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**Datasheet for the decision
of 26 May 2021**

Case Number: T 0014/17 - 3.3.09

Application Number: 03798909.2

Publication Number: 1549699

IPC: C08J5/18, C11D17/04

Language of the proceedings: EN

Title of invention:

POLYMERIC FILM FOR WATER SOLUBLE PACKAGE

Patent Proprietor:

Unilever PLC
Unilever N.V.

Opponent:

THE PROCTER & GAMBLE COMPANY

Headword:

Water soluble packages with differential solubility/UNILEVER

Relevant legal provisions:

RPBA Art. 12(4)
EPC Art. 56, 83, 123(2)

Keyword:

Auxiliary request 3A:

Admission - (yes)

Added subject-matter - (no)

Sufficiency of disclosure - (yes)

Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 0014/17 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 26 May 2021

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
31 October 2016 concerning maintenance of the
European Patent No. 1549699 in amended form.**

Composition of the Board:

Chairman A. Haderlein
Members: A. Veronese
 F. Blumer

Summary of Facts and Submissions

- I. This decision concerns the appeal filed by the patent proprietor against the opposition division's decision finding that European patent No. EP 1 549 699 B1 as amended according to the second auxiliary request meets the requirements of the EPC.
- II. In its notice of opposition the opponent had requested revocation of the patent in its entirety on the grounds under Article 100(a) (lack of novelty and lack of inventive step), 100(b) and 100(c) EPC.
- III. Claims 1, 2 and 3 of the second auxiliary request, which was filed by letter dated 11 August 2016 as the fourth auxiliary request, read as follows:

"1. A water soluble package comprising a polymeric film, the polymeric film comprising a polymeric backbone derived from a polymer which is water soluble, as defined herein, and more than one derivatising group attached to the backbone, wherein the derivatising groups are derived from a parent material having a ClogP of from 0.5 to 6, wherein the polymeric backbone is derived from PVOH, wherein the degree of derivatisation of the polymeric back-bone by the derivatising groups is from 8 to 12% by weight, based on the total weight of the polymer, wherein the derivising groups are based on parent groups selected from butyraldehyde, octylaldehyde, dodecyl aldehyde, 2-ethyl hexanal and citral."

"2. A water soluble package comprising a polymeric film, the polymeric film comprising a polymeric

backbone derived from a polymer which is water soluble, as defined herein, and more than one derivatising group attached to the backbone, the derivatising groups being derived from a parent material comprising a C4 to C22 hydrocarbyl chain; wherein the polymeric backbone is derived from PVOH; and wherein the degree of derivatisation of the polymeric back-bone by the derivatising groups is from 8 to 12% by weight, based on the total weight of the polymer."

"3. A water soluble package comprising a polymeric film, the polymeric film comprising a polymeric backbone derived from a polymer which is water soluble, as defined herein, and more than one derivatising group attached to the backbone wherein the package has a relative rupture ratio of greater than 1, more preferably greater than 3 most preferably greater than 7, wherein the polymeric backbone is derived from PVOH; wherein the derivatising groups are based on parent groups selected from butyraldehyde, octylaldehyde, dodecyl aldehyde, 2-ethyl hexanal and citral, and wherein the degree of derivatisation of the polymeric back-bone by the derivatising groups is from 8 to 12% by weight, based on the total weight of the polymer."

IV. The documents submitted during the opposition proceedings included:

D1: US 4,844, 828
D2: EP 0 284 191 A2
D3: WO 97/19961 A1

V. In its decision, the opposition division found *inter alia* that:

- the second auxiliary request was admissible and complied with Articles 123(2) and 123(3) EPC;
- the claimed invention was sufficiently disclosed;
- the claimed subject-matter was novel over D1 and D3 and involved an inventive step over the closest prior art D2, alone or combined with D1 and D3.

VI. With its statement setting out the grounds of appeal, the patent proprietor (appellant) filed a main request and auxiliary requests 1A, 1B, 2A to 2C, 3A to 3C, 4A to 4C, 5A to 5C, 6A to 6C. With its letter dated 5 December 2017, it filed auxiliary requests 2D to 2F.

Claims 1, 2 and 3 of auxiliary request 3A read:

"1. A water soluble package comprising a polymeric film, the polymeric film comprising a polymeric backbone derived from a polymer which is water soluble, as defined herein, and more than one derivatising group attached to the backbone, wherein the derivatising groups are derived from a parent material having a ClogP of from 0.5 to 6, wherein the polymeric backbone is derived from PVOH, wherein the degree of derivatisation of the polymeric back-bone by the derivatising groups is from 8 to 40% by weight, based on the total weight of the polymer, and wherein the derivising groups are based on parent groups selected from butyraldehyde, octylaldehyde, dodecyl aldehyde, 2-ethyl hexanal and citral."

