Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 28 March 2023

Case Number: T 0347/21 - 3.3.09

Application Number: 10738316.8

Publication Number: 2395069

IPC: C11B7/00, A23D9/00

Language of the proceedings: EN

Title of invention:
DRY OIL-AND-FAT SEPARATION METHOD

Patent Proprietor:
Fuji Oil Holdings Inc.

Opponent:
AAK AB

Headword:
Dry oil-and-fat separation method/FUJI

Relevant legal provisions:
EPC Art. 83, 100(b)

Keyword:
Sufficiency of disclosure - (no)

Decisions cited:
T 2080/12

Catchword:

Europäisches Patentamt
European Patent Office
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 0347/21 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 28 March 2023

Appellant: (Opponent)	AAK AB Skrivaregatan 9 215 32 Malmo (SE)
Representative:	Hamer, Christopher K. Mathys & Squire The Shard 32 London Bridge Street London SE1 9SG (GB)
Respondent: (Patent Proprietor)	Fuji Oil Holdings Inc. 1, Sumiyoshi-cho Izumisano-shi Osaka 598-8540 (JP)
Representative:	Boult Wade Tennant LLP Salisbury Square House 8 Salisbury Square London EC4Y 8AP (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 10 February 2021 rejecting the opposition filed against European patent No. 2395069 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	A. Haderlein
Members:	M. Ansorge
	N. Obrovski

Summary of Facts and Submissions

I. The opponent (appellant) lodged an appeal against the opposition division's decision rejecting the opposition.

II. With its notice of opposition, the opponent had requested that the patent be revoked, *inter alia*, on the ground for opposition under Article 100(b) EPC.

III. The opposition division decided, *inter alia*, that the invention could be carried out by a skilled person.

IV. Claim 1 of the patent as granted (main request) reads as follows:

"A method of obtaining a SUS-rich oil-and-fat by multistage fractionation, comprising concentrating SUS into a crystal fraction by dry fractionation with a stirring crystallization and a press-filtration using an oil-and-fat containing SUS as a raw material, and concentrating SUS remaining in a filtrate fraction into a crystal fraction by dry fractionation at a next stage with a stirring crystallization and a press-filtration, wherein a SUS content of the oil-and-fat containing SUS is 30% by weight or more, and an SUS content of the SUS-rich oil-and-fat is 60% by weight or more, wherein SUS: 2-unsaturated, 1,3-disaturated triglycerides, S: saturated fatty acid having 16 to 22 carbon atoms, U: unsaturated fatty acid having 18 carbon atoms."

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that the features "while controlling a crystal amount of the crystal slurry so that the crystal slurry has flowability and can be

transported with a pump" and "and wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" are incorporated into claim 1.

Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that the features "by cooling with a coolant", "wherein a temperature of the coolant is raised to a temperature which is higher than the original coolant temperature at crystallization by 2 to 4°C and the temperature is retained while stirring at a low speed until completion of the press-filtration of the first stage" and "and wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" are incorporated into claim 1.

Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that the feature "and wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid)" is incorporated at the end of claim 1.

Claim 1 of auxiliary request 4 differs from claim 1 of the main request in that the features "by cooling with a coolant", "while controlling a crystal amount of the crystal slurry so that the crystal slurry has flowability and can be transported with a pump, wherein a temperature of the coolant is raised to a temperature which is higher than the original coolant temperature at crystallization by 2 to 4°C and the temperature is retained until completion of the press-filtration of the first stage" and "and wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" are incorporated into claim 1.

Claim 1 of auxiliary request 5 differs from claim 1 of auxiliary request 1 in that the feature "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" is amended to "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to less than 15% by weight as a solid fat content".

Claim 1 of auxiliary request 6 differs from claim 1 of auxiliary request 4 in that the feature "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" is amended to "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to less than 15% by weight as a solid fat content".

