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D E C I S I O N
of 10 November 2004

Case Number: T 1086/99 - 3.3.2

Application Number: 92202859.2

Publication Number: 0525915

IPC: A23D 9/00

Language of the proceedings: EN

Title of invention:
Edible oil/fat compositions

Patentee:
KAO CORPORATION

Opponent:
UNILEVER N.V.

Headword:
Edible oil/fat compositions/KAO CORPORATION

Relevant legal provisions:
EPC Art. 84, 123, 54, 56, 114(1)
EPC R. 57(a)

Keyword:

"Admissibility of new opposition ground (yes): correct use of the discretionary power by opposition division"

"Main request: Article 123 EPC (yes): support in the application as originally filed"

"Clarity (yes): term 'cooking' taken in its broadest meaningful sense"

"Novelty (no): the use claim encompasses the use of the olive oil known from prior art"

"First auxiliary request: Article 123 EPC (no): the disclaimer is not allowable since the prior art is not so remote to disappear for the assessment of inventive step"

"Second auxiliary request: inventive step (no): obvious method steps for the preparation of a known product"

"Third auxiliary request: inventive step (no): further conventional steps"

Decisions cited:

G 0010/91, G 0001/95, G 0001/03

Catchword:

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Case Number: T 1086/99 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 10 November 2004

Appellant:
(Opponent)

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Respondent:
(Proprietor of the patent)

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Representative:

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Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
21 October 1999 concerning maintenance of
European patent No. 0525915 in amended form.

Composition of the Board:

Chairman: U. Oswald
Members: M. Plaza Ortega
P. Mühlens

Summary of Facts and Submissions

- I. European patent No. 0 525 915 based on application No. 92 202 859.2 was granted on the basis of one claim.

Independent claim 1 as granted read as follows:

"1. An edible glyceride mixture comprising monoglycerides, diglycerides and triglycerides, wherein: the weight ratio of diglyceride to monoglyceride is from 5:1 to 990:1, and the aliphatic acid (acyl) moieties in the glycerides have 8 to 24 carbon atoms and comprise 70% by weight, or more, of unsaturated aliphatic acid moieties, and wherein: the diglycerides contain 40% by weight, or less, of diglycerides having unsaturated and saturated aliphatic acid moieties and 5% by weight or less of diglycerides having two saturated aliphatic acid moieties."

- II. The following documents *inter alia* were cited in the proceedings:

(4a) Mairata, *Grasas y Aceites* vol. 36, no. 4 (1985), pp. 269-273

(4) English translation of document (4a)

(2a) M. Catalano, *La Rivista Italiana delle sostanze grasse*, vol. XLIX, (March 1972), pp. 101-104

(2) English translation of document (2a)

- (10) Internet page KIC Chemicals, Inc. Oleic Acid 70%, Food grade natural, Vegetable Based, www.kicchemicals.com/oleic.htm, printed 8 October 2004
- (11) Fatty acids and their derivatives, A. W. Ralston, John Wiley & Sons, Inc. New York, Chapman and Hall, Ltd., London, 1948, pp. 541-543, 576, 577
- (12) B. Høge-Jensen, Journal of the American Oil Chemists Society, vol. 65, no. 6, (June 1988), pp. 905-910
- (13) R.P. D'Alonzo et al. Journal of the American Oil Chemists Society, vol. 59, no. 7, (July 1982), pp. 292-295.
- (14) Internet page of International Olive Oil Council www.internationaloliveoil.org printed 23 June 2004
- (15) Diacylglycerol Oil, editors Yoshihisa Katsuragi et al., AOCS Press, (2004), pp. 31-45.

III. Opposition was filed and revocation of the patent in its entirety was requested pursuant to Article 100(a) on the grounds of lack of novelty.

IV. The appeal lies from an interlocutory decision of the opposition division maintaining the patent under Article 106(3) EPC.

The opposition division considered that the amended claims of the main request (use claim) met the requirements of the EPC.

In particular, the opposition division took the view that the disclaimer was allowable since it was used to exclude the contents of document (4). Moreover, the opposition division considered that the disclaimer did not render the claim unclear because it excluded olive oil as the salad or cooking oil. In view of the disclaimer, the contents of document (4) did not fall within the subject-matter of claim 1.

With respect to inventive step the opposition division considered that the problem to be solved was to provide a glyceride mixture which did not sit heavily in the stomach.

In the opposition division's opinion the fact that the contested specific glyceride mixture might have also been included in olive oil, did not lead the skilled person in the light of document (4) to arrive to the specific glyceride mixture as solution to the stated problem.

- V. The appellant (opponent) lodged an appeal against the decision.
- VI. The respondent (patentee) filed counterarguments and it filed amended sets of claims.
- VII. Oral proceedings were held before the board on 10 November 2004.

