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**Datasheet for the decision
of 12 January 2023**

Case Number: T 1349/21 - 3.3.02

Application Number: 12813354.3

Publication Number: 2804942

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C12G3/06, C12C5/02

Language of the proceedings: EN

Title of invention:

LOW ALCOHOL OR ALCOHOL FREE FERMENTED MALT BASED BEVERAGE AND
METHOD FOR PRODUCING IT

Patent Proprietor:

Anheuser-Busch InBev S.A.

Opponents:

Heineken Supply Chain B.V.
Kühbeck, Florian
Carlsberg A/S

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step

Decisions cited:

T 1984/15

Catchword:



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Case Number: T 1349/21 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 12 January 2023

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 7 June 2021
revoking European patent No. 2804942 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman M. O. Müller
Members: S. Bertrand
 L. Bühler

Summary of Facts and Submissions

I. The appeal by the patent proprietor ("appellant") is against the opposition division's decision to revoke European patent No. 2 804 942.

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

D8	US 6,162,260 A
D16	AU 2003 203 994 A1
D40	H.D.Belitz <i>et al.</i> : Food Chemistry, 4 th revised and extended edition, Springer-Verlag, 2009, pages 340, 902-906
D57	Experimental report submitted by the appellant before the opposition division

D16 is a divisional application of AU 2204399, which is a patent family member of D8.

III. In the impugned decision, the opposition division's conclusion was that claim 1 of the main request, relating to an alcohol-free or low-alcohol fermented malt-based beverage, did not involve an inventive step in view of D8/D16 as the closest prior art.

IV. In its statement setting out the grounds of appeal, the appellant submitted copies of auxiliary requests 1 to 4, all considered by the opposition division in its decision. It further submitted auxiliary request 5.

- V. After the statement of grounds of appeal and the replies of opponents 1 to 3 ("respondent 1", "respondent 2" and "respondent 3") had been filed, the parties were summoned to attend oral proceedings.
- VI. The board issued a communication pursuant to Article 15(1) RPBA 2020 in preparation for the oral proceedings scheduled in accordance with the parties' requests.
- VII. Oral proceedings before the board were held by videoconference on 12 January 2023 in the presence of all parties.
- VIII. The parties' relevant requests are as follows.

The appellant requested that:

- the decision under appeal be set aside and the patent be maintained as granted, or, alternatively, that
- the patent be maintained in amended form on the basis of one of the sets of claims of auxiliary requests 1 to 5 filed with the statement of grounds of appeal, or, alternatively, that
- the patent be maintained in amended form on the basis of one of the above requests along with the deletion of figure 6 and/or the sentence "For NA beers obtained by cold fermentation, the flavour profile must be fashioned to the desire profile by addition of individual flavouring compounds, as illustrated in Figure 7(b)" in paragraph [0033] of the description, and that
- auxiliary requests 1 to 5 be admitted into the proceedings.

Respondents 1 to 3 requested that the appeal be dismissed and the patent be revoked in its entirety.

In addition, respondent 2 requested that document D57 not be taken into consideration in the appeal proceedings.

IX. The appellant's case relevant to the present decision may be summarised as follows. For further details, reference is made to the Reasons.

Main request - inventive step

- D18/D16 as the closest prior art.
 - The distinguishing feature of claim 1 of the main request was the amount (0.01-0.20 ppm) of ethyl butyrate.
 - Based on the data of D57, the technical problem was the provision of alcohol-free or low-alcohol (NA) beers with a flavour profile close to a regular beer, as formulated in the patent.
 - The solution proposed by claim 1 of the main request was not obvious in view of the cited prior art.

Auxiliary requests 1 and 2 - inventive step

- The submissions given for the main request applied to auxiliary requests 1 and 2.

Auxiliary requests 3 and 5 - inventive step

- The distinguishing features of claim 1 of auxiliary requests 3 and 5 in view of example 7 of D8/D16 were:
 - (i) the content of ethyl butyrate
 - (ii) the content of ethyl hexanoate
 - (iii) the content of phenylethyl acetate
 - (iv) the content of phenylethyl alcohol
- The objective technical problem was the same as formulated for the main request.
- Even considering the technical problem as the provision of an alternative, the solution was not obvious in view of the cited prior art.