Claim 1 of auxiliary request 7 differs from claim 1 of the main request in that the features "by cooling with a coolant, adding a SUS-stable crystal flake in an amount of 1 to 50 ppm during cooling of an oil temperature to a minimum crystallization temperature by a coolant or shortly after reaching the minimum temperature during stirring crystallization" and "and wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" are incorporated into claim 1.

Claim 1 of auxiliary request 8 differs from claim 1 of auxiliary request 7 in that the feature "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" is amended to "wherein a crystal amount of the crystal slurry to be subjected to the press-

filtration is 10 to less than 15% by weight as a solid fat content".

Claim 1 of auxiliary request 9 differs from claim 1 of auxiliary request 1 in that the feature "and wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid)" is added at the end of claim 1.

Claim 1 of auxiliary request 10 differs from claim 1 of the main request in that the features "by cooling with a coolant", "while controlling a crystal amount of the crystal slurry so that the crystal slurry has flowability and can be transported with a pump, wherein a coolant temperature is raised to a temperature which is higher than the original coolant temperature at crystallization by 2 to 4°C and the temperature is retained while stirring at a low speed until completion of the press-filtration of the first stage" and "and wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content, and wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid)" are added to claim 1.

Claim 1 of auxiliary request 11 differs from claim 1 of the main request in that the features "while controlling a crystal amount of the crystal slurry so that the crystal slurry has flowability and can be transported with a pump" and "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to less than 15% by weight as a solid fat content, wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid) and wherein the value of the solid fat content is a value measured with NMR-pulse" are added to claim 1.

Claim 1 of auxiliary request 12 differs from claim 1 of the main request in that the features "by cooling with a coolant", "wherein a coolant temperature is raised to a temperature which is higher than the original coolant temperature at crystallization by 2 to 4°C and the temperature is retained while stirring at a low speed until completion of the first stage press-filtration" and "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to less than 15% by weight as a solid fat content, wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid), and wherein the value of the solid fat content is a value measured with NMR-pulse" are added to claim 1.

Claim 1 of auxiliary request 13 differs from claim 1 of auxiliary request 12 in that the feature "while controlling a crystal amount of the crystal slurry so that the crystal slurry has flowability and can be transported with a pump" is added to claim 1.

Claim 1 of auxiliary request 14 differs from claim 1 of the main request in that the features "by cooling with a coolant, adding a SUS-stable crystal flake in an amount of 1 to 50 ppm during cooling of an oil temperature to a minimum crystallization temperature by a coolant or shortly after reaching the minimum temperature during stirring crystallization" and "wherein the SUS-stable crystal flake is a flake or powder of a block-like oil-and-fat obtained by crystallizing an oil-and-fat having a SUS content of 60% by weight or more with a rapid cooling kneading machine, wherein during cooling means the time point at which an oil temperature is cooled down to a range of between approximately +5°C above the minimum temperature and the minimum temperature, wherein a

crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content, wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid), and wherein the value of the solid fat content is a value measured with NMR-pulse" are added to claim 1.

Claim 1 of auxiliary request 15 differs from claim 1 of auxiliary request 14 in that the feature "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content" is amended to "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 15% by weight as a solid fat content".

V. The following documents were cited in the current case:

D1: Experimental report using sal oil having an SUS content of 69.5 wt% as the raw material
D2: Experimental report using enzymatically interesterified shea olein having an SUS content of 54.1 wt% as the raw material
D3a: M. Bockisch, "Fats and Oils Handbook", 1993, 446-507
D4a: "The Lipid Handbook", third edition, ed. F.D. Gunstone, J.L. Harwood and A.J. Dijkstra, 2007, 300-315
D5: EP 1 548 094 B1
D8: EP 0 399 597 B1
D9: Experimental report using an oil having an SUS content of 48 wt% as the raw material
D14: Experimental report using an oil having an SUS content of 37.3 wt% as the raw material

VI. The parties' relevant arguments, submitted in writing and during the oral proceedings, are reflected in the reasons for the decision below.

VII. Requests

The appellant requested that the decision be set aside and that the patent be revoked.