VIII. The appellant's arguments may be summarised as follows:

The appellant objected under Rule 57(a) to the introduction of dependent claims which did not have a counterpart in the granted patent.

With respect to the main request the appellant raised objections under Articles 84 and 123(2) EPC. It argued that the basis stated by the respondent for the amendment concerning the use of the diglyceride mixture as salad or cooking oil had to be understood within the context of the invention described on page 5 as mixtures also containing a phospholipid. Moreover, there was a lack of support in the patent in suit for the effect of not sitting heavy in the stomach for the mixtures without phospholipid.

The appellant further argued that the use "as cooking oil" was rendered unclear by the respondent's explanations in its letter filed on 24 August 2004 where it was stated that the term "cooking oil" implied larger proportions of oil.

Additionally, the appellant argued that there was a lack of novelty in view of document (4). It referred to the values cited in its letter of 11 October 2004.

The appellant submitted that document (4) disclosed both the original olive oil and a product resulting from the procedure disclosed in "material and methods". However, document (4) related to an analysis technique of finding the diglyceride proportions in the initial product.

The appellant also contended that the free fatty acids were produced by the human body during digestion and were therefore not toxic. Additionally, in America a product having 70% fatty acid content was sold as food ingredient (cf. document (10)).

The appellant also stated that the word "edible" meant non toxic and it did not mean necessarily tasty. Furthermore the people from Majorca found the taste of Majorcan virgin olive oil very good since, as shown by document (4), it was used in the local home cooking. The appellant acknowledged that document (4) stated that the commercial production of the virgin olive oil disclosed therein was not allowed. However it was eaten by the Majorcan people. It also acknowledged that a bad treatment of olive oil would raise its acid content, but claim 1 of the main request was not restricted in respect of the acidity level.

Regarding the first auxiliary request the appellant stated that the disclaimer was not in accordance with the principles set out in the decision G 1/03, OJ EPO, 2004, 413, since the document (4) was not so remote that the skilled person would not have taken it into account for the assessment of inventive step. Document (4) dealt with an edible oil for home cooking. In the appellant's opinion the expression "no peculiar sitting heavy in the stomach" which appeared in the patent in suit was not identical to being more digestible. Moreover, the free fatty acid content could not make the olive oil of document (4) less digestible since free fatty acids were the result of digestion of glycerides. Hence, a product with a content in free fatty acids was a "pre-digested" product. The skilled

person would not exclude document (4) from the analysis of inventive step after the disclaimer was introduced in the claim.

The appellant disagreed that the patent dealt with synthetic oils, since there was nothing in the claim about it. It contended that if the authorities found the olive oil of document (4) not allowable then it could be rectified in order to remove free fatty acids and monoglycerides. This was a conventional treatment of virgin olive oil for preparing commercial olive oils and in the case of the oil of document (4) this process would result in a refined olive oil with a high content of diglycerides.

With respect to auxiliary requests 2 and 3 the appellant stated that it did not object under Articles 123(2) and 84 EPC in view of the decisions announced by the board for the previous requests. It objected to auxiliary requests 2 and 3 under Article 56 EPC.

The appellant denied that the effect of not sitting heavy in the stomach was shown for the subject-matter claimed. It disagreed that document (15) could demonstrate that effect, since better digestion and quicker emptying of the stomach were something different. Moreover, it was not clear whether document (15) referred to the mixtures as defined in the claim. Additionally, such an effect was dependent on many factors such as the food taken and the characteristics of the persons.

In the appellant's view, the skilled person wanting to prepare a diglyceride mixture would know how to prepare the mixture. The appellant further indicated that the methods of interesterification or esterification appearing in claim 1 were known from document (11), page 543, for the preparation of partial glycerides. Additionally, many oils had relatively low saturated fatty acid content. When treating these oils following the process disclosed in document (11) one would inevitably end up in a diglyceride mixture such as defined in the claim. Document (11) did not show the use as salad or cooking oil, but the main use of all oils was the use in home cooking.

The appellant also stated that document (11) was the closest prior art for the process and document (4) was the closest prior art for the product.

The appellant denied that the product was inventive, but said that, even if it had been, that would not have made the process inventive. A possible effect of the product was a bonus effect when using the non inventive process.

With respect to auxiliary request 3 the appellant stated that the additional feature relating to the use of a lipase was also known from document (11). It was generally known to use lipases for mild reaction conditions. Document (12) disclosed the use of immobilized lipase for lipolysis of triglycerides. Moreover, the appellant submitted that the 3-site selective lipase used in the patent in suit (cf. reference examples 4,5, page 10) was a commercial enzyme which the skilled person would have used instead

of the castor oil lipase of document (11), which was a document published in 1948. The use of such lipase would lead to moderate conditions which would preserve the good taste and flavour.

The appellant also cited document (13) where the use of chromatography was shown for the separation of glyceride mixtures.

