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**D E C I S I O N**  
**of 26 April 2005**

**Case Number:** T 1092/01 - 3.3.4

**Application Number:** 95921956.9

**Publication Number:** 0741795

**IPC:** C12P 23/00

**Language of the proceedings:** EN

**Title of invention:**

Process for the isomerization of lutein

**Patentee:**

INDUSTRIAL ORGANICA, S.A. DE C.V.

**Opponent:**

BIOQUIMEX REKA, S.A. DE C.V.

**Headword:**

LUTEIN/INDUSTRIAL ORGANICA

**Relevant legal provisions:**

EPC Art. 54

**Keyword:**

"Novelty - (no) "

**Decisions cited:**

G 0002/88, T 0706/95

**Catchword:**

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Case Number: T 1092/01 - 3.3.4

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.4  
of 26 April 2005

**Appellant:**  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 7 August 2001  
rejecting the opposition filed against European  
patent No. 0741795 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairwoman:** U. M. Kinkeldey  
**Members:** G. L. Alt  
G. E. Weiss

## Summary of Facts and Submissions

- I. The European patent No. 0 741 795 is related to the European patent application No. 95 921 956.9 published as International application WO 96/02594. The title of the application is "Process for the isomerization of lutein".

Claim 1 as granted read:

"1. A process to isomerize lutein into zeaxanthin, comprising treating a lutein reaction substrate selected from the group consisting of marigold flowers, marigold leaves, marigold meal, marigold oleoresin, or mixtures, extracts or concentrates thereof, yellow corn and yellow corn gluten, or mixtures, extracts or concentrates thereof, with a strongly aqueous alkaline solution under controlled conditions of temperature and pressure for a length of time that depends on the degree of the desired isomerization."

Furthermore, the patent contained 23 dependent claims relating to embodiments of claim 1.

- II. An opposition against the patent was filed based on the grounds that the subject-matter was not patentable under Article 100(a) EPC because it was not new (Articles 52(1) and 54 EPC) and did not involve an inventive step (Articles 52(1) and 56 EPC) and that it was not patentable under Article 100(b) because the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).

- III. The opposition division rejected the opposition and maintained the patent with the claims as granted. Regarding the issue of lack of novelty the opposition division stated that in cases where the object of a prior art process was not explicitly isomerization of lutein to zeaxanthin, the onus of proof that the prior art processes were novelty-destroying lay with the opponent. In view of the evidence on file the opposition division however concluded that the opponent did not discharge the burden of proof because he had not conclusively shown that the processes disclosed in documents D2 and D3 involved any isomerization of lutein to zeaxanthin.
- IV. An appeal was lodged against this decision by the opponent.
- V. The board sent a communication pursuant to Article 12(1) of the Rules of Procedure of the Boards of Appeal setting out its preliminary view that the opposition division's decision on novelty appeared to need consideration and the subject-matter of claim 1 was not novel. Moreover the board noted that no submissions at all had been received from the respondent and asked the respondent to inform the board whether he had received the two previous submissions of the appellant.
- VI. The respondent neither replied to the appellant's submissions nor to the boards communication. The appellant sent a further submission.
- VII. The following documents are referred to in this decision:

D2: Translation of Mexican Certificate of Invention  
No. 1697

D3: Translation of Mexican Certificate of invention  
No. 6320

The appellant's arguments submitted in the written procedure as far as they are relevant for this decision may be summarized as follows:

"Surfactants" and "emulsifiers" were functionally not equivalent to "organic solvents".

The experiments aiming at reproducing Example 1 of document D2 truly reflected the conditions of the process of document D2, although they were not carried out in an industrial reactor.

As evidenced by experimental data, the isomerization of lutein to zeaxanthin occurred inherently during the processes disclosed in documents D2 and D3. Therefore these processes took away the novelty of the subject-matter of claim 1.

Moreover, arguments were submitted why the subject-matter of claim 1 was not inventive and why with respect to the subject-matter of claims 12 and 17 the patent lacked an enabling disclosure.

#### VIII. Requests

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

revoked and oral proceedings in case the board intended to dismiss the appeal.

No requests are on file on behalf of the respondent (patentee).

