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Datasheet for the decision of 9 July 2026

Case Number: T 0446/25 - 3.3.02

Application Number: 15806770.2

Publication Number: 3155082

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Language of the proceedings: EN

Title of invention:

ENHANCED CATALYST STABILITY IN ACTIVATED PEROXYGEN AND ALKALINE DETERGENT FORMULATIONS IN SOLID BLOCKS

Patent Proprietor:

Ecolab USA Inc.

Opponents:

Henkel AG & Co. KGaA
Unilever IP Holdings B.V./ Unilever Global IP Limited

Headword:

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Relevant legal provisions:
EPC Art. 56, 100(a), 108
EPC R. 99(2)
RPBA 2020 Art. 12(2), 12(3)

Keyword:
Admissibility of appeal - appeal sufficiently substantiated
Grounds for opposition - lack of patentability
Inventive step

Decisions cited:

Catchword:

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Boards of Appeal

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Case Number: T 0446/25 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 9 July 2026

Appellant: (Patent Proprietor)	Ecolab USA Inc. 1 Ecolab Place St. Paul, MN 55102 (US)
Representative:	Godemeyer Blum Lenze Patentanwälte Partnerschaft mbB - werkpatent An den Gärten 7 51491 Overath (DE)
Appellant: (Opponent 1)	Henkel AG & Co. KGaA Henkelstraße 67 40589 Düsseldorf (DE)
Representative:	Henkel AG & Co. KGaA CLI / Patente 40191 Düsseldorf (DE)
Appellants: (Opponents 2)	Unilever IP Holdings B.V. Weena 455 3013 AL Rotterdam (NL) and Unilever Global IP Limited Port Sunlight Wirral Merseyside CH62 4ZD (UK)
Representative:	Unilever Patent Group Bronland 14 6708 WH Wageningen (NL)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted/ electronically transmitted on 17 February 2025**

concerning maintenance of the European Patent No. 3155082 in amended fo rm.

Composition of the Board:

Chairman	M. O. Müller
Members:	S. Bertrand
	M. Blasi

Summary of Facts and Submissions

I. The appeals by the patent proprietor, opponent 1 and joint opponents 2 are against the interlocutory decision of the opposition division finding that European patent No. 3 155 082, as amended in the form of auxiliary request 1 comprising the set of claims filed on 5 November 2024, met the requirements of the EPC.

II. Since the patent proprietor, opponent 1 and joint opponents 2 are both appellants and respondents in these appeal proceedings, they are referred to below as "patent proprietor", "opponent 1" and "opponents 2", respectively.

III. The patent relates to a detergent composition in the form of a solid block comprising at least one alkalinity source, a stabilised catalyst comprising a polymeric matrix of a polymer and a specific manganese catalyst, and an active oxygen source.

IV. The following documents are referred to in the present decision:

D1	WO 2008/064935 A1
D5	WO 95/20030 A1
D8	US 5,356,554
D10	WO 97/22680 A1
D11	WO 2012/025902 A2

V. In the impugned decision, the opposition division concluded, *inter alia*, that the claimed subject-matter involved an inventive step starting from D8.

VI. With its statement of grounds of appeal and its replies to the statements of grounds of appeal of opponent 1 and opponents 2, the patent proprietor filed the sets of claims of auxiliary requests 1 to 4. With a further letter dated 14 April 2026, it filed the sets of claims of auxiliary requests 2a, 4a and 4b. It filed two documents (D15 and D16, as designated by the patent proprietor) in support of the interpretation of the term "from" in the context of added subject-matter.

VII. In their statements of grounds of appeal, replies to the patent proprietor's grounds of appeal and subsequent submissions, opponent 1 and opponents 2 disputed the allowability of the main request (patent as granted) and the auxiliary requests.

VIII. The board summoned the parties to oral proceedings as per their requests and issued a communication under Article 15(1) RPBA.