IX. The respondent argued that the objection to the dependent claims under Rule 57(a) was very recent. Therefore the filing of the new requests during the oral proceedings should be considered to be admissible.

With respect to the main request the respondent stated that the basis for the amendment "use as salad or cooking oil" was the second paragraph on page 4. In that paragraph there was no reference to a phospholipid. The reference to an edible oil meant that it could be used as salad or cooking oil. There were two separate inventions disclosed in the parent application as originally filed; the patent in suit derived from the resulting divisional application. The other invention addressed a different problem. The reference examples 4 and 5 did not contain a phospholipid.

As regards the discussion about clarity the respondent's view was that the term "cooking" implied heat, this was also obvious from the first paragraph of the patent specification which contained the words "by cooking, for example, deep- and pan-frying, roasting and baking". The "use as salad or cooking oil" were two uses where the oil could be put in bulk. The expression

"as salad or cooking oil" implied a limitation with respect to the use in the kitchen.

With respect to the novelty issue the respondent recalled the appellant's argumentation in its grounds of appeal where it referred to the glyceride compositions of document (4) as a treated olive oil product. The respondent further stated that the product analysed in document (4) was transformed by the procedure disclosed in "material and methods". The respondent did not contest the figures submitted by the appellant but the fact that they related to the naturally occurring oil which was used for the local home cuisine. Furthermore the respondent cited its calculations filed with the letter of 23 August 2004 which determined that the amount of free fatty acid for the least acidic oil tested was 14.4wt%. The respondent submitted that the product of document (4) was too acidic to be edible and was not fit for consumption and cited, inter alia, document (14). This document disclosed that virgin olive oil not fit for consumption was designated lampante virgin olive oil and that it was a virgin olive oil which had a free acidity, expressed as oleic acid, of more than 3.3 grams per 100 grams. Such oil was intended for refining or for technical use. The respondent also cited document (2) in order to show that diglycerides present in olive oil were in a small part the result of an incomplete glyceride synthesis and the remainder was derived from the greater or lesser enzymatic hydrolysis of the triglycerides. It also cited table I of said document showing a list of inedible olive oils with an acidity level from 3.00 to 10.14% was shown.

In the respondent's opinion edible meant capable to be eaten as a food stuff. Something inedible might be toxic but an over salted dish was also inedible.

With respect to the first auxiliary request the respondent stated that the aim of the patent was a synthetic oil, i.e. diglycerides obtained by transesterification. The patent in suit was not about olive oil, this was only used as starting material. In the respondent's view the olive oil of document (4) would have never been considered by the skilled person in the art for the issue of inventive step since the problem solved by the invention was to provide a salad or cooking oil which did not sit heavy in the stomach. This problem was not solved by the olive oil of document (4). The olive oil of document (4) had too high free fatty acid content and was not easily digestible. Therefore, in the respondent's opinion, document (4) was an accidental anticipation and could be taken away by way of a disclaimer. The skilled person, a food chemist, would notice the high degree of acidity of the oil of document (4) and would not have considered it as within the international standards. The olive oil of document (4) was so seriously damaged by hydrolysis that it would not have been considered as edible by the authorities. The skilled person would have not taken it and rectified it since it would have had olive oils of better quality to use. The arguments of the appellant were based on hindsight since the skilled person would not look primarily for an oil of high diglyceride content.

With respect to the auxiliary requests 2 and 3 the respondent argued that the ground of inventive step was

not raised in the notice of opposition, which was merely based on lack of novelty. The separate ground of lack of inventive step was raised late in the opposition proceedings and the patentee had objected to its introduction from the first moment to the end of the opposition proceedings. However, the opposition division had not decided whether inventive step was admissible as ground of opposition. Moreover, the opposition division incorrectly applied the principles set out in the decision G 10/91 (OJ EPO, 1993, 420) paragraph 2 "In principle the Opposition Division shall examine only such grounds for opposition which have been properly submitted and substantiated in accordance with Article 99(1) in conjunction with Rule 55(c) EPC. Exceptionally, the Opposition Division may in application of Article 114(1) EPC consider other grounds for opposition which, prima facie, in whole or in part would seem to prejudice the maintenance of the European patent". To comply with that decision, the opposition division, having decided that there was no prima facie case on inventive step, should have ruled that ground inadmissible. The inventive step was a fresh ground for opposition which may not be considered without the approval of the patentee in the appeal proceedings. The respondent also cited point 4.3 of the decision G 1/95 (OJ EPO, 1996, 615) to support that novelty and inventive step were separate grounds of opposition in the sense of separate legal objections or bases for opposition.