### **Reasons for the Decision**

1. The appeal is admissible.

#### *Novelty*

2. The claimed process aims at providing pigments for use in food industry, for example, poultry or aquaculture industry. Food producers make considerable efforts to obtain attractively pigmented chicken broilers, egg-yolks or fish in order to give these products a healthy look. Preferred pigments come from the group of carotenoids and one of its subgroups, the xanthophylls to which inter alia lutein and zeaxanthin belong. Pigments from these group are responsible for the desired yellow-orange colour. Marigold meal and its extracts are a widely used source of them.
3. Claim 1 refers to a process to isomerize lutein into zeaxanthin.

An "isomer" is a chemical species with the same number and types of atoms as another chemical species, but possessing different properties. Here, one difference between lutein and zeaxanthin consists in the higher pigmenting activity of zeaxanthin.

4. Although the process is described in the description, for example, at the bottom on page 2 and continued on page 3 as one taking place in a "**non-catalytic aqueous phase** with a **strongly alkaline aqueous solution** and under controlled conditions **which does not need the presence of solvents**", it is basically referred to in claim 1 by only the following features: a lutein reaction substrate, for example marigold flowers or yellow corn, is reacted with **strongly aqueous alkaline solution** under controlled conditions.
5. Since pursuant to Rule 29(1) EPC the claims define the matter for which protection is sought in terms of technical features of the invention, only the features actually recited in claim 1 are to be taken into account for the evaluation novelty.
6. Document D2 discloses "a process for obtaining powdered pigmenting concentrate from oils which contain xanthophylls, potentiating its activity" with essentially the following features:

In Example 1, 1 kg of a raw fat extract of marigold flower flour (containing 89 g of xanthophyll) is emulsified by 8 liters of 18.5% sodium hydroxide which contains a surfactant.

In Example 2, 1 kg of a raw fat extract of marigold flower petal flower (containing 100 grams of xanthophyll) is emulsified by 4 liters of 18,5% sodium hydroxide which contain a surfactant.

As the only example of surfactants, document D2 refers to detergents.

7. Document D3 is directed to an "improved process for manufacturing liposoluble stabilized extracts from vegetal raw materials" with the following features:

In Example 2, 35 kg of liposoluble extract from dried marigold flowers was reacted with 30 kg of 40% sodium hydroxide solution and 1.5 kg of gelatine as thickener and emulsifier.

8. The process disclosed in documents D2 and D3 takes place in the presence of surfactants (document D2) or emulsifiers (document D3). However, claim 1 does not expressly define that the reaction occurs in the absence of any of these substances. Therefore, the claim is construed as not excluding their presence. Hence, there is no difference between the two processes in this respect.

9. It follows from the observations in points 5 to 8 above that a discussion of whether a "surfactant" or an "emulsifier" is chemically to be regarded as an "organic solvent" is unnecessary.

10. Moreover, it was not disputed by the respondent during opposition and appeal proceedings that the alkali concentrations disclosed in documents D2 and D3 are in the range of those contemplated by the patent in suit. Hence, they are regarded as strongly alkaline solutions.

11. Thus, documents D2 and D3 each disclose a process comprising procedural steps falling under the terms of the steps defined in claim 1. However, none of the two



documents expressly mentions that isomerization of lutein to zeaxanthin occurs during the reaction.

12. In view of this factual situation the opposition division was of the opinion that the prior art processes could only be regarded as anticipating the claimed process if there was evidence that isomerization took place when carrying out the process of document D2 or D3.

Hence, the appellant submitted evidence during the opposition procedure aimed at showing that isomerization inherently occurred during the prior art processes whereas the respondent submitted evidence with the objective to demonstrate the contrary.

Finally, the data submitted by the opponent were not found a convincing proof of the occurrence of isomerization and therefore novelty was acknowledged.

13. The board does not share the opposition division's view that the actual demonstration of isomerization during the reactions disclosed in documents D2 and D3 is decisive for evaluation of novelty in the present case.
14. The informational content of a document has to be determined by reading it with the knowledge of the skilled person at the date of filing. Indeed, as noted above, the conversion of lutein to its isomeric form zeaxanthin is not explicitly mentioned in document D2 or D3. Moreover, there is no proof that this conversion reaction is part of the implicit information content of documents D2 or D3.

