

Internal distribution code:

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

**Datasheet for the decision
of 18 November 2025**

Case Number: T 0018/25 - 3.3.08

Application Number: 19172614.0

Publication Number: 3540068

IPC: C12P7/10, C12P7/14, C13K1/02,
C13K13/00, C07H3/00

Language of the proceedings: EN

Title of invention:
Sugar composition comprising high content xylose and methods
for processing sugar mixtures

Patent Proprietor:
International N&H Denmark ApS

Opponent:
UPM-Kymmene Corporation

Headword:
Sugar composition/INTERNATIONAL N&H DENMARK APS

Relevant legal provisions:
EPC Art. 100(c)

Keyword:
Main request and auxiliary requests 1 to 19 - added subject-
matter - (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 0018/25 - 3.3.08

D E C I S I O N
of Technical Board of Appeal 3.3.08
of 18 November 2025

Appellant: UPM-Kymmene Corporation
(Opponent) Alvar Aallon katu 1
00100 Helsinki (FI)

Representative: Klusmann Peter and Lacy Adam
Hoffmann Eitle
Patent- und Rechtsanwälte PartmbB
Arabellastraße 30
81925 München (DE)

Respondent: International N&H Denmark ApS
(Patent Proprietor) Parallelvej 16
2800 Kongens Lyngby (DK)

Representative: Dunne Paul and Flower Chloe
Mewburn Ellis LLP
Aurora Building
Counterslip
Bristol BS1 6BX (GB)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 14 November 2024 rejecting the opposition filed against European patent No. 3540068 pursuant to Article 101(2) EPC**

Composition of the Board:

Chair T. Sommerfeld
Members: M. Montrone
A. Bacchin

Summary of Facts and Submissions

- I. European patent No. 3 540 068 B1 ("the patent") was granted for European patent application No. 19 172 614.0 which has been filed as a divisional of European patent application 11822761.0 having been filed as International patent application published as WO 2012/031270 (the "parent application").
- II. An opposition was filed against the granted patent. The patent was opposed on the grounds of Article 100(a) EPC in combination with Articles 54 and 56 EPC and on Article 100(c) EPC in combination with Articles 76(1) and 123(2) EPC.
- III. The present appeal has been filed by the opponent ("appellant") against the decision of an opposition division to reject the opposition.
- IV. In reply, the patent proprietor ("respondent") submitted counter arguments, re-submitted auxiliary requests 1 to 8 (being identical to auxiliary requests 1 to 8 filed during the opposition proceedings) and submitted new auxiliary requests 9 to 17.
- V. In a communication pursuant to Article 15(1) RPBA, the board provided its preliminary assessment on some of the issues at stake including added subject matter for all claim requests on file.
- VI. In reply thereto, the respondent submitted further arguments and new auxiliary requests 18 and 19.
- VII. Claim 1 as granted (main request) reads:

"1. A sugar composition comprising:

- (a) at least 25% xylose by weight relative to total sugar concentration;
- (b) at least one alpha-bonded di-glucose;
- (c) at least one beta-bonded di-glucose;
- (d) glucose at a concentration by weight of less than 1% relative to total sugars; and
- (e) at least 0.0001% on a weight basis of a non-volatile fermentation product selected from the group consisting of lactic acid, succinic acid, fatty acids, esters of fatty acids and proteins."

For ease of reference, compounds (a) to (e) in claim 1 are referred to hereafter as features (a) to (e).

- VIII. Claim 1 of auxiliary request 1 differs from claim 1 as granted in that the feature "*and comprising at least 0.001% arabinose of total sugars on a weight basis*" has been added at the end of feature (e).
- IX. Claim 1 of auxiliary request 2 differs from claim 1 as granted in that the feature "*at least 40% total sugars by weight, preferably at least 42%, more preferably at least 45%, yet more preferably at least 47% and most preferably at least 50%, further comprising*" has been added to the preamble.
- X. Claim 1 of auxiliary request 3 differs from claim 1 as granted in that in feature (a) the upper limit "*and less than 80%*" has been added.
- XI. Claim 1 of auxiliary request 4 differs from claim 1 as granted in that in feature (a) the upper limit "*and less than 70%*" has been added.

- XII. Claim 1 of auxiliary request 5 combines the amendments of claims 1 of auxiliary requests 1 and 2.
- XIII. Claim 1 of auxiliary request 6 combines the amendments of claims 1 of auxiliary requests 1 and 3.
- XIV. Claim 1 of auxiliary request 7 combines the amendments of claims 1 of auxiliary requests 1, 2 and 4.
- XV. Claim 1 of auxiliary request 8 combines the amendments of claims 1 of auxiliary requests 2 and 4 to which the feature "*and comprising at least 2% arabinose of total sugars on a weight basis*" has been added at the end of the claim.
- XVI. Claim 1 of auxiliary request 9 differs from claim 1 as granted in that the feature "*at least 1000ppm of*" has been added at the beginning of feature (b).
- XVII. Claim 1 of auxiliary request 10 differs from claim 1 of auxiliary request 9 in that the feature "*at least 1000ppm of*" has been added at the beginning of feature (c).
- XVIII. Claim 1 of auxiliary request 11 differs from claim 1 of auxiliary request 9 in that the feature "*wherein the composition comprises at least 40% total sugars by weight*" has been added at the end of the claim.
- XIX. Claim 1 of auxiliary request 12 combines the amendments of claims 1 of auxiliary requests 10 and 11.
- XX. Claim 1 of auxiliary request 13 differs from claim 1 as granted in that the feature "*wherein the composition is provided as a solution*" has been added at the end of the claim.

- XXI. Claim 1 of auxiliary requests 14 and 16 combines the amendments of claim 1 of auxiliary requests 11 and 13.
- XXII. Claim 1 of auxiliary request 15 and 17 combines the amendments of claims 1 of auxiliary requests 10 and 14.
- XXIII. Claim 1 of auxiliary request 18 differs from claim 1 as granted in that the feature "0.0001%" in feature (e) has been replaced by "0.001%".
- XXIV. Claim 1 of auxiliary request 19 differs from claim 1 of auxiliary request 18 in that in feature (d) the lower limit "at least 0.001% and" has been added.
- XXV. Oral proceedings were held in the presence of both parties.
- XXVI. The arguments of the parties relevant for the decision are dealt with in detail in the Reasons for the Decision.
- XXVII. The relevant requests of the parties for the decision are the following (for the complete list of the parties' requests, see the minutes of the oral proceedings):

The appellant requested:

- that the decision under appeal be set aside and amended such that the patent be revoked;
- that auxiliary requests 9 to 19 not be admitted.

The respondent requested:

- that the appeal be dismissed (main request), or, alternatively, the patent be maintained on the basis of one of auxiliary requests 1 to 17 filed

with their reply to the statement of grounds of appeal, or further alternatively on the basis of auxiliary requests 18 or 19 filed with the letter dated 14 October 2025;

- that auxiliary requests 9 to 19 be admitted.

Reasons for the Decision

Claims as granted (main request)

Claim interpretation - claim 1

1. Claim 1 concerns a product claim.
 - 1.1 The claimed sugar composition comprises as compounds "xylose" of a specified concentration ("at least 25% by weight relative to total sugar concentration", i.e. feature (a)), at least one "alpha-bonded di-glucose" and one "beta-bonded di-glucose" (i.e. features (b) and (c), respectively), "glucose" of a specified concentration ("less than 1%" by weight "relative to total sugars", i.e. feature (d)), and "a non-volatile fermentation product selected from the group consisting of lactic acid, succinic acid, fatty acids, esters of fatty acids and proteins" of a specified concentration ("at least 0.0001% on a weight basis", i.e. feature (e)).
 - 1.2 Due to the comprising language, the composition of claim 1 may contain further compounds.
 - 1.3 The terms "less than" and "at least" in features (a), (d) and (e) of claim 1, respectively define upper (less than) or lower end limits (at least) of ranges with an open end at one side. In other words these features specify the maximum or minimum concentration of either

xylose, glucose or a non-volatile fermentation product without defining xylose's maximum concentration, glucose's minimum concentration and the maximum concentration of a non-volatile fermentation product in the claimed sugar composition.

1.4 Since claim 1 specifies that at least one "*alpha-bonded di-glucose*" and one "*beta-bonded di-glucose*" has to be present in the claimed composition, claim 1 encompasses any concentration of these compounds, including trace amounts.

1.5 Moreover claim 1 specifies the minimum concentration of xylose and the maximum concentration of glucose (i.e. the two other sugars indicated in claim 1 in addition to the alpha- and beta- bonded di-glucose) only relative to the total sugar concentration in the claimed composition, while the minimum concentration of a non-volatile fermentation product is defined on a weight basis of the claimed compound. In view thereof the board agrees with the appellant that claim 1 encompasses sugar compositions that contain low amounts of sugars and high amounts of a non-volatile fermentation product.

Added subject-matter

2. In the following reference to the application as filed is to the parent application (WO 2012/031270). Moreover, since the description of the patent application (EP 3 540 068 A1) contains the description and the claims (embodiments 1-143) of the parent application, the conclusions reached for Article 123(2) EPC apply equally to Article 76(1) EPC.

3. It is established case law that any amendment to a claim can be made only within the limits of what a skilled person would derive directly and unambiguously, implicitly or explicitly, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the application as filed (Case Law of the Boards of Appeal of the EPO, 11th edition 2025, II.E.1.3.1 and II.E.1.3.3).
4. The appellant submitted that claim 1 comprised added subject-matter due to the introduction of features (d) and (e) in claim 1 as filed. The appellant's objections were based on several lines of arguments including *inter alia* that there was no basis in the application as filed for the range of "at least 0.0001%" and the minimum concentration of 0.0001% on a weight basis ("wt-%") both as mentioned in feature (e) for each individual non-volatile fermentation product mentioned in claim 1. These two objections will be considered in the following.
5. The opposition division was of the view that the objected feature (e) in claim 1 had a basis on page 36, lines 26, 28 and 29 of the application as filed (decision under appeal, Reason 14.3). The respondent shared this view.
6. The respective passage on page 36, lines 25 to 29 of the application as filed states: "*Alternatively or additionally, in some exemplary embodiments of the invention the composition includes at least 0.001; optionally 0.0005; optionally 0.0001% non-volatile fermentation product on a weight basis. As used in this specification and the accompanying claims the term "non-volatile fermentation products" includes but is not limited to: lactic acid, succinic acid, fatty*

acids, esters of fatty acids and proteins" (emphasis added).

7. As regards the first objection, the board does not agree with the appellant that the presence of "at least" in combination with "0.0001%" in feature (e) of claim 1 adds subject-matter. As set out above (point 1.3) "at least 0.0001%" defines a minimum concentration of a non-volatile fermentation product in claim 1. The explicitly mentioned lower limit concentration "at least 0.001" on page 36, line 26 of the application as filed is 10x higher than that of the subsequently mentioned "optionally 0.0001%" (point 6 above). Since the first value specifies a minimum concentration that is higher than each of the later mentioned ones, the sole sensible technical reading of this sentence on page 36 is that "0.0001%" relating to a 10x lower concentration specifies an (even lower) minimum concentration of a non-volatile fermentation product than 0.001%. If, as argued by the appellant, each of the lower concentrations (optionally 0.0005 and optionally 0.0001%) related to single concentration values and not to an alternative lower range limit of at least 0.001, these lower limits would be excluded from the range.

8. The board, however agrees with the appellant's second objection under added subject-matter for which the following is relevant.
 - 8.1 Contrary to page 36, lines 25 to 29 of the application as filed (point 6 above), feature (e) of claim 1 reads as follows: "*at least 0.0001% on a weight basis of a non-volatile fermentation product selected from the group consisting of lactic acid, succinic acid, fatty*

acids, esters of fatty acids and proteins" (emphasis added).

8.2 Feature (e) of claim 1 by using the term "a ... *product*" specifies the minimum concentration of each of the indicated individual non-volatile fermentation products. This is different from the application as filed which specifies the minimum concentration as "*0.0001% non-volatile fermentation product on a weight basis*", i.e. the minimum concentration here relates to the total amount of non-volatile fermentation product used in the claimed sugar composition. In other words the compounds to which the minimum concentration of at least 0.0001% applies are different between the respective passage on page 36 of the application as filed and feature (e) of claim 1. While the generic term "*product*" indicated on page 36 of the application as filed encompasses mixtures of two or more non-volatile fermentation products, feature (e) refers to individual products only. This affects the non-volatile fermentation products encompassed by claim 1 compared to those disclosed on page 36 of the application as filed because feature (e) specifies a new cut off limit (i.e. minimum concentration) for a non-volatile fermentation product.

8.3 This can be illustrated by the following example. According to page 36, lines 25 to 27 of the application as filed the non-volatile fermentation product may contain a mixture of 0.00005% lactic acid and 0.00005% succinic acid. This is so because these organic acids are two of the non-volatile fermentation products indicated on page 36, lines 28 and 29 and the sum of 0.00005% and 0.00005% equals to a total concentration of 0.0001 wt-%, i.e. the minimum concentration cut off value specified on this page. However, this mixture of

organic acids is excluded by feature (e) of claim 1, because this mixture does not contain "at least 0.0001%" of each of lactic acid and succinic acid. Since claim 1 defines thus a "subrange" of non-volatile fermentation products that is not disclosed in the application as filed, the skilled person is presented with new technical information and the claim extends beyond what is directly and unambiguously derivable from the application as filed.