The proprietor (respondent) requested that the appeal be dismissed (main request) or, as an auxiliary measure, that the patent be maintained on the basis of one of auxiliary requests 1 to 15, filed with the reply to the grounds of appeal.

Reasons for the Decision

MAIN REQUEST

1. Admittance of D14

1.1 The respondent requested that D14 not be admitted into the proceedings. It argued that D14 did not address the issues which led to the decision under appeal. In D14, no two-stage dry fractionation process was carried out, and no press filtration was used. The respondent further stressed that the appellant had known as early as November 2019 that more evidence was likely to be needed and had submitted D9. Therefore, the opponent could have submitted D14 earlier.

1.2 For the following reasons, D14 is admitted into the appeal proceedings.

1.2.1 In the decision under appeal, the opposition division argued that a skilled person was not faced with the need for a research project to repeat the method of claim 1 as it was the case with D9 which shows a pumpable material. In addition, it held that the data in D1 did not appear to meet the patent's goals having a starting material already exceeding the SUS concentration required by the method. The initial SUS concentration in D1 and D2 could explain the high viscosity found in these reports. Even if the initial concentration was not the cause of the high viscosity of the slurry, the opposition division assumed that it seemed "plausible on balance that simple adjustment (e.g. the holding time, temperature) could have led to a successful method according to the contested patent" (see page 7 of the decision, emphasis by the board).

1.2.2 Neither the respondent nor the opposition division argued before the date of the oral proceedings that a simple adjustment of e.g. the (isothermal) holding time could be considered crucial. According to the file, the opposition division's assumption in this respect was given for the first time in the decision under appeal.

Under these circumstances, it is considered a legitimate reaction to the decision under appeal to submit an experimental report addressing this issue and showing that the isothermal holding time is not, as assumed by the opposition division, a means of converting the failing experiments into a success and achieving the required SUS content as claimed.

In view of the above, D14 is considered in the proceedings (Article 12(4) RPBA 2020).

2. Sufficiency

2.1 Claim 1 relates to a method of obtaining an SUS-rich oil and fat having an SUS content of 60 wt% or more, by multistage fractionation, comprising:

- a first stage using an oil and fat containing SUS as a raw material having an SUS content of 30 wt% or more in which SUS is concentrated into a crystal fraction by dry fractionation with stirring crystallisation and press filtration

- a next (second) stage of concentrating SUS remaining in a filtrate fraction into a crystal fraction by dry fractionation with stirring crystallisation and press-filtration

2.2 There was agreement among the parties that claim 1 requires that the SUS content after each stage, i.e. both after the first stage and after the next (second) stage, needs to be 60 wt% or more. The board agrees with the parties' congruent interpretation of claim 1 in this respect.

2.3 The following experimental evidence was submitted by the appellant to raise serious doubts that the invention can be carried out over substantially the whole claimed range.

2.3.1 D1 is an experimental report using sal oil having an SUS content of 69.5 wt% as the raw material in a dry fractionation experiment. The temperature conditions (heating to 60 °C to completely melt the raw material and adjusting the isothermal holding temperature to 33.3 °C) are close to those mentioned in the first stage of examples 1 and 2 of the patent (heating to 60

°C to completely melt the raw material and adjusting the isothermal holding temperature to 31 °C), and the isothermal holding time is 17 hours in test 1 and 10 hours in test 2, which is lower than the 19 hours mentioned in the first stage of examples 1 and 2 of the patent. D1 demonstrates that the slurry was too viscous and that it could not be filtered.

2.3.2 D2 is an experimental report using enzymatically interesterified shea olein having an SUS content of 54.1 wt% as the raw material in a dry fractionation experiment. The temperature conditions are similar to those applied in D1 and again close to those mentioned in the first stage of examples 1 and 2 of the patent, but the isothermal holding time is 6 hours. Although the filtration was "nice" with a final slurry solid fat content (SFC) of 15.5 wt%, an SUS content of 60 wt% or above could not be achieved in the first fractionation stage.