"2. A water soluble package comprising a polymeric film, the polymeric film comprising a polymeric backbone derived from a polymer which is water soluble, as defined herein, and more than one derivatising group

attached to the backbone, the derivatising groups being derived from a parent material comprising a C4 to C22 hydrocarbyl chain wherein the degree of derivatisation of the polymeric back-bone by the derivatising groups is from 8 to 40% by weight, based on the total weight of the polymer."

"3. A water soluble package comprising a polymeric film, the polymeric film comprising a polymeric backbone derived from a polymer which is water soluble, as defined herein, and more than one derivatising group attached to the backbone wherein the package has a relative rupture ratio of greater than 1, more preferably greater than 3 most preferably greater than 7; wherein the degree of derivatisation of the polymeric back-bone by the derivatising groups is from 8 to 40% by weight, based on the total weight of the polymer."

- VII. Both the appellant and the opponent (respondent) requested oral proceedings. In a written communication issued in preparation for the oral proceedings, the board expressed its preliminary opinion that:
- the subject-matter of the main request and auxiliary requests 1A and 1B lacked novelty over D1;
 - auxiliary requests 2A to 2F were not to be admitted into the appeal proceedings;
 - the subject-matter of auxiliary request 3A fulfilled the requirements of the EPC.
- VIII. In two letters of reply to the board's communication, the appellant withdrew the main request and auxiliary

requests 1A, 1B and 2A to 2F. It also withdrew its request for oral proceedings, contingent on auxiliary request 3A being considered allowable.

IX. In a letter filed in reaction to the board's communication and the appellant's letters, the respondent withdrew its request for oral proceedings. The withdrawal was contingent on no request higher than auxiliary request 3A being maintained.

X. The arguments of the appellant relevant for the present decision were as follows:

- the amendments contained in the claims of auxiliary request 3A addressed the opponent's objections and were occasioned by the decision under appeal; the features concerned had been discussed at length during the opposition proceedings;
- a basis for the amendments in the claims could be found in claims 1, 6 and 10, and on page 15 as filed;
- the description of the patent provided the skilled person with sufficient information for preparing both the film and the package defined in the claims and for measuring the rupture ratio of the package;
- D2 was the closest prior art; the problem was the provision of an alternative means for delaying the release of the content of the package during a washing cycle; neither D2 nor the other cited documents hinted at using a polymer as defined in the claims having the claimed degree of derivatisation.

XI. The arguments of the respondent relevant for the present decision were as follows:

- auxiliary request 3A was not to be admitted into the appeal proceedings, because the amendments were not occasioned by the decision under appeal;
- the combination of the features characterising claim 1 had no basis in the application as filed;
- the invention of claim 3 could not be carried out by the skilled person, because the nature of the derivatising groups was not specified in this claim and because the method for determining the rupture ratio of the package was not sufficiently disclosed;
- the opposition division's finding that D2 was the closest prior art was wrong; D1 was the closest prior art, because it disclosed packages that were more similar to the claimed ones, which necessarily had the same properties; starting from D1, the skilled person confronted with the problem of providing a package which dissolved more quickly in water than in anionic/non-ionic surfactants would have arrived at the claimed solution by trial and error, without an inventive step.

XII. The requests

The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of auxiliary request 3A as filed with the statement setting out the grounds of appeal, or on the basis of any one of auxiliary requests 3B, 3C, 4A to

4C, 5A to 5C and 6A to 6C, all as filed with the statement setting out the grounds of appeal.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

Auxiliary request 3A

1. *Admission*

1.1 Claims 1 to 3 of auxiliary request 3A differ from those of the main request of the decision under appeal in that they specify a derivatisation degree of from 8 to 40% by weight as an amendment.

1.2 The respondent did not dispute that, as far as claim 2 was concerned, this amendment was occasioned by the finding of lack of novelty of claim 2 of the main request in the decision under appeal. However, in its opinion, the amendments in claims 1 and 3 were not occasioned by the decision. The opposition division had reached its decision only in consideration of claim 2 of the examined requests. Claims 1 and 3 of these requests had not been considered. Therefore, there was no reason to amend these claims, and auxiliary request 3A was not to be admitted into the appeal proceedings.

1.3 This argument is not convincing. It is clear from the last paragraph on page 11 of the opposition division's decision, which deals with the second auxiliary request, that, although claims 1 and 3 are not dealt with independently, the opposition division considered them to fall within the scope of claim 2. It is also clear that the opposition division's finding concerning

claim 2 applies to claims 1 and 3 as well. The same considerations necessarily apply to claims 1 to 3 of the main request, which have the same structure. This means that the decision under appeal concerns not only the subject-matter of claim 2, but also that of claims 1 and 3 of the examined requests.