The respondent acknowledged that the method steps related to methods known per se and that there was nothing inventive in applying these method steps. However, by using these method steps a salad or cooking

oil was produced which did not sit heavy in the stomach (page 3 of patent, first paragraph). The respondent submitted that document (11) did not suggest making the particular diglyceride mixture in the claim. The only oil which met the product parameters was the oil of document (4) but this oil did not have the effect of not sitting heavily in the stomach. Moreover, with the method claimed the product obtained was similar to that of document (4) but without acid excess. The product of document (4) had at least 14.4% free fatty acid and the interesterification or esterification did not lead to a significant amount of free fatty acid. The respondent insisted on the argument that document (4) was an accidental anticipation but since the disclaimer was not accepted by the board the respondent had ended up with method features for defining the product.

Additionally, the respondent cited document (15), pages 40, 41 which related to late evidence showing that the diglyceride mixture did not sit heavily in the stomach.

The respondent repeatedly argued that the objective problem was to provide a salad or cooking oil which did not sit heavily in the stomach the solution was the high content of diglycerides. Not sitting heavily in the stomach was not a bonus effect but the objective technical problem. Document (11) simply disclosed a method of interesterifying glycerides but there was no suggestion that such method could be used for preparing a salad or cooking oil having a high amount of diglycerides. Document (4) disclosed high levels of fatty acids which were far beyond what is acceptable for edible olive oils. The method of auxiliary request

2 did not lead to hydrolysis and did not lead to free fatty acids.

The arguments raised by the respondent for auxiliary request 3 were analogous to those put forward for auxiliary request 2.

- X. The respondent (patentee) filed during the oral proceedings a new main request and three auxiliary requests containing all one single claim in order to overcome the objections relating to Rule 57(a) EPC.

Claim 1 of the main request reads as follows:

"1. Use as a salad or cooking oil of an edible glyceride mixture comprising monoglycerides, triglycerides and from 5% to 99.9% by weight of diglycerides, wherein:
the weight ratio of diglyceride to monoglyceride is from 5:1 to 990:1, and the aliphatic acid (acyl) moieties in the glycerides have 8 to 24 carbon atoms and comprise 70% by weight, or more, of unsaturated aliphatic acid moieties, and wherein:
the diglycerides contain 40% by weight, or less, of diglycerides having both unsaturated and saturated aliphatic acid moieties and 5% by weight or less of diglycerides having two saturated aliphatic acid moieties."

Claim 1 of the auxiliary request 1 differs from claim 1 of the main request in that the following disclaimer is added to the end of the claim:

"with the proviso that the salad or cooking oil is not olive oil".

Claim 1 of auxiliary request 2 reads as follows:

"1. A method for the preparation of a salad or cooking oil comprising an edible glyceride mixture of monoglycerides, triglycerides and from 5% to 99.9% by weight of diglycerides, wherein:
the weight ratio of diglyceride to monoglyceride is from 5:1 to 990:1, and the aliphatic acid (acyl) moieties in the glycerides have 8 to 24 carbon atoms and comprise 70% by weight, or more, of unsaturated aliphatic acid moieties, and wherein:
the diglycerides contain 40% by weight, or less, of diglycerides having both unsaturated and saturated aliphatic acid moieties and 5% by weight or less of diglycerides having two saturated aliphatic acid moieties
wherein the method comprises interesterifying a mixture of glycerol and at least one oil or fat selected from safflower oil, olive oil, cottonseed oil, rapeseed oil, corn oil, soybean oil, palm oil, rice (bran or germ) oil, sunflower oil, sesame oil, lard, beef tallow, fish oil, butter, fractionated, randomised or interesterified oils derived from any of these oils and fats, or by esterifying glycerol and unsaturated fatty acids derived from any of these oils and fats."

Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 2 in that it contains the following feature "10% by weight or less of monoglycerides" after the words "edible glyceride mixture of triglycerides," and at the end of the claim the statement "wherein the

interesterification or esterification uses a fixed 1- and 3- position selective lipase; and surplus monoglyceride is removed by molecular distillation or chromatography".

- XI. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patentee) requested that the patent be maintained on the basis of the main request or, alternatively, on the basis of one of the auxiliary requests 1 to 3, all filed in the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. The sets of claims filed during the oral proceedings were considered to be admissible since they basically correspond to sets of claims already on file before the oral proceedings with the difference that the dependent claims were deleted in view of the objection under Rule 57(a) EPC raised for the first time in the appellant's letter of 11 October 2004 and considered by the board during the oral proceedings.
3. Admissibility of the inventive step issue as opposition ground.

The patent as granted contained one single claim. This claim was a product claim relating to a glyceride mixture. Lack of novelty was the only ground stated in

the notice of opposition of 20 May 1996. The opponent raised for the first time the objection of lack of inventive step with its letter of 28 January 1998, in response to a communication of the opposition division dated 16 October 1997. In this communication the opposition division expressed a positive preliminary opinion concerning the subject-matter of an amended set of claims (use claims), filed previously by the patentee, and asked the parties for their comments.

As response to the opponent's letter the patentee stated (cf. patentee's letter dated 14 April 1998) that inventive step was not a ground raised in the notice of opposition.

The opposition division subsequently decided to maintain the patent in amended form based on a set of claims directed to the use of the glyceride mixture.

The opposition division took a positive decision on inventive step and supported it with arguments. However, it said at the same time that "the contest concerning the admissibility of an inventive step objection was (is) not relevant for the final decision".

De facto, the opposition division decided to examine inventive step on its own motion (Article 114(1) EPC) since the first-instance decision contains the reasoning for supporting the presence of an inventive step.

The respondent contested the rightness of the opposition division's position when introducing the inventive step issue in its decision.

Therefore it has to be investigated whether the opposition division used its discretionary power correctly when it decided to assess the inventive step and to take a decision in that respect.

The opposition division was right when assessing inventive step in its own motion before deciding on the maintenance of the patent in amended form, since the subject-matter claimed was different from that of the single claim of the granted patent. The use claim was never before examined for inventive step and it required a different approach to that employed for the claim directed to the product per se. To that extent the conclusions of the decision G10/91 do not directly apply.

Therefore the inventive step issue is within the framework of the present appeal proceedings.

4. *Main request*

- 4.1 The amendment relating to the introduction of the feature "use as a salad or cooking oil" finds its basis in the second paragraph on page 4 of the application as filed: "The inventors made detailed study on glyceride mixtures and to our surprise have found out that when a specified glyceride, i.e. diglyceride, is contained in them, substantially more oil intake with them than that with common salad oils induced no peculiar sitting heavy in the stomach which might occur after taking much greasy or oily dish while they have similar properties to those of common salad oils, and can be used well conveniently as oils for general cooking..."

The fact that there was a second invention in the application as originally filed concerning the addition of phospholipids to the diglyceride mixture does not change the fact that the passage on page 4 mentioned above relates also to a diglyceride mixture without the phospholipid.

Therefore, the board concludes that claim 1 of the main request meets the requirements of Article 123(2) EPC. Additionally, the requirements of Article 123(3) EPC have been met since the protection conferred by the use claim is narrower than that conferred by the product claim.

- 4.2 The use as a salad or cooking oil is the use as an oil for general cooking, this use is independent from the quantities employed (indeed no quantities are reflected by the claim). The passage on page 3, lines 1-5 of the patent in suit (which corresponds to the second paragraph of page 4 of the application as filed, mentioned above) clearly refers to the use of a glyceride mixture **for general cooking**. This means that the term "cooking" does not only include deep- and pan-frying and roasting but also, for example, the preparation of a stew in the presence of oil. This was also confirmed by the respondent when asked by the board.

The respondent has stated that cooking is the process of preparing food by heating. The board agrees with such definition which includes all sorts of cooking.

Accordingly, the use "as salad or cooking oil" appearing in claim 1 includes the use of an oil for preparing edible dishes such as salad or any cooked dishes prepared with heat.

The board cannot accept a more restrictive definition for the term "salad or cooking oil", since the terms appearing in the claims have to be taken in their broadest technically meaningful sense. Furthermore, as already said, there is no contradiction, when taking the broader sense, with the meaning given in the passage of the description which was cited by the respondent as support for the term "cooking oil" in the claim.

In conclusion, claim 1 of the main request meets the requirements of Article 84 EPC.

- 4.3 Document (4) relates to the analysis of the lipid composition of the virgin olive oil from Majorca. In this document it is disclosed on page 1 that "The virgin olive oil produced on the island of Majorca is characterised by a high degree of acidity and has certain particular characteristics in the context of olive oil production in Spain which have resulted in its commercial production not being permitted by law. On the other hand, because of its particular and unmistakable fruity flavour it has always been used in local home cooking."

Three major arguments have been put forward by the respondent in order to disprove the lack of novelty of the subject-matter claimed in the main request:

- (a) The olive oil described in document (4) has been used in the local cuisine in Majorca as a flavouring agent or condiment and not in the quantities required for use as a salad or cooking oil.
- (b) The olive oil described in document (4) is too acidic to be edible.
- (c) The analysis results of document (4) do not relate to the composition of the naturally occurring olive oil but to the treated olive oil.

With respect to the first argument (a) it has to be said that the use as salad or cooking oil implies all possible ways of preparing dishes in the kitchen, i.e. it encompasses the whole range of use "in local home cooking". Industrial use or the use in high quantities is not feature as a limitation in the claim. This means that the use as salad or cooking oil is anticipated by the contents of document (4).