IX. Oral proceedings before the board were held by videoconference on 9 July 2026, with all parties present.

X. The parties' requests relevant to the present decision were as follows.

The patent proprietor requested that:

- the appealed decision be set aside, and the oppositions be rejected, or alternatively

- that the opponents' appeals be dismissed, i.e. that the patent be maintained as amended in the form of the auxiliary request considered allowable by the opposition division, or further alternatively

- that the patent be maintained in amended form on the basis of one of the sets of claims according to auxiliary requests 1, 2, 2a, 3, 4, 4a and 4b, with auxiliary request 1 having been filed with the statement of grounds of appeal, auxiliary requests 2, 3 and 4 as having been filed with the letter dated 10 October 2025, and auxiliary requests 2a, 4a and 4b as having been filed with the letter dated 14 April 2026.

Opponent 1 and opponents 2 requested that the appealed decision be set aside and the patent be revoked in its entirety.

XI. The parties' submissions relevant to the present decision are referred to in the reasons for the decision below.

Reasons for the Decision

Admittance of certain submissions in opponent 1's and opponents 2's statements of grounds of appeal

1. The patent proprietor requested that a large part of opponent 1's submissions in its statement of grounds of appeal, and opponents 2's submissions in points 7.16 to 7.22, 9.11 to 9.19, 9.21 to 9.75 and 9.77 to 9.107 of their grounds of appeal not be admitted. According to the patent proprietor, both opponent 1's and opponents 2's submissions simply reproduced the arguments which had already been submitted in the notices of opposition.

1.1 According to Article 12(2) and (3) RPBA, a party's appeal case should be directed to the requests, facts, objections, arguments and evidence on which the decision under appeal was based, and the statement of grounds of appeal should set out the reasons why the decision should be reversed or amended.

In the present case, the decision under appeal deals with added subject-matter, novelty, inventive step and sufficiency.

Opponent 1 in its statement of grounds of appeal contested:

- with regard to added subject-matter, the opposition division's finding that method claim 10 was based on claims 13 and 14 of the application as filed (page 1 of the grounds of appeal);

- with regard to novelty, the opposition division's findings that there was no direct and unambiguous disclosure in D1 of the combination of all the features of claim 1 and that the term "matrix" in claim 1 had a different functional aspect from "binder" in D1 (fifth and last paragraphs on page 7 of the grounds of appeal), and that D5 did not disclose a catalyst and a matrix in accordance with claim 1 (second and last paragraphs on page 17 of the grounds of appeal);

- with regard to inventive step, the opposition division's finding that the layered tablet of D1 was not a solid block (fourth paragraph on page 19 of the grounds of appeal), the opposition division's formulation of the objective technical problem (fourth paragraph on page 21 of the grounds of appeal), and that none of the compositions of the prior art involved the formation of a matrix

(sixth paragraph on page 21 of the grounds of appeal), and furthermore that there was no disclosure in D10 of the formation of a polymeric matrix (last paragraph on page 30 of the grounds of appeal).

These contested points were substantiated by opponent 1 by means of arguments set out in the statement of grounds of appeal following each of the points identified above. It follows that the submissions of opponent 1 are not mere copies of those contained in its notice of opposition and that, taken together, the contested points and the accompanying arguments enable the board and the other parties to understand immediately why the decision under appeal is alleged to be incorrect.

With regard to opponents 2's submissions in points 7.16 to 7.22, 9.11 to 9.19, 9.21 to 9.75 and 9.77 to 9.107 of their statement of grounds of appeal, the board notes the following.

The submissions in points 7.16 to 7.22 concern an objection of insufficiency of disclosure in respect of the term "solid block" in claim 1 of the main request. In points 7.12 to 7.15, opponents 2 had indicated that, based on a statement by the patent proprietor, they understood that a tablet would not fall within the scope of a "solid block". In points 7.23 and 7.25, opponents 2 argued that, in view of that statement, claim 1 lacked the essential features required to distinguish a detergent tablet from a solid block and therefore did not meet the requirements of Article 83 EPC. These submissions, which are not mere repetitions of those made in the notice of opposition, enable the board and the other parties to understand immediately why the decision on sufficiency of

disclosure is considered to be incorrect by opponents 2.