Auxiliary request 4 - inventive step

- The prior art did not teach the amounts of ethyl butyrate, ethyl hexanoate, phenylethyl acetate and phenylethyl alcohol.
- The solution proposed by claim 1 of auxiliary request 4 involved an inventive step.

X. The respondents' case relevant to the present decision may be summarised as follows. For further details, reference is made to the Reasons.

Main request - inventive step

- D18/D16 as the closest prior art.
 - The distinguishing feature of claim 1 of the main request was the amount (0.01-0.20 ppm) of ethyl butyrate.

- D57 did not provide a fair comparison that could show that the distinguishing feature was linked to a specific effect.
- The objective technical problem was the provision of an alternative NA beer.
- The selection of the amount of ethyl butyrate as defined in claim 1 of the main request, in the absence of any effect, was entirely arbitrary, and furthermore it was obvious in view of D40 as a secondary document.

Auxiliary requests 1 and 2 - inventive step

- The amount of ethyl hexanoate represented a further distinguishing feature of claim 1 of auxiliary requests 1 and 2. No effect was associated with this distinguishing feature, either alone or in combination with the amount of ethyl butyrate.
- The objective technical problem was the provision of an alternative alcohol-free or low-alcohol (NA) beer. The further selection of the amount of ethyl hexanoate defined in claim 1 of auxiliary requests 1 and 2, in the absence of any effect, was entirely arbitrary, and furthermore it was obvious in view of D40 as a secondary document.

Auxiliary requests 3 and 5 - inventive step

- Considering the distinguishing features identified by the appellant, the objective technical problem was the provision of an alternative NA beer.

- It would have been obvious to the skilled person to increase the amount of any flavouring compound in NA beers, such as phenylethyl acetate, by using the process according to D8/D16.
- Furthermore, the selection of the amounts of ethyl butyrate, ethyl hexanoate, phenylethyl acetate and phenylethyl alcohol, as defined in claim 1 of auxiliary requests 3 and 5, in the absence of any effect, was entirely arbitrary.

Auxiliary request 4 - inventive step

- Considering example 7 of D8/D16, the restriction of the isoamyl acetate content did not involve an inventive step in view of the disclosure in table 1 of D8/16 of an amount of, e.g., 0.1 ppm isoamyl acetate for O'Doul's[®], a commercial NA beer.

Reasons for the Decision

Main request (claims as granted) - inventive step

1. Admittance of D57

D57 is a document that was submitted by the appellant prior to the oral proceedings before the opposition division. It comprises comparative data for beers based on different criteria (i.e. averages for how fruity, how hoppy, how sulphury, how worty each beer is, as well as averages for sourness, sweetness, bitterness and body/mouthfullness) for their resemblance to what experts consider to be the taste of an alcoholic lager beer.

The opposition division admitted D57 into the proceedings (point 30.6 of the impugned decision).

With its reply to the grounds of appeal, respondent 2 requested that this document not be admitted into the appeal proceedings.

The board decided during the oral proceedings not to overrule the opposition division's decision to admit D57 into the proceedings. In view of the final decision in the present case in the respondents' favour (*infra*), however, there is no need for the board to provide its reasons in this regard.

2. Respondents 1 to 3 objected to inventive step in view of, *inter alia*, D8/D16 as the closest prior art.

3. Claim 1 of the main request reads as follows:

"1. Alcohol free or low alcohol fermented malt based beverage having an alcohol content of not more than 1.0 vol.%, preferably not more than 0.7 vol.%, comprising esters and higher alcohols defining a flavouring profile close to a lager beer, wherein a higher alcohol is an alcohol having a molecular weight higher than ethanol, characterized in that it comprises (a) 7.00-30.00 ppm ethyl acetate and (b) 0.01-0.20 ppm ethyl butyrate."

In the following, an alcohol-free or low-alcohol beer is referred to as an "NA beer".

4. D8/D16 as the closest prior art

D8/D16 (abstract) discloses a method for making a low-alcohol brew. Examples 6 and 7 of D8/D16 ("Final O'Doul" in tables 8 and 9) disclose two NA beers comprising 17 ppm ethyl acetate and 0.76% ethanol

(example 6, table 8), and 15 ppm ethyl acetate and 0.5% ethanol (example 7, table 9). Both NA beers are alcohol-free or low-alcohol fermented malt-based beverages and comprise the contents of alcohol and ethyl acetate required by claim 1 of the main request, namely less than 1.0 vol.% alcohol and 7.00-30.00 ppm ethyl acetate. The beers of examples 6 and 7 also comprise esters (isoamyl ester) and higher alcohols (amyl alcohols, isobutyl alcohol and isopropanol), as required by claim 1 of the main request.

