after sterilisation) are required for different process conditions to obtain the colour and pH values stipulated in claim 1 across the full breadth of the claim. These different parameter combinations have to be adjusted for different process conditions (including production scale) by running experimental multi-level factorial design trials. This constitutes an undue burden imposed on a skilled person wishing to carry out the subject-matter of claim 1 across its full breadth.

Consequently, the subject-matter of claim 1 of auxiliary request 6 also does not meet the requirement of sufficiency of disclosure (Article 83 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Nielsen-Hannerup A. Haderlein

Decision electronically authenticated