The submissions in points 9.11 to 9.19, 9.21 to 9.75 and 9.77 to 9.107 relate to objections of lack of inventive step. In points 9.1 and 9.2, opponents 2 stated that they disagreed with the opposition division's finding that the subject-matter of the claims of auxiliary request 1 involved an inventive step. In points 9.3 to 9.10, they presented arguments concerning the meaning of the term "polymeric matrix" in claim 1 and contested the interpretation adopted by the opposition division. Opponents 2 then set out inventive-step objections starting from D10 (from point 9.16 onwards), D5 (from point 9.40 onwards), D8 (from point 9.73 onwards) and D11 (from point 9.95 onwards). Even if some arguments correspond to those previously submitted, taken as a whole these submissions address the reasoning of the opposition division and thus challenge its conclusions on inventive step.

1.2 It follows that the submissions of opponents 1 and 2 in their statements of grounds of appeal comply with Article 12(3) RPBA and thus form part of the appeal proceedings.

1.3 Consequently, the board decided to reject the patent proprietor's general requests that those submissions not be admitted.

2. Accordingly, opponents 2's request that the board not admit the patent proprietor's general request that no part of opponents 1 and 2's submissions which were allegedly copied from documents filed before the opposition division be admitted was rendered moot.

Main request

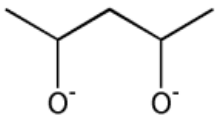
3. Inventive step - claim 1 - Articles 100(a) and 56 EPC

3.1 Claim 1 of the main request reads as follows:

"*1. A solid stabilized catalyst detergent composition in a solid block comprising:*

at least one alkalinity source;
a stabilized catalyst comprising a polymeric matrix of a polymer and a catalyst according to the following formula: $[(L_pMn_q)_nX_r]Y_s$,
wherein each L independently is an organic ligand containing at least three nitrogen atoms and/or at least two carboxyl groups that coordinate with the Mn metal;

wherein each X independently is a coordinating or bridging group selected from the group consisting of H_2O, OH^-, SH^-, HO_2^-, O^{2-}, O_2^{2-}, S^{2-}, F^-, Cl^-, *Br* [sic], I^-, NO_3^-, NO_2^-, SO_4^{2-}, SO_3^{2-}, PO_4^{3-}, N_3^-, CN^-, NR_3, NCS^-, *RCN,* RS^-, RCO_2^-, RO^-, *and*



wherein R is a hydrogen or a C_1 *to* C_6 *alkyl group;*
wherein p is an integer from 1 to 4;
wherein q is an integer from 2 [sic]*;*
wherein r is an integer from 0 to 6;
wherein Y is a counter ion; and
wherein s is the number of counter ions, and

further comprising an active oxygen source that is catalyzed by the catalyst in a use solution of the composition."

Thus claim 1 of the main request relates to a detergent composition in a solid block comprising:

- at least one alkalinity source (not further specified),
- a catalyst comprising a polymeric matrix of a polymer (not further specified) and a catalyst having a specific chemical formula, and
- an active oxygen source (not further specified) that can be catalysed by the catalyst.

3.2 Interpretation of the term "polymeric matrix"

As set out above, claim 1 of the main request refers to a catalyst comprising, *inter alia*, a polymeric matrix.

The patent proprietor submitted that the term "polymeric matrix" was understood by the skilled person as necessarily implying that the polymer completely coated or embedded a further component (in the present case, the catalyst). The patent proprietor relied on the - in its opinion - established use of the term "polymeric matrix" in the field of fibre-reinforced composite materials, in which materials the polymer completely coated or embedded the fibres.

The board does not share the patent proprietor's interpretation of the term "polymeric matrix".

The patent proprietor has not provided any evidence that the meaning of the term "polymeric matrix" in the field of fibre-reinforced composites applies in other technical fields as well. Rather, the patent proprietor acknowledged that fibre-reinforced composites merely represented one example of materials with a polymeric matrix. The board therefore sees no reason why

characteristics specific to a polymeric matrix in fibre-reinforced composites should apply to the term "polymeric matrix" in claim 1, which relates to a field completely different from fibre-reinforced composites.

In the context of claim 1 of the main request, the board therefore considers that the term "polymeric matrix" merely denotes a matrix in which the polymer constitutes the matrix material. As acknowledged by the patent proprietor, the term "matrix" "can mean all sorts of things". Consequently, the term "polymeric matrix" can mean all sorts of things made of a polymer, and certainly does not imply a complete coating or embedding. The term "polymeric matrix" of claim 1 of the main request therefore does not imply that the polymeric matrix forms a coating or embeds the catalyst, let alone that it completely coats or completely embeds it.

Nor can such a limitation be derived from the description of the patent. It was not disputed by the patent proprietor that the patent contains no explicit definition of the term "polymeric matrix". Even if the description refers to "matrix coated catalyst" (table 3), this, however, merely describes a particular embodiment. The mention of such a particular embodiment in the description of the patent does not justify reading into claim 1 the limitation that a polymeric matrix necessarily constitutes a complete coating or completely embeds the catalyst particles. At most, it establishes that a complete coating may be a polymeric matrix. It does not support the converse proposition that every polymeric matrix is a coating. The patent proprietor did not argue otherwise.

In fact, the wording in paragraph [0001] of the patent "coating of a polymeric matrix" would not make sense if a polymeric matrix implied a (complete) coating, since then this paragraph would require a coating of a coating. Furthermore, paragraph [0034], which describes the polymeric matrix further, nowhere discloses any complete coating or embedding, let alone defines the term "polymeric matrix" in this way.

Finally, the description is itself not consistent in its use of the term. Indeed, the passages of the patent relied on by the patent proprietor refer to "*a coating of a polymer matrix*" (paragraph [0001]), "*coating a catalyst material in a solid detergent block with a polyacrylate polymer matrix*" (paragraph [0009]), "*a catalyst activator is coated with a polymer matrix*" and "*polyacrylate encapsulation*" (paragraph [0011]), "*a polymeric coating providing a matrix with the catalyst*" and "*polymeric coating* [which] *forms a polymeric matrix structure with the catalyst and further surrounds the bleach catalyst*" (paragraph [0034]), "*the polymeric matrix coating*" (paragraph [0076]), "*Matrix Coated Catalyst*" (table 3) and "*the polyacrylate matrix surrounding the catalyst*" (paragraph [0112]). These passages use different expressions to describe the relationship between the polymeric matrix and the catalyst, including "coating", "encapsulation", "surrounding" and "providing a matrix". They therefore do not convey a consistent technical teaching as to the precise meaning of the term "polymeric matrix". In particular, they do not enable the skilled person to conclude that the term "polymeric matrix", as used in claim 1 of the main request, necessarily implies that the polymer completely coats or embeds the catalyst component. Under these circumstances, the description

cannot serve as a basis for reading such a limitation into claim 1 of the main request.

3.3 Opponents 2 submitted that the subject-matter of claim 1 of the main request did not involve an inventive step starting from D8.

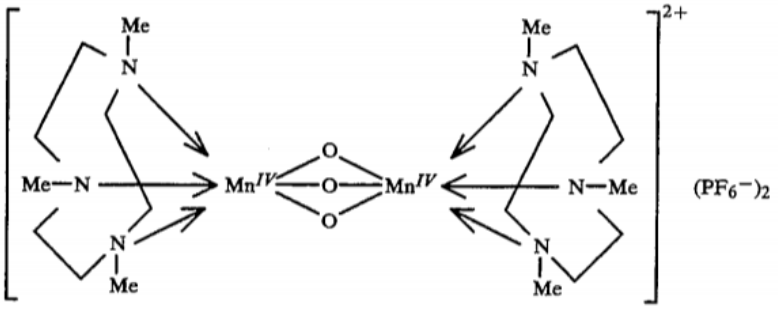
3.4 Disclosure of D8

D8 (column 8, lines 45 to 58) discloses three base powder compositions (compositions A, B and C). These compositions comprise:

- sodium carbonate (an alkalinity source as required by claim 1 of the main request);
- a maleic acid/acrylic acid copolymer (a polymer as required by claim 1 of the main request) and
- sodium perborate monohydrate (an active oxygen source as required by claim 1 of the main request).

The compositions further comprise as a catalyst a manganese-complex compound (I) (column 8, lines 42 and 43 of D8) of formula $[Mn^{IV}_2(\mu\text{-}O)_3(Me_3\text{-}TACN)_2](PF_6)_2H_2O$.

The manganese-complex compound (I) has the following structural formula:



This compound (I) represents a catalyst according to claim 1 of the main request:

- Me_3-TACN is an organic ligand L containing three nitrogen atoms as required by claim 1 of the main request;
- compound (I) comprises two ligands and thus p is 2 as required by claim 1 of the main request;
- compound (I) comprises two manganese atoms and thus q is 2 as required by claim 1 of the main request;
- compound (I) comprises three bridging groups -O-, meaning that X is a bridging group O^{2-} and r is 3 as required by claim 1 of the main request; and
- PF_6^- constitutes the counter ion Y and s is 2 as required by claim 1 of the main request.

3.5 Distinguishing features

It was common ground between the parties that the solid block form (D8 disclosing solid granular compositions) is a distinguishing feature.

The patent proprietor argued that a further distinguishing feature was the polymeric matrix required by claim 1 of the main request. More specifically, the maleic acid/acrylic acid copolymer of D8 did not constitute such a polymeric matrix since it did not completely embed or coat the catalyst particles.

The board is not convinced.

As set out above, the term "polymeric matrix" in claim 1 of the main request does not imply any complete coating or embedding. Any absence of such a complete

coating or embedding can thus not disqualify the maleic acid/acrylic acid copolymer disclosed in D8 from being a polymeric matrix.

The solid block required by claim 1 is thus the only distinguishing feature.

3.6 Technical effect and objective technical problem

As submitted by opponents 2, no effect of the distinguishing feature (solid block form) has been demonstrated in the patent or the application as filed, respectively. The objective technical problem is thus merely the provision of an alternative solid detergent composition.

This objective technical problem, considering the solid block form as the only distinguishing feature, was not contested by the patent proprietor.

3.7 Obviousness

As regards obviousness, the board agrees with opponents 2, who relied on D5.

D5 is concerned with detergent compositions for machine dishwashing and thus belongs to the same technical field as the patent. In particular, example 4B (page 28 of D5) discloses tablets of a detergent composition for machine dishwashing comprising the same essential components as those in D8, namely a maleate/acrylate copolymer constituting the polymer of the polymeric matrix, sodium bicarbonate as an alkalinity source, sodium perborate monohydrate as an active oxygen source and a triazacyclononane-based Mn-complex as a manganese catalyst. Furthermore, claims 26 to 31 of D5 expressly disclose that the detergent compositions described

therein may be formulated in various physical forms, including tablets.

Since D5 belongs to the same technical field as D8 and addresses the formulation of detergent compositions containing the same essential ingredients as those in D8, the skilled person seeking to provide an alternative physical form of compositions A, B and C disclosed in D8 would therefore have taken into account the teaching of example 4B and claims 26 to 31 of D5. Since a tablet constitutes a solid block detergent composition, the skilled person would have formulated any of compositions A, B and C of D8 in tablet form. Accordingly, the formulation in tablet form, constituting a solid block detergent composition, was obvious to the skilled person.

3.8 The subject-matter of claim 1 of the main request thus does not involve an inventive step starting from document D8. Accordingly, the ground for opposition under Article 100(a) in conjunction with Article 56 EPC prejudices maintenance of the patent as granted.

Auxiliary request considered allowable by the opposition division and auxiliary requests 1, 2, 2a, 3, 4, 4a and 4b

4. Admittance

The auxiliary request considered allowable by the opposition division in the contested decision formed part of the appeal proceedings under Article 12(2) RPBA.

Auxiliary request 1 filed with the statement of grounds of appeal, auxiliary requests 2, 3 and 4 filed by letter dated 10 October 2025, and auxiliary requests 2a, 4a and 4b filed with the letter dated 14 April 2026 were admitted into the appeal proceedings in accordance

with Articles 12 and 13 RPBA. Since the board's decision on these requests in substance is in the opponents' favour, there is no need to give reasons for the decision to admit these requests.

5. Inventive step - claim 1 - Article 56 EPC

5.1 The patent proprietor relied in support of inventive step on the same arguments as for the main request and did not put forward any arguments, either in writing or at oral proceedings, as to why the amendments made in these auxiliary requests overcame the inventive-step objections raised against the main request.

5.2 The board therefore concludes that the subject-matter of claim 1 of each of these requests does not involve an inventive step for the same reasons as for the main request. Accordingly, none of the auxiliary requests meets the requirements of Article 56 EPC.

6. None of the patent proprietor's claim requests is allowable.

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:

U. Bultmann M. O. Müller

Decision electronically authenticated