4.1 Distinguishing features

Examples 6 and 7 do not disclose the amount of ethyl butyrate. Hence, the difference between the beverage of claim 1 of the main request and examples 6 or 7 of D8/D16 is the amount of ethyl butyrate required by claim 1 (0.01-0.20 ppm). This was common ground between the parties.

4.2 Technical effect and objective technical problem

The appellant relied on D57 for the formulation of the technical problem. It submitted that, according to the technical data in D57, the NA beers of inventive examples 1 and 2 of the patent performed better than all comparative examples in their overall likeness to alcoholic lager beer. The technical problem was therefore the provision of NA beers with a flavour profile close to that of a regular beer.

The board does not agree with the appellant's submission. The board finds that, in D57, there is no fair comparison between examples 1 and 2 and the comparative examples of the patent for the following reasons.

Table 1 of D57 is reproduced below:

	EX1	EX2	CEX6	CEX11	CEX12	CEX19	CEX20	Bud Light	Stella Artois
			Becks NA	SA NA	Liber	SAN MIGUEL 0.0	Chemigvske NA		
ABV (%)	0.4	0.4	0.33	0.46	0.06	0	0.4	3.5	5.2
Ethyl acetate	16.9	18.13	0.000	0.100	0.100	0.100	6.600	n/a	n/a
Isoamyl acetate	0.590	0.210	0.000	0.000	0.400	0.300	0.600	n/a	n/a
Ethyl butyrate	0.037	0.034	0.000	0.000	0.000	0.026	0.038	n/a	n/a
Ethyl hexanoate	0.030	0.021	0.000	0.012	0.178	0.380	0.053	n/a	n/a
Amyl alcohol	16.730	14.640	1.000	2.000	3.000	9.000	12.000	n/a	n/a
Phenylethyl acetate	0.030	0.153	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Phenylethyl alcohol	1.490	2.760	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Isobutanol	2.940	2.940	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Propanol	17.390	11.600	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Average of Fruity	4	3.4	2.3	1.7	3.9	1.9	2.8	5.3	5.0
Average of Hoppy	2.1	2.8	3.1	2.0	1.8	3.5	2.4	1.7	2.9
Average of Sulphury	0.8	1.2	1.3	1.8	0.9	1.5	1.4	0.8	1.1
Average of Worty	2.0	1.9	3.8	2.7	2.3	3.1	2.5	0.7	1.4
Average of Sourness	1.9	2.2	4.4	3.0	2.4	2.5	2.5	2.7	2.6
Average of Sweetness	3.1	3.7	1.6	2.6	3.2	3.3	2.3	2.4	2.3
Average of Bitterness	3.4	4.8	6.1	4.3	3.0	4.1	4.1	3.6	5.0
Average of Body / mouthfullness	4.4	4.3	3.0	3.3	4.8	4.1	3.9	4.0	4.3
Average of Overall score	5.7	5.8	3.8	4.1	4.4	4.3	4.5	6.1	5.1

The beer compositions of examples 1 and 2 according to the patent (EX1 and EX2) each have an average overall score greater than that of the comparative beers (CEX6, CEX11, CEX12 CEX19 and CEX20).

However, the beer compositions of examples 1 and 2 according to the patent comprise amounts of ethyl acetate, isoamyl acetate, ethyl hexanoate and amyl alcohol which are different from the amounts of the corresponding compounds in the comparative beers. Therefore, it is not merely through the distinguishing feature of claim 1 of the main request, i.e. the presence of 0.01-0.20 ppm ethyl butyrate, that the beer

compositions of examples 1 and 2 according to the patent differ from the comparative beers. Since ethyl acetate, isoamyl acetate, ethyl hexanoate and amyl alcohol are flavouring compounds of beer compositions, the average overall scores achieved by examples 1 and 2 of the patent must be assumed to be also linked to the presence and quantities of these additional compounds. The scores cannot therefore be credibly attributed to the amount of ethyl butyrate alone. For that reason, the data in table 1 of D57 do not reflect a fair comparison between examples 1 and 2 of the patent and a beer representing examples 6 and 7 of D8/D16. This was not disputed by the appellant.