- 1.4 Therefore, the limitation to a degree of derivatisation of from 8 to 40% by weight in claims 1 to 3 addresses objections which were raised during the opposition proceedings and were dealt with in the decision under appeal. This amendment does not result in a fresh case either. In fact, it implies a simple combination of the ranges characterising claim 1 of the main request and claims 1 to 3 of the second auxiliary request discussed in the opposition division's decision. For these reasons, auxiliary request 3A is admitted into the appeal proceedings (Article 12(4) RPBA 2007).

Added subject-matter

- 1.5 The respondent argued that claim 1 infringes Article 123(2) EPC. The board considers that this objection is not well founded.
- 1.6 Claim 1 as originally filed was amended to include the following features:
- (a) the polymer comprises more than one derivatising group;
 - (b) the polymeric backbone is derived from PVOH;
 - (c) the degree of derivatisation of the polymeric backbone by the derivatising groups is from 8% to 40% wt, based on the total weight of the polymer;

(d) the derivatising groups are based on parent groups selected from butyraldehyde, octylaldehyde, dodecyl aldehyde, 2-ethyl hexanal and citral.

1.7 These features are disclosed in the following parts of the application as originally filed:

- feature (a): claim 1, by deletion of the option "one";
- feature (b): claim 6;
- feature (c): claim 10, by merging overlapping ranges;
- feature (d): page 15, second paragraph, as filed.

1.8 The combination of these features does not create new subject-matter. Indeed, claim 10 as originally filed depends on claim 6, which itself depends on claim 1. The subject-matter of these claims can be freely combined with that of page 15, second paragraph. The deletion of one aldehyde compound from those listed in this paragraph does not result in the singling out of any specific compound. Therefore, claim 1 complies with the requirements of Article 123(2) EPC.

2. *Sufficiency of disclosure*

2.1 According to the respondent, the invention defined in claim 3 is not sufficiently disclosed, because:

- finding the polymer backbone and the derivatising groups of a package fulfilling the requirements of

claim 3 would involve an undue burden for the skilled person;

- the patent does not provide sufficient information for determining the relative rupture ratio given in claim 3 or, in particular, the concentration of surfactant needed to carry out this determination.

2.2 Claim 3 relates to a water-soluble package comprising a polymeric film, the package having a relative rupture ratio of greater than 1. Methods for manufacturing the polymeric film and the package are described in paragraphs [0104] to [0107], [0115] to [0123] and [0216] to [0228] of the patent in suit. Suitable polymer backbones and derivatising groups are described in paragraphs [0049] and [0058] to [0081]. The fact that these backbones are not specified in the claims does not result in a lack of sufficiency.

2.3 Claim 3 requires that the relative rupture ratio be greater than 1. According to paragraph [0062] the "relative rupture ratio" is the ratio of time for a package to rupture in the presence of anionic and/or non-ionic surfactants relative to the time taken for the same package to rupture in demineralised water. This means, in practice, that the claimed package must rupture more slowly in a solution containing anionic and/or non-ionic surfactant than in demineralised water. The patent describes tests on films according to the invention: see example 1 and paragraphs [0229] to [0233] showing the rupture times of films in solutions comprising 1.66 g/L of detergent, and in tap water. The relative rupture ratio of these films is more than 1.

2.4 The respondent noted that the results in table 3 indicate that the rupture ratio is affected by the

concentration of the surfactant. Nonetheless, this concentration is not critical for determining whether the rupture ratio is greater than 1. The surfactant concentration could affect the preferred values of rupture ratio of "greater than 3 or 7" and result in uncertainty within the scope of these preferred embodiments. However, this uncertainty does not result in a lack of sufficiency.

2.5 The respondent did not provide any evidence that the invention defined in claim 3 cannot be carried out by the skilled person. Accordingly, the invention defined in this claim is sufficiently disclosed.

3. *Inventive step*

3.1 As decided by the opposition division, D2 is the closest prior art. It is the only document addressing, in the same way as the patent in suit, the problem of providing a package which delays the release of its content during a wash cycle and in particular which releases a fabric softener during the rinse phase of a washing process: see page 2, lines 19 to 24 and 47 to 51, and page 3, lines 3 to 8.