With respect to the second argument (b) it has to be said that document (4) acknowledges the high degree of acidity for the Majorcan olive oil. The respondent has calculated the free fatty acid content of the olive oil with the lowest acidity degree as 14.4wt%, which is indeed beyond the international standards for olive oil (cf. (14)). However, in spite of the high free fatty acid content the olive oil disclosed in document (4) has been used in the local home cooking and hence it has been eaten and found tasty by the Majorcan people. The respondent has also argued that the term "edible" means both palatable and non-toxic. However, what is

palatable for one person may be unpalatable for another person. Additionally, what is tasty or not depends on cultural, social and personal habits. The patent in suit has a Japanese priority document, the corresponding application was filed in English and designated several European countries.

Therefore, the term "edible" cannot be used in a restrictive way as synonym for palatable and has to be understood in a broader sense, meaning suitable to be eaten. The attribute edible stands in contrast to not suitable to be eaten but says nothing about organoleptic properties.

Moreover, claim 1 is silent about the free fatty acid content and is not limited to any free fatty acid content in particular. The only condition is that the amounts for the other components (in particular diglycerides, monoglycerides) of the composition must fall within the ranges defined in the claim.

With respect to the third argument (c) put forward by the respondent the following has been considered. Document (4) discloses analytical methods for establishing the lipid composition of the virgin olive oil of Majorca. On page 2, second paragraph it is stated that "... , the analytical methods generally used in the investigation of lipids of animal and vegetable origin have been applied".

When reading the section "Material and Methods" on pages 2 and 3 it becomes evident that the samples undergo separation by thin-layer chromatography: "The neutral lipids were fractionated by the thin-layer

chromatography technique" (page 2 second paragraph). The fact that separated fractions are obtained is also confirmed by the following passage under the head "Lipid composition" on page 7: "The lipid classes were fractionated as **described under methods** (emphasis added) and their relative order of migration is, in decreasing order: cholesterol esters; triglycerides; free fatty acids; 1,3-diglycerides; 1,2-diglycerides and sterols; monoglycerides and, finally, polar lipids which fall within the same line of application."

After separation by thin-layer chromatography the fractions were separated by routine methods (scratched and then eluted from the silicic acid with the solvents chloroform/water). The isolated fractions were then transformed by transesterification with BF_3/MeOH into the methyl esters which were extracted from the reaction mixture and analysed by gas chromatography. This procedure makes it possible to determine the nature of the acyl moieties of the different fractions. This is expressed in document (4) by the passage "The analysis of the acyl remains -(which means acyl moieties or acyl residues)- was the experimental basis of the mathematical calculation" (page 3, end of first paragraph).

Therefore the chemical transformation process does not affect the relative proportion of the fractions with respect to the total lipid content, since they are separated previously to the transesterification. This is confirmed by the passage on page 7, under the heading "Lipid composition", last sentence: "The composition in fatty acids (expressed in mole

percentages) of **each fractionated lipid band** (emphasis added) is shown in Table III".

There is a second alternative also disclosed in document (4) which consists of the transesterification of the total lipids for preparing the methyl esters in order to establish the distribution in fatty acids depending on the nature of the acyl moiety (this is shown in Table II). This method is however not used for the evaluation of the relative proportions of the lipid fractions.

With respect to the enzymatic hydrolysis on pages 4, 5 of document (4) this additional treatment is carried out on the triglyceride fraction once separated and the results are reported at the end of the paper in order to additionally determine the nature of the acyl moiety at position 2 of the glycerol.

Therefore the board is satisfied that the analytical data serving as basis for the mathematical calculations submitted by the appellant in its notice of opposition and reproduced in its notice of appeal correspond to the lipid composition of the naturally occurring olive oil.

The respondent has not disputed the actual results of the calculations of the appellant filed with the notice of opposition (and filed as annex to the notice of appeal). Therefore document (4) discloses an olive oil comprising the following lipid composition (the degree of acidity 2.7): a glyceride mixture comprising monoglycerides, triglycerides and 22.4 wt% (being from 5% to 99.9%) of diglyceride, wherein:

- the weight ratio of diglyceride to monoglyceride is 11.79 (in the range of from 5:1 to 990:1)
- and the aliphatic acid (acyl) moieties in the glycerides have 8 to 24 carbon atoms (C16 and C18 in olive oil)
- and comprises 74.87 wt% (i.e. 70% by weight or more) of unsaturated aliphatic acid moieties
- and wherein: the diglycerides contain 24.89 wt% (being 40 wt%, or less) of diglycerides having unsaturated and saturated aliphatic acid moieties
- and 0.24 wt% (that is 5 wt% or less) of diglycerides having two unsaturated aliphatic acid moieties.

Even when considering the amount of free fatty acids as calculated by the respondent, i.e. 14.4 wt%, the composition of the olive oil still falls within the terms mentioned in the claim, since it is left undefined how much free fatty acid may be in the composition.

Consequently, in view of the above, the board can only conclude that the subject-matter of claim 1 of the main request lacks novelty within the sense of Article 54(1) and (2) EPC.

5. *First auxiliary request*

The disclaimer "with the proviso that the salad or cooking oil is not olive oil", introduced in claim 1 of the first auxiliary request, is not supported by the

content of the application as originally filed. It has been introduced in order to exclude the olive oil disclosed in document (4). Document (4) forms part of the state of the art within the meaning of Article 54(2) EPC. Therefore, the admissibility of this disclaimer is ruled by decision G 1/03.

Following the conclusions of the decision G 1/03 it has to be investigated whether document (4) represents an accidental anticipation or not. The board considers that document (4) belongs to the same technical field as the patent in suit, namely food chemistry and technology. Moreover, document (4) solves the problem of providing a glyceride mixture which is suitable to be used as salad or cooking oil. Accordingly, document (4) does not disappear from the state of the art to be taken into account for the assessment of inventive step when the disclaimer is introduced in the claim.

The respondent defined the problem to be solved as to provide a salad or cooking oil which does not sit heavily in the stomach. However, as ascertained in the decision G 1/03 (point 2.2.2) "...a "different problem" may not yet be a problem in a different technical field. What counts is that from a technical point of view, the disclosure in question must be so unrelated and remote that the person skilled in the art would never have taken it into consideration when working on the invention". Furthermore, "..., the fact that a document is not considered to be the closest prior art is not sufficient to accept accidental anticipation".

In the light of the above explanations each of the arguments put forward by the respondent with respect to inventive step does not hold good.

In particular, with respect to the effect of no heavy sitting in the stomach, mentioned by the respondent in relation to a different definition of the problem to be solved, there is no proof on file that the olive oil of document (4) sits heavily in the stomach.

Additionally, if such an effect is achieved by a low content of free fatty acid, this is a feature which is not reflected by the claim. Properties, effects or improvements which are not reflected by the features of the claim cannot be taken into account for the assessment of inventive step.

The respondent has also alleged that the term "edible" would clearly exclude oils with a high percentage of free fatty acids. However, the term "edible", as already pointed out in the novelty analysis (cf. point 4.3 above), is a relative term which cannot be taken as limitation of the subject-matter claimed.

6. *Auxiliary request 2*

- 6.1 No objections relating to Articles 84 and 123(2) and (3) EPC were raised for auxiliary request 2. The board sees no reason to object. The amendments concerning the wording shared with the main request are allowable for analogous reasons to those given for the main request (points 4.1 and 4.2) and the basis for the method now claimed is to be found on pages 15 and 16 of the application as originally filed. Moreover, the method

claim is restricted in scope with respect to the product claim of the granted patent.

Accordingly, the requirements of Articles 84 and 123 EPC have been met.

6.2 Auxiliary request 2 relates to a method for the preparation of a salad or cooking oil comprising an edible glyceride mixture which is already known from document (4) (cf. point 4.3 above). The respondent's arguments in relation to inventive step indicate that the product directly obtained by the method defined in claim 1 is different from the product of document (4) since the process of interesterification or esterification does not lead to free fatty acids.

The product features defined in claim 1 encompass the olive oil of document (4) since they do not include a limitation with respect to the free fatty acid content (cf. point 4.3 above). Additionally, the claimed method of preparation does not restrict the end product features. The reasons lie in the fact that the method as defined "comprises" certain process steps such as interesterification or esterification but the wording of the claim allows further additional steps to those specifically mentioned. This is also confirmed by the contents of the patent in suit, cf. for instance the reference examples 4 and 5 to which the respondent referred as illustrative for the invention. In these examples the product after undergoing interesterification is further treated by means of distillation, purification **and further addition of oil**. The claimed subject-matter includes products which are obtainable by the method with the assistance of further

steps. However, the nature of the possible further steps is left undefined in the claim. The addition, for example, of further oil or even the addition of free fatty acids is not excluded by the claim wording.

Since the claim encompasses the olive oil disclosed in document (4) and the purpose stated in the claim relates to the provision of a salad or cooking oil document (4) is considered to represent the closest prior art.

Accordingly, the problem to be solved can only be seen in the provision of a method for the preparation of an olive oil comprising a specific glyceride mixture with a relatively high partial glyceride content as defined in document (4).

The proposed solution concerns the process features of claim 1.

In the light of the examples of the patent in suit the Board is satisfied that the problem has been plausibly solved.

Therefore it has to be assessed whether said solution is obvious in the light of the prior art.

Since the olive oil of document (4) comprises a glyceride mixture containing relatively high proportions of diglycerides the skilled person would first look for generally known methods of preparing partial glycerides.