Hence, it is concluded that the isomerization of lutein into zeaxanthin is not made available to the skilled person by the disclosure content of either of document D2 or D3. Since the later demonstration that a conversion took place cannot change the information content of the two documents, it is unnecessary to provide this kind of evidence here.

15. Nevertheless, the board considers that in the present case the mention of the purpose for which the process of claim 1 is intended to be used, cannot render the process novel over the process disclosed in either of documents D2 or D3, although this purpose is not disclosed in any of the two documents. The reasoning is as follows:
  
16. The claimed subject-matter consists of a process with technical features encompassing those disclosed in documents D2 and D3, but which is applied for a use not disclosed in these documents. In more general terms it can be said that claim 1 of the patent in suit relates to a **known process** with which a previously **unknown technical effect** is achieved.
  
17. In the case underlying the decision of the Enlarged Board of Appeal G 2/88 (OJ EPO 1990, 93) the claim related to the use of a **known compound** which was based on a previously **unknown technical effect** of the known compound. In the boards opinion, although the claims of the patent in suit are directed to a process and not to a use, the rationale of G 2/88 is applicable because here, as well as in the situation underlying G 2/88, the question is whether novelty can rely on a new effect which is brought about by known means, namely a

compound in the case underlying decision G 2/88 or a process in the present case.

18. It is stated in decision G 2/88, point 10.3 of the Reasons:

"With respect to a claim to a new use of a known compound, such new use may reflect a newly discovered technical effect described in the patent. The attaining of such a technical effect should then be considered as a functional technical feature of the claim (e.g. the achievement in a particular context of that technical effect). If that technical feature has not been previously made available to the public by any of the means as set out in Article 54(2) EPC, then the claimed invention is novel, even though such technical effect may have inherently taken place in the course of carrying out what has previously been made available to the public."

In other words, if the newly discovered effect leads the skilled person to a new activity which was not connected with the known means before, such an effect can confer novelty on a claim which is directed to the new activity, i.e. a use or a process. If this is not so, novelty cannot be acknowledged.

19. Thus, when applied to the present case the question arises whether a skilled person would use the process of claim 1 for a purpose different from that for which the processes of documents D2 or D3 are used, i.e. for the preparation of pigments for food industry.

20. In the board's opinion, he would not. The process of the patent in suit can in view of its starting material and its procedural steps only serve the same final purpose of production of pigments for food industry. This view is confirmed by the whole description of the patent in suit. For example, it is stated in page 3, lines 7 to 9 of the patent in suit that a main object of the invention is "to provide a process to isomerize lutein into zeaxanthin to produce a product with high zeaxanthin content which can be used to pigment broiler chickens and egg yolks, as a pigmenting ingredient in aquaculture and as an ingredient for food consumption."

21. Thus, the disclosure of the purpose in the patent in suit - isomerization of lutein to zeaxanthin - does not open the way to a new activity and occurs inherently when carrying out the processes of documents D2 or D3.

Hence, when applying the rationale of G 2/88, it must be concluded that the statement of such an effect cannot confer novelty to the process of claim 1.

22. In a similar situation and also with reference to G 2/88 the board 3.3.5 in decision T 706/95 (of 22 May 2000) came to the conclusion that the claimed process for maintaining low ammonia concentrations while reducing the concentration of nitrogen oxides in an oxygen-rich effluent from the combustion of a carbonaceous fuel lacked novelty over the disclosure in a document of a process for reducing the concentration of nitrogen oxides in an oxygen-rich effluent, but where the document did not explicitly or implicitly refer to the maintenance of low ammonia concentrations.

The board in decision T 706/95 stated in point 2.5 of the Reasons:

"The discovery that the same known means lead to an additional effect, ie the reduction of the level of free ammonia in the effluent, when they are used for the same known purpose (ie known use) of reducing the concentration of nitrogen oxides in the same oxygen-rich effluent from the combustion of a carbonaceous fuel cannot confer novelty to this known use since both the said means of realisation and the said use or purpose remain the same."

23. It is concluded that the subject-matter of claim 1 of the patent in suit is not novel in view of either of document D2 or D3.

*Sufficiency of disclosure, inventive step*

24. In view of the finding of lack of novelty, it is not necessary to decide on the issues of sufficiency of disclosure and inventive step in relation to this request.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairwoman:

P. Cremona

U. Kinkeldey