3.2 The respondent argued that the choice of D2 as the closest prior art was wrong, because the selection took into account "the problem allegedly solved by the opposed patent as a whole" rather than the product of claim 2 as such. Claim 2 did not require the package to contain a composition, such as a rinsing composition. Nor did it specify that the package had to be used in a specific manner, for example exposing it to anionic/non-ionic surfactants. D1, disclosing a package having a composition more similar to the claimed one, and more

likely to have similar dissolution properties, should have been selected as the closest prior art.

- 3.3 This argument is not convincing. A central consideration in selecting the closest prior art is that it must be directed to the same purpose or effect as the invention. If this purpose is not explicitly set out or cannot be inferred from the claims, the question to be answered is what, in the light of the application or patent as a whole, is to be achieved by the claimed invention.
- 3.4 Reading the patent in suit, it is immediately apparent that the purpose of the invention is to provide a package suitable to deliver a fabric softener during a washing process: see paragraphs [0002] to [0004] and [0035] to [0036]. Furthermore, the fabric softener is to be delivered only during the rinse cycle of the washing process: see paragraphs [0038] to [0041] and [0048]. This concept is reiterated consistently in other parts of the patent. It is also reflected in the idea of using a film dissolving more easily in water, which is used for rinsing, than in solutions of anionic/non-ionic surfactants, which are used for washing. The fact that the claimed package could dissolve in water before the addition of a surfactant is irrelevant. This is because the washing process can be carried out in a manner that prevents this from happening, e.g. in a washing machine programmed so that the package is added during the washing cycle, when detergent is present.
- 3.5 D1 does not aim at this purpose. It discloses a dispenser comprising a pouch containing a powder detergent: see column 1, lines 11 to 19, and claim 1. The dispenser is intended to release the detergent

during the washing cycle rather than to delay its release until a rinse cycle. Thus, D1 is not the closest prior art. Similar considerations apply to D3. Insofar as the films of D3 are used in washing methods, they are intended to deliver detergents: see page 3, lines 1 to 3.

The difference and the technical effect

- 3.6 The package of D2 has pH-dependent solubility. The preferential dissolution in the rinse phase is triggered by a pH change (see page 2, lines 50 to 51). The package comprises a laminate with a specific methylcellulose (MC) layer and an inner PVA layer incorporating a cross-linking agent such as a boric or telluric salt (see page 3, line 42 onwards, and claims). This agent renders the PVA layer insoluble in alkaline wash conditions, while maintaining solubility in less alkaline rinse conditions.
- 3.7 D2 does not disclose a package which, as in claims 1, 2 and 3, comprises a water-soluble polymer containing derivatising groups attached to the polymeric backbone and has a degree of derivatisation of from 8 to 40%, let alone one in which the derivatising groups are those defined in claims 1 and 2.
- 3.8 As shown in the tests in example 1 of the patent in suit, films made of PVOH having a derivatisation as defined in claims 1 to 3 dissolve faster in water than in anionic/non-ionic surfactants. Furthermore, as shown in table 12, the rupture time is pH-independent.

The underlying technical problem

- 3.9 As decided by the opposition division, starting from D2, the underlying objective technical problem is the provision of a water-soluble package which does not dissolve during the wash cycle, but dissolves during the rinse cycle, the dissolution being pH-independent. The tests mentioned above make it credible that this problem has been solved.
- 3.10 The respondent argued that this problem was not solved across the whole scope claimed, because the solution required "that a specific washing method is used in combination with the water soluble packages".
- 3.11 This argument is not convincing. As mentioned above in the last sentence of point 3.4, the claimed package can be used, for example, in a washing machine programmed so that the package is added during the washing cycle. For formulating the problem, it is sufficient that the claimed product achieves the purported technical effect when this washing cycle is carried out. No evidence that this effect cannot be achieved over the whole scope of the claims was provided by the respondent.

Non-obviousness of the solution

- 3.12 The respondent did not give any reason why, starting from D2, the skilled person would have modified the packages described therein to arrive at the claimed invention.
- 3.13 The board agrees with the appellant that D2 does not hint at linking derivatising groups to the backbone of a soluble polymer. D2 is quite adamant that a multi-layer film structure and a cross-linking agent are

essential to regulate dissolution. The skilled person would not refer to D1 either, because D1 only concerns fast cold-water solubility of PVA. No mention is made of delayed release from a package or of preventing dissolution in the wash phase. Furthermore, there would be no reason to refer to D3, which aims at increasing the water solubility of polyvinyl alcohol through acetalisation (page 2, lines 25 to 29) and does not mention any type of delayed release.

3.14 For these reasons, it is concluded that the claimed subject-matter involves an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent as amended according to the claims of auxiliary request 3A filed with the grounds of appeal and a description adapted accordingly.

The Registrar:

The Chairman:



A. Nielsen-Hannerup

A. Haderlein

Decision electronically authenticated