Document (11) is a book with the title "Fatty acids and their derivatives". This general book was known to the skilled person in the field of food chemistry and food technology. The chapter entitled "Synthetic glycerides" explains how to prepare glycerides and glyceride mixtures. On page 543 the following is stated: "The methods of alcoholysis and of ester interchange are often used for the preparation of glyceride mixtures". "Partial alcoholysis, on the other hand, is often used for the preparation of both mono- and diglycerides, and this procedure frequently presents a convenient method for the preparation of these compounds". "When oils such as hydrogenated fish oil, olive oil, or castor oil are heated with an excess of glycerol for one-half hour at 270-280°, the products consist of a mixture of mono- and diglycerides".

Therefore the process of interesterification of one oil or fat selected from safflower oil, olive oil, cottonseed oil, rapeseed oil etc. and glycerol is a process of alcoholysis of the triglycerides present in the oil which is known to lead to a mixture of diglycerides and monoglycerides.

The respondent himself has acknowledged that the method steps per se were conventional and that the inventive step did not lie in the process features as such.

Implementing the method steps in practice cannot also be regarded as inventive.

In order to support inventive step the respondent has stated that the problem to be solved was to provide a salad or cooking oil which does not sit heavily in the

stomach. It also stated that the solution was the particular diglyceride mixture of the claim with a low fatty acid content. The claim, however, relates to a **method** or **process** for the preparation of an end product and the claim is open regarding further process steps (i.e. the free fatty acid content is not delimited by the claim wording). Therefore, improvements or advantages relating to the end product as a free fatty acid product cannot automatically support inventive step for the process.

Therefore, the board concludes that the subject-matter of claim 1 of the auxiliary request 2 does not involve an inventive step (Article 56 EPC).

7. *Auxiliary request 3*

7.1 No objections were raised against the auxiliary request 3 in respect to the requirements of Articles 84 and 123 EPC. The board sees no reason to differ. In particular, the additional feature that the glyceride mixture comprises "10% by weight or less of monoglycerides" is supported by the corresponding passage on page 14 as originally filed. The additional process features concerning the use of a lipase and the removal of monoglyceride are supported by the disclosure on page 16 of the application as originally filed.

7.2 It has to be investigated whether the additional features introduced in the claim contribute to an inventive step of the subject-matter claimed.

First of all it has to be checked whether the product of document (4) is still encompassed by the product

features appearing in the claim. It is evident that all the features defining the glyceride mixture are those assessed in point 4.3 above with exception of the additional feature that the glyceride mixture comprises "10% by weight or less of monoglycerides".

However, this feature is also anticipated by the olive oil of document (4) with the acid index 2.7, since the value is 1.9% wt (cf. annex to notice of opposition, page 2).

Secondly, the wording for the method reads in the claim "the method comprises". Therefore the method is open with respect to the means of producing the product. The product defined is consequently not restricted by the claimed method steps and thus the product defined has merely to be obtainable by the method.

Thirdly, the process features which have been added can be regarded as conventional means in the field of food chemistry, since these features relate to features known in the art for the preparation of glyceride mixtures. As set out above, the use of lipase is known from document (11), page 542, which discloses the esterifying properties of castor bean lipase. Lipases are capable of both splitting (hydrolysis) and synthesizing (esterification) glycerides. Both are the reactions involved in the interesterification process. Indeed, immobilized lipases were known to be useful (cf. document (12)) for the selective hydrolysis of triglycerides before the priority date of the patent in suit. The skilled person, when performing the process of document (11) for preparing the olive oil glyceride mixture disclosed in document (4), would obviously use

a modern immobilized 1- an 3- position selective lipase commercially available, since the naturally occurring diglycerides are mainly formed by 1- and 3-position selective enzymes.

The additional feature relating to the removal of surplus monoglyceride from the mixture obtained from the interesterification or esterification reaction is an evident requirement for the mixture in order to attain defined proportions of monoglyceride. The two most usual techniques for separation or rectification of oil components are chromatography and molecular distillation. This has not been disputed by the respondent. Document (13) merely serves to confirm this aspect with regard to chromatography.

Therefore claim 1 of the auxiliary request 3 results from the incorporation of conventional means into the method claim of auxiliary request 2 and the analysis made in point 6.2 above for the inventive step assessment of auxiliary request 2 also applies *mutatis mutandis* to auxiliary request 3.

With respect to the respondent's argumentation that there was no incentive in document (11) to prepare a diglyceride mixture with low amounts of fatty acids the following has to be said: the claim relates to the preparation of a salad or cooking oil comprising an edible glyceride mixture and not to the separated diglyceride mixture directly obtained from the method included in the claim. Therefore, the claim wording encompasses the oil of document (4) which has indeed a relatively high proportion of diglycerides. To apply

the process of document (11) with further conventional steps does not require inventive skills.

Accordingly, the board concludes that claim 1 of auxiliary request 3 lacks an inventive step (Article 56 EPC).

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:

A. Townend

U. Oswald