2.3.3 D9 comprises two experiments using an oil having an SUS content of 48 wt% as the raw material. The temperature conditions in both experiments are again close to those mentioned in examples 1 and 2 of the patent. Although the final slurry SFC was 10.50 or 12.70 wt%, in line with the preferred range proposed in paragraph [0026] of the patent, the slurry did not separate well. In both experiments according to D9, an SUS content of 60 wt% or above could not be achieved in the first fractionation stage.

2.3.4 D14 comprises two experiments using an oil having an SUS content of 37.3 wt% as the raw material. The temperature conditions even more closely resemble the temperature conditions given in examples 1 and 2 of the patent (60 °C for completely melting the raw material

and an isothermal holding temperature of 30 °C). The influence of the isothermal holding time on the SUS content and SFC content in the slurry was investigated (see the figures on pages 1 and 2 of D14). In both experiments of D14, an SUS content of 60 wt% or greater could not be achieved over a holding time of 15 to 22 hours (see the figure on page 1) or 15 to 40 hours (see the figure on page 2).

2.4 The appellant argued that the invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, the claims being far broader than what had been demonstrated to work. The respondent argued as follows in response to the appellant's objection under Article 83 EPC.

- The patent showed ways of carrying out the invention in examples 1 and 2. There was no undue burden in carrying out the invention. Examples 1 and 2 did allow the invention to be carried out over the whole range claimed as explained with respect to D5 and D8. As shown in D5 and D8, it was typical in the art not to provide timings or temperatures for fractionation processes of this general type. The lack of this type of information in the claim did not result in an undue burden on a person skilled in the art attempting to carry out the invention.

- It was not clear from D1 which filtration the appellant intended to use from the limited information in D1. However, the claimed invention required press filtration, and this step was absent from the experiments of D1. Therefore, D1 did not

carry out all the necessary steps of the current invention.

- In D2, the crystallisation process was only allowed to take place for 6 hours, whereas example 1 of the patent allowed crystallisation to take place for 19 hours. It was therefore not clear whether crystallisation was complete in D2 and whether a higher percentage of SUS was formed over time which could result in a proportion of SUS of 60 wt% or more.

- D9 also used a short crystallisation time of 8 hours, and it was possible that a longer crystallisation time would have resulted in a higher yield of SUS.

- In D14, neither experiment included a press-filtration step. Therefore, neither experiment carried out in D14 corresponded to the invention of the patent. In addition, the appellant had not described the procedure by which the SUS was sampled for measurement as no press filtration was carried out. Furthermore, a person skilled in the art considering the data available from D14 would understand that the crystallisation temperature was too low. Moreover, D14 indicated that the current invention was reproducible because the SUS content in experiment 2 of D14, which was similar to the examples in the patent, achieved SUS values that were very close to the SUS content specified in the claims and could even be considered to fulfil the 60 wt% required in claim 1 if rounded up (becoming 60 wt%).

- D3a was evidence of the common general knowledge of a person skilled in the art. D3a related to dry fractionation and stated that the fat was heated to above its melting point so that it was completely melted and then cooled down. Temperature and cooling rate depended on the end products desired, and cooling influenced both the kind of crystallisation and the filterability. Accordingly, this would be known to a person skilled in the art. Therefore, a person skilled in the art would be able to alter the cooling rate and temperature of the experiment of D1 to arrive at crystals according to the current invention.

- D4a also provided evidence of the common general knowledge of a person skilled in the art. D4a stated that easy filtration required crystals of near uniform size. Accordingly, the crystallisation stage should focus on making existing nuclei grow and avoiding the emergence of new nuclei. This could in practice often be achieved by avoiding excessive supersaturation by cooling slowly. Accordingly, it was clear from D4a that it was common general knowledge to cool an oil slowly to grow uniform large crystals.

- T 2080/12 related to a patent for a process for dry fractionation. The patent, EP1281749, disclosed that a solid block of fat resulting from fractionation could be crushed to be rendered pumpable. This was just one example of the type of further process steps that reflected the knowledge in the field of a person skilled in the art and which could be taken to subject the crystals resulting in experiment D1 to press filtration.