Therefore, the average scores for likeness to alcoholic lager beer found for examples 1 and 2 of D57 cannot be taken into consideration when formulating the objective technical problem.

For the above reasons, the objective technical problem can only be seen as the provision of an alternative NA beer.

The appellant further submitted that the objective technical problem was already formulated in the patent with reference to D8. There was thus no need to reformulate the technical problem to be merely the provision of an alternative NA beer.

The board does not agree. It is established case law that a technical problem set out in a patent or patent application can be reformulated in less ambitious terms if it has not been shown that the technical problem formulated in the patent or patent application is indeed solved by the distinguishing feature (Case Law

of the Boards of Appeal, 10th edition, July 2022, I.D. 4.4.1).

4.3 Obviousness

The selection of an amount of ethyl butyrate defined in claim 1 of the main request, in the absence of any effect, is arbitrary. In line with the case law of the boards of appeal (see, for instance, T 1984/15, point 4.5 of the Reasons thereby including further references) choosing an amount of ethyl butyrate as claimed is within the routine abilities of the skilled person and, for this reason alone, cannot support any inventive step. Therefore inventive step has to be denied in view of D8/D16 alone.

The above notwithstanding, the amount of ethyl butyrate as claimed is moreover rendered obvious by document D40. D40 refers to aroma compounds. Table 20.7 on page 903 thereof mentions a content of ethyl butanoate (i.e. ethyl butyrate) of 0.01 mg/l in alcohol-free beer. This content corresponds to a content of 0.01 ppm, which is within the claimed range of 0.01 to 0.2 ppm. Thus the solution proposed by claim 1 is also obvious in view of D8/D16 in combination with D40.

4.4 In view of the above, the board concludes that the subject-matter of claim 1 of the main request does not involve an inventive step.

4.5 The main request is not allowable.

Auxiliary requests 1 and 2 filed with the statement of grounds of appeal - inventive step

5. Claim 1 of auxiliary requests 1 and 2 corresponds to a combination of claims 1 and 2 of the main request. The beverage of claim 1 of auxiliary requests 1 and 2 further comprises 0.05-2.00 ppm isoamyl acetate and 0.01-0.05 ppm ethyl hexanoate.
6. The board notes that example 7 of D8/D16 ("Final O'Doul") discloses an isoamyl acetate content of 1.6 ppm, which is within the claimed range. There is no disclosure of ethyl hexanoate in that example. Therefore, the amount of 0.01-0.05 ppm ethyl hexanoate represents a further distinguishing feature of claim 1 of auxiliary requests 1 and 2 in addition to that established for claim 1 of the main request.
7. D57 does not provide a fair comparison showing that an effect is achieved by this additional technical feature, either alone or in combination with the distinguishing feature identified for claim 1 of the main request. More specifically, besides the two distinguishing features, examples 1 and 2 of the patent additionally differ from the comparative examples in terms of amounts of ethyl acetate, isoamyl acetate and amyl alcohol (see table copied from D57 above). The objective technical problem thus remains the same as that formulated for claim 1 of the main request. The solution proposed by claim 1 of auxiliary requests 1 and 2 once again represents an arbitrary variation of the amounts of ethyl butyrate and ethyl hexanoate and is thus obvious in view of, e.g., D8/D16 alone. Furthermore, D40 (table 20.7) discloses a content of 0.01 mg/l (ppm) of ethyl hexanoate in NA beer, which is

within the claimed range. Hence, inventive step must be denied also in view of D8/D16 in combination with D40.

This conclusion was included in the board's communication pursuant to Article 15(1) RPBA 2020, but was not commented upon by the appellant.

Therefore, auxiliary requests 1 and 2 are not allowable.

Auxiliary requests 3 and 5 filed with the statement of grounds of appeal - inventive step

8. Claim 1 of auxiliary requests 3 and 5 differs from claim 1 of auxiliary request 1 in that the phenylethyl acetate and phenylethyl alcohol contents are specified.