9. The respondent submitted that since the respective passage on page 36 of the application as filed indicated above and the sugar composition of claim 1 mentioned both the singular form of the term "*product*", the minimum amount of 0.0001 wt-% related in both cases to that of a single non-volatile fermentation product. Thus feature (e) of claim 1 did not contain any new information.
10. For the reasons indicated above (points 8.2 and 8.3 above) this is not convincing. The term "*product*" on page 36 of the application as filed does not relate to a single product only, since it is a generic term, while claim 1 relates to a single product. This difference affects the claimed sugar composition insofar as certain combinations of non-volatile fermentation products below the indicated minimum concentration of 0.0001 wt-% are excluded from claim 1, while these products are not excluded from the respective passage on page 36 of the application as filed.
11. Already for this reason, claim 1 as granted and hence the main request contravenes the requirements of Article 100 (c) EPC. In view of this conclusion, no reasons will be provided for the other lines of

argument under added subject-matter submitted by the appellant.

Auxiliary requests 1 to 19

12. As indicated in sections VIII to XXIV above, the sugar composition as defined in claims 1 of auxiliary requests 1 to 19 has been amended compared to that of claim 1 as granted only insofar as these compositions have been further limited with respect to:
- the presence of a further sugar ("*at least 0.001% arabinose*", auxiliary request 1), or
 - in defining the composition's total minimum amount of sugars ("*at least 40%*" by weight, auxiliary request 2), or
 - by amending the one-side open "xylose range" in feature (a) of claim 1 as granted (main request) to a closed range by specifying in addition xylose's maximum concentration ("*less than 80%*": auxiliary request 3, "*less than 70%*": auxiliary request 4), or
 - by combining these limitations (auxiliary requests 5 to 7), or
 - by combining a specified minimum total amount of sugars in the claimed composition ("*at least 40%*" by weight) and xylose's maximum concentration ("*less than 70%*") with a specified minimum amount of arabinose ("*at least 2 %*": auxiliary request 8), or
 - by specifying the minimum amount of the at least one alpha-bonded di-glucose either alone, or in combination with the at least one beta-bonded di-glucose ("*at least 1000ppm*": auxiliary requests 9 and 10, respectively), or
 - by combining a specified minimum total amount of sugars in the claimed composition ("*at least 40%*"

- by weight) with a specified minimum amount of the at least one alpha-bonded di-glucose either alone or in combination with the at least one beta-bonded di-glucose ("*at least 1000ppm*": auxiliary requests 11 and 12, respectively), or
- by specifying the form in which the composition is provided ("*as a solution*": auxiliary request 13), or
 - by specifying the form in which the composition is provided and the composition's minimum total amount of sugars ("*as a solution*" and "*at least 40%*" by weight: auxiliary requests 14 and 16), or
 - by introducing the combined amendments of claims 1 of auxiliary requests 10 and 14 (auxiliary requests 15 and 17), or
 - by increasing the minimum amount of non-volatile fermentations products to be used ("*at least 0.001%*": auxiliary request 18), and
 - by increasing the minimum amount of non-volatile fermentations products ("*at least 0.001%*") to be used combined with amending the one-side open glucose range in feature (d) of claim 1 of the main request to a closed range by specifying in addition glucose's minimum concentration ("*at least 0.001%*": auxiliary request 19).

Added subject-matter

13. It is evident from the amendments in claim 1 of auxiliary requests 1 to 19 indicated above (point 12), that all of these claims still exclude certain combinations of non-volatile fermentation products below the indicated minimum amount of either 0.0001 wt-% (auxiliary requests 1 to 17), or below the minimum amount of 0.001 wt-% (auxiliary requests 18 and 19) which are not excluded from the non-volatile

fermentation product disclosed on page 36, lines 25 to 27 of the application as filed.

14. Accordingly, the objections under added subject-matter set out above for claim 1 as granted (main request) apply likewise for the sugar compositions as defined in claim 1 of auxiliary requests 1 to 19 (Articles 76(1) and 123(2) EPC).
15. In view of the board's conclusion on added subject-matter as regards auxiliary requests 9 to 19 (see above), no reasons need to be provided for their admittance in appeal.
16. Since all of the sets of claims on file thus comprise added subject-matter, the patent has to be revoked.

Order

For these reasons it is decided that:

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

The Registrar:

The Chair:



C. Rodríguez Rodríguez

T. Sommerfeld

Decision electronically authenticated