- The level of disclosure in other patent documents in the proceedings, such as D5 and D8, supported that the patent was sufficient. These other patent documents reflected the amount of information typically provided in patents on fractionation, thus indicating the extent to which a person skilled in the art used their common general knowledge.

Accordingly, the respondent was of the opinion that the invention could be carried out.

2.5 For the following reasons, the board does not agree with the respondent.

2.5.1 As identified by both parties, the patent mentions that conventional crystallisation, including dry fractionation, with stirring was not applicable to the fractionation of an oil and fat having an SUS content of 30 wt% or more (see paragraph [0006] of the patent). More precisely, it is explained in paragraph [0006] of the patent that because the crystal amount is too high and fine crystals are precipitated throughout the oil and fat, the entire oil and fat becomes too high in viscosity or is solidified and cannot be transported with a pump to the subsequent press-filtering step.

Thus, it is apparent that oils or fats having an SUS content of 30 wt% or more, as used in claim 1 as the raw material, are at least difficult to process in dry fractionation processes.

2.5.2 The experimental reports D1, D2, D9 and D14 do not carry out multistage fractionation as required in claim 1. In all these experiments, only the first fractionation stage was investigated. Either the slurry

could not be filtered at all (D1), or the required high SUS content could not be achieved in the first stage (D2, D9 and D14). However, if the first fractionation stage cannot be carried out, the whole process fails.

2.5.3 D1 is considered an example showing that there is a problem when trying to dry fractionate an oil having an SUS content of significantly above 30 wt%. D1 demonstrates that for such an oil, the viscosity is too high even though sal oil is used, which is proposed in the patent as a possible raw material (see claim 4 of the patent). The process conditions applied in D1 are also in line with those taught in paragraph [0022] of the patent as typical conditions. Under these circumstances, the board cannot see that these conditions were "designed to fail" as alleged by the respondent. Rather, claim 1 is very broad on the definition of the raw material and the process features, and the experiment carried out in D1 demonstrates that.

With respect to D1, the respondent argued that it was not clear which filtration the appellant intended to use and that this step was thus absent from D1. However, as no filtration was possible at all due to the high viscosity, this line of argument is not persuasive.

In addition, the SFC of the material to be subjected to filtration in D1 was 18.2 wt%, i.e. within the range of 10 to 20 wt% proposed in paragraph [0026] of the patent. Nevertheless, the resulting slurry could not be filtered as it was too viscous, despite using an oil falling within the scope of claim 1 and choosing a recommended SFC.

The board does not consider that claim 1 excludes an SUS containing oil or fat having an SUS content of 60 wt% or more as the raw material since the SUS content of the raw material in claim 1 is an open-ended range, and 60 wt% is also encompassed by this range when construing claim 1 with a mind willing to understand.

Thus, D1 raises serious doubts that the invention can be carried out over substantially the whole claimed range. It demonstrates that the invention cannot be carried out for any SUS containing oil and fat having 30 wt% or more as the raw material since no filtration was possible due to the high viscosity of the slurry.

2.5.4 D2 and D9 show that press filtration was possible when using an oil having an SUS content of 54.1 wt% and 48 wt% in the dry fractionation process. However, even though the final SFC of the slurry proposed in paragraph [0026] of the patent was fulfilled in D2 and D9, an SUS content of 60 wt% or more could again not be achieved in the first dry fractionation stage.

Thus, D2 and D9 also raise serious doubts that the invention can be carried out over substantially the whole claimed range.

2.5.5 In D14, a press-filtration step was not carried out, but the influence of the isothermal holding time on the SUS content and SFC in the slurry was investigated (see the figures on page 1 and 2 of D14). In both experiments of D14, an SUS content of 60 wt% or greater could not be achieved over a holding time of up to 40 hours, which is even longer than the 19 hours mentioned in example 1 of the patent. Thus, a longer isothermal holding time is not a simple means of achieving a

higher SUS content as assumed by the opposition division (see page 7, lines 17 to 20 of the decision). Accordingly, the opposition division's assumption referred to in point 1.2.1 above is refuted by D14.

The respondent argued that from the figures of D14, a value of 59.5 wt% could be derived and that rounding this value led to a value of 60 wt%, and thus D14 showed that the invention could be carried out.

The board does not agree.

D14 demonstrates that the required high SUS content cannot be achieved even though a suitable raw material is used and the temperature conditions mentioned in example 1 of the patent are applied and even when prolonging the isothermal holding time. Contrary to the respondent's allegation, picking the highest SUS value shown in the figures of D14 and rounding it up does not demonstrate that the required high SUS content can reliably be achieved over substantially the whole claimed range. The respondent did not prove, e.g. by experiments, that when applying the conditions of D14, an SUS content of 60 wt% or more can indeed be achieved.

Consequently, D14 also raises serious doubts that the invention can be carried out.

2.5.6 Comparative examples 1 and 2 of the patent also raise serious doubts that the invention can be carried out over substantially the whole claimed range.

In comparative example 1, stirring crystallisation is performed in the same manner as in example 1 of the patent, but one-stage stirring crystallisation is

applied, and a coolant temperature of 26 °C is used instead of 31 °C as in example 1 of the patent. The experiment according to comparative example 1 failed although the same conditions in the first stage were applied as in example 1 of the patent, except for the slightly lower coolant temperature.

Comparative example 2 is carried out in the same manner as example 1 of the patent, except that in the first stage the coolant temperature was not raised to 34 °C. In comparative example 2, the viscosity of the slurry rapidly increased, and the transportation into a press-filtering machine with a pump became impossible.

The respondent argued that a skilled person would solve this problem in comparative example 2 by applying their common general knowledge and that they would find alternative solutions.

However, for the following reasons, the board considers the failure in comparative example 2, as well as in comparative example 1, an additional indication that the invention cannot be carried out over substantially the whole claimed range.

2.5.7 A crucial question is whether the patent in combination with the skilled person's common general knowledge provides sufficient guidance on the measures necessary to convert the above identified failing experiments (D1, D2, D9 and D14 and comparative examples 1 and 2) into a success.

The board is of the opinion that the patent does not provide enough guidance for a skilled person to reliably obtain the required SUS content of the crystal fraction.

D3a and D4a were referred to by the respondent as evidence for the skilled person's common general knowledge.

D3a and D4a do not bridge the lack of guidance in the patent since these documents fail to provide teaching on how to reliably obtain the required SUS content of the crystal fraction over the broad scope claimed. These documents only provide general information; not specific guidance on how to achieve the required high SUS content.

In fact, D4a even supports the conclusion that crystallisation processes of fats and oils are very delicate and difficult to predict.

In this context, reference is made to page 307 of D4a, which states:

"A major problem in dry fractionation is that for some reason or another, the crystallisation process lacks predictability. Doing ostensibly the same may lead to different results. This is probably why dry fractionation has been proclaimed an art.

...

Understandably, research efforts have been devoted to finding out what factors affect dry fractionation in general and its crystallisation in particular. This effort has focused on minor constituents, probably because it was noted quite early on that small amounts of a whole range of compounds exerted a large influence on the crystallisation process."

Reference is also made to page 308, of D4a, which notes the following:

"It, therefore, can be concluded that some insight has been developed into how certain compounds affect the crystallisation process. However, the stage where the fractionation process is fully understood and can be adequately controlled has not yet been reached. Doing the same as last time and hoping for the best may still be the best guide for process control."

Thus, as correctly pointed out by the appellant, D4a does not illustrate that the person skilled in the art would understand that the experiment disclosed in D1 could simply be optimised by reducing the cooling rate. The same applies to the other experiments (D2, D9 and D14).

D5 and D8 are published patents which cannot contribute to solving the sufficiency problem in the current case. These patents do not reflect common general knowledge, so they are not suitable for demonstrating the skilled person's common general knowledge. The same applies to the patent assessed in T 2080/12, cited by the respondent. Moreover, T 2080/12 relates to a case with different circumstances, the conclusions of which cannot be applied to the case at hand.

2.5.8 While examples 1 and 2 represent processes which may be carried out when following the very specific conditions and the specific selection of the raw material, claim 1 is defined so broadly (by way of a result to be achieved, i.e. the final high SUS content) that it is, in view of D1, D2, D9 and D14 as well as comparative examples 1 and 2, not credible that the process of

claim 1 can be carried out over substantially the whole claimed range.

2.5.9 There is no indication on file that the experiments carried out by the appellant in D1, D2, D9 and D14 (or in comparative examples 1 and 2) might be considered an exceptional failure. To the contrary, all these experiments show that there are numerous experiments falling within the scope of claim 1 which fail.

The board does not consider that the experiments in D1, D2, D9 and D14 were designed to fail either. To the contrary, they are in line with the typical conditions proposed in paragraph [0022] of the patent and apply raw materials within the scope of the patent.

2.5.10 Examples 1 and 2 cannot be generalised without undue burden. Instead, a research project is necessary to find alternative ways to successfully carry out the claimed process. D1, D2, D9 and D14 as well as comparative examples 1 and 2 show that dry fractionation of complex mixtures of fats or oils is hardly predictable and requires the specific selection of the raw material and specific optimisations of process conditions to achieve the desired target SUS content.

2.5.11 In summary, D1, D2, D9 and D14 as well as comparative examples 1 and 2 raise serious doubts that the SUS content required in claim 1 can be achieved over substantially the whole claimed range.

2.5.12 Exactly reworking example 1 or example 2 of the patent is not a precondition for successfully raising serious doubts under Article 83 EPC. A reasonable attempt at carrying out the claimed invention, which takes into

account the teaching in the patent and the skilled person's common general knowledge, suffices. In the board's view, this was done in the experimental reports D1, D2, D9 and D14.

In view of the above, the invention cannot be carried out by a person skilled in the art. Thus, the ground for opposition under Article 100(b) EPC prejudices the maintenance of the patent.

AUXILIARY REQUESTS 1 - 15

3. For the following reasons, none of auxiliary requests 1 to 15 solves the sufficiency problem identified for the main request (see point 2 above).

3.1 The feature "while controlling a crystal amount of the crystal slurry so that the crystal slurry has flowability and can be transported with a pump" is added in claim 1 of auxiliary requests 1, 4, 5, 6, 9, 10, 11 and 13. However, this feature represents another desired result, and it does not specify specific conditions which lead to the required high SUS content required in claim 1. Thus, this feature cannot contribute to overcoming the sufficiency problem identified for the main request.

3.2 The feature "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 20% by weight as a solid fat content", "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to less than 15% by weight as a solid fat content" or "wherein a crystal amount of the crystal slurry to be subjected to the press-filtration is 10 to 15% by weight as a solid fat content" added into claim 1 of auxiliary requests 1, 2

and 4 to 15 cannot overcome the sufficiency problem identified for the main request.

D9 and D14 demonstrate that even when working in the preferred range of 10 to less than 15 wt% SFC, the required SUS content cannot be achieved. In addition, comparative example 1 shows that around 15% SFC flowability almost disappeared if the coolant temperature is slightly decreased compared to example 1 of the patent.

3.3 The feature "wherein a temperature of the coolant is raised to a temperature which is higher than the original coolant temperature at crystallization by 2 to 4°C and the temperature is retained while stirring at a low speed until completion of the press-filtration of the first stage" or "wherein a temperature of the coolant is raised to a temperature which is higher than the original coolant temperature at crystallization by 2 to 4°C and the temperature is retained until completion of the press-filtration of the first stage" is added in claim 1 of auxiliary requests 2, 4, 6, 10, 12 and 13.

With respect to this limitation, the respondent argued that none of D1, D2, D9 and D14 carried out such a process as in none of these experiments an increase of the temperature of the coolant after crystallisation took place. Accordingly, these documents were not relevant to the sufficiency of the claimed process.

The board is not convinced.

In the absence of a definition of the original coolant temperature in claim 1, the feature directed to raising the temperature by 2 to 4 °C compared to the original

coolant temperature is problematic. As can be taken from comparative example 1, slightly decreasing the coolant temperature compared to example 1 leads almost to the disappearance of flowability, and the crystal slurry could not be press filtered. This demonstrates how crucial the original coolant temperature is, even when working according to the conditions of example 1 except for this slight modification.

The respondent argued that a skilled person is familiar with the melting point of oils or fats suitable for fractionation, and it is merely a matter of routine to find the appropriate original coolant temperature for each individual oil or fat which leads to the required SUS content of 60% or above.

However, as demonstrated by the evidence provided by the appellant, choosing a raw material proposed in the patent and following the process steps of claim 1 or those proposed in paragraph [0022] of the patent does not lead to the required SUS content of 60 wt% or more.

The patent does not provide any teaching on which original coolant temperature is to be selected for different types or oils or fats. The patent does not contain any indication or suggestion on the measures necessary to reliably obtain the required high SUS content either. The only possible guidance are examples 1 and 2 of the patent which, however, represent such a limited "point-like" process that the raw material and the conditions mentioned cannot be generalised to a broader context.

Many factors influence the crystallisation of complex fat or oil mixtures.

While examples 1 and 2 of the patent show ways of carrying out the invention in a very specific process, comparative examples 1 and 2 show that even minor modifications lead to a failing experiment. Thus, examples 1 and 2 of the patent cannot be simply generalised.

The board is of the opinion that finding appropriate oils and fats having an SUS content of 30 wt% or more and finding appropriate process conditions such as an original coolant temperature suited to achieving the required high SUS content still amounts to a research project. In the board's view, undue burden is required to find alternative conditions to those mentioned in examples 1 and 2 of the patent. The skilled person's common knowledge is not sufficient to bridge the lack of guidance in the patent.

3.4 The feature "wherein SUS is substantially StOSt, (St: stearic acid, O: oleic acid)" is added to claim 1 of auxiliary requests 3 and 9 to 15. However, this feature cannot contribute to overcoming the sufficiency problem identified for the main request. Neither has the respondent provided any substantial argument why this would be the case. Moreover, the sal oil used in D1 fulfils this requirement.

3.5 The feature "adding a SUS-stable crystal flake in an amount of 1 to 50 ppm during cooling of an oil temperature to a minimum crystallization temperature by a coolant or shortly after reaching the minimum temperature during stirring crystallization" is added in claim 1 of auxiliary requests 7, 8, 14 and 15. However, this feature cannot contribute to overcoming the sufficiency problem identified for the main request.

With respect to this limitation, the respondent argued that none of D1, D2, D9 and D14 performs two-stage dry fractionation, and none of D1, D2, D9 and D14 uses an SUS-stable flake to initiate nucleation of the oil.

While in example 2 of the patent a crystal flake is applied in the second stage, claim 1 allows its use in the first stage. As can be taken from paragraph [0030] of the patent, this feature leads to a shortened crystallisation time. However, the board does not see how this feature contributes to achieving the required SUS content in the first stage while still allowing the crystal slurry to be press filtered. This is at least problematic in view of the very large breadth of claim 1 as identified for the main request. This limitation is not suited to overcoming the sufficiency problem identified for the main request. Similar considerations apply to the further limitation in claim 1 of auxiliary requests 14 and 15 directed to the crystal flake being a flake or powder of a block-like oil and fat obtained by a particular process.

3.6 The feature "wherein the value of the solid fat content is a value measured with NMR-pulse" was added in claim 1 of auxiliary requests 11 to 15 for clarity purposes and cannot overcome the sufficiency problem identified for the main request either.

3.7 For the above reasons, none of the claim requests overcome the sufficiency problem identified for the main request. Accordingly, there is no allowable claim request on file.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Schalow A. Haderlein

Decision electronically authenticated