9. D8/D16 as the closest prior art

9.1 Distinguishing features

Example 7 of D8/D16 does not disclose the presence of phenylethyl acetate and phenylethyl alcohol. The distinguishing features of claim 1 of auxiliary requests 3 and 5 in view of example 7 of D8/D16 are thus:

- (i) the content of ethyl butyrate (as identified for claim 1 of the main request)
- (ii) the content of ethyl hexanoate (as identified for claim 1 of auxiliary requests 1 and 2)
- (iii) the content of phenylethyl acetate
- (iv) the content of phenylethyl alcohol

9.2 Technical effect and objective technical problem

There is still no evidence in D57 of an effect associated with the distinguishing features. The beer compositions of examples 1 and 2 according to the patent comprise amounts of ethyl acetate and amyl alcohol which are different from the amounts of the corresponding compounds in the comparative beers. Therefore, a comparison between examples 1 and 2 and the comparative examples still does not allow any effect linked to the distinguishing features to be deduced. Furthermore, there is no separate determination of the contents of phenylethyl acetate and phenylethyl alcohol in the comparative beers. Therefore, it is not known whether the contents of these compounds in the comparative examples are within or outside of the claimed ranges. Also for this reason, no effect that could be regarded as being linked to the contents of phenylethyl acetate and phenylethyl alcohol (distinguishing features (iii) and (iv) above) can be deduced. It follows that there is no fair comparison in D57 for evidencing any effect associated with said distinguishing features.

Consequently, the objective technical problem remains the same as that formulated for claim 1 of the main request, namely the provision of an alternative NA beer.

9.3 Obviousness

Ethyl butyrate, ethyl hexanoate, phenylethyl acetate and phenylethyl alcohol are flavouring compounds of beer compositions.

The selection of amounts of ethyl butyrate, ethyl hexanoate, phenylethyl acetate and phenylethyl alcohol, as defined in claim 1 of auxiliary requests 3 and 5, in the absence of any effect, is entirely arbitrary. Such an arbitrary selection is within the routine abilities of the skilled person and, as set out above for claim 1 of the main request, cannot support any inventive step of the subject-matter of claim 1 of auxiliary requests 3 and 5.

The appellant submitted that none of the prior art documents cited by the respondents disclosed, in a NA beer, the amount of phenylethyl acetate required by claim 1 of auxiliary requests 3 and 5. The skilled person had thus no incentive to select the amount of 0.005-0.04 ppm of phenylethyl acetate.

The appellant's submission is not convincing. Firstly, there is no need for a motivation in the prior art for selecting an amount if the objective technical problem is merely the provision of an alternative. As set out above, it is within routine abilities of the skilled person to select an arbitrary amount of a beer component.

Secondly, it was common ground between the parties that phenylethyl acetate is a flavouring compound of beer compositions. D8 teaches that the amount of flavouring compounds ("flavor components") is, unfortunately, reduced during the process of removing ethanol for the preparation of NA beers (column 1, lines 56-63). D8 solves that problem by adding flavouring compounds to NA beers using a membrane (claim 1 of D8). Thus it would have been obvious to the skilled person to increase or adapt the amount of any flavouring compound in NA beers, such as phenylethyl acetate, by

reintroducing this compound into the NA beer, as disclosed in D8/D16.

10. Consequently, auxiliary requests 3 and 5 are not allowable.

Auxiliary request 4 filed with the statement of grounds of appeal - inventive step

11. Claim 1 of auxiliary request 4 differs from claim 1 of auxiliary requests 3 and 5 in that the isoamyl acetate content is more restricted in the former (from 0.05-2.00 ppm to 0.08-0.85 ppm).

Example 7 of D8/D16 ("Final O'Doul") discloses an isoamyl acetate content of 1.6 ppm, which is outside of the range of claim 1 of auxiliary request 4.

However, as set out in the board's communication under Article 15(1) RPBA 2020, the restriction of the isoamyl acetate content did not involve an inventive step in view of the disclosure in table 1 of D8/16 of, e.g., 0.1 ppm isoamyl acetate for O'Doul's[®] (a commercial NA beer) which is within the claimed narrower range.

Therefore claim 1 of auxiliary request 4 does not change the conclusion of the board regarding inventive step of claim 1 of auxiliary requests 3 and 5. This was not disputed by the appellant.

Claim requests with amended description

12. The above conclusions apply, *mutadis mutadis*, to the main request and auxiliary requests 1 to 5 along with the deletion of figure 6 and/or the sentence "For NA beers obtained by cold fermentation, the flavour profile must be fashioned to the desire profile by addition of individual flavouring compounds, as

illustrated in Figure 7(b)". This was not disputed by the appellant.

13. None of the claim requests on file is allowable

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated