

Internal distribution code:

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

**Datasheet for the decision
of 12 May 2022**

Case Number: T 1194/20 - 3.2.01

Application Number: 13784065.8

Publication Number: 2906811

IPC: F02M25/08, B60K15/035,
B01D53/04

Language of the proceedings: EN

Title of invention:

EVAPORATIVE FUEL VAPOR EMISSION CONTROL SYSTEMS

Patent Proprietor:

Ingevity South Carolina, LLC

Opponent:

BASF Corporation

Headword:

Relevant legal provisions:

RPBA 2020 Art. 13(2)

EPC Art. 54, 56

Keyword:

Submissions after summons - not an amendment to the
appellant's appeal case

Novelty - (yes)

Inventive step - main request (yes) - auxiliary request (yes)

Decisions cited:

G 0004/95

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
Fax +49 (0)89 2399-4465

Case Number: T 1194/20 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 12 May 2022

Appellant: BASF Corporation
(Opponent) 100 Park Avenue
Florham Park, NJ 07932 (US)

Representative: Altmann Stöbel Dick Patentanwälte PartG mbB
Isartorplatz 1
80331 München (DE)

Respondent: Ingevity South Carolina, LLC
(Patent Proprietor) 5255 Virginia Avenue
North Charleston, SC 29406 (US)

Representative: Beck Greener LLP
Fulwood House
12 Fulwood Place
London WC1V 6HR (GB)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
15 April 2020 concerning maintenance of the
European Patent No. 2906811 in amended form.**

Composition of the Board:

Chairman G. Pricolo
Members: S. Mangin
A. Jimenez

Summary of Facts and Submissions

- I. The appeal was filed by the appellant (opponent) against the interlocutory decision of the opposition division finding that, on the basis of the auxiliary request 2, the patent in suit (hereinafter "the patent") met the requirements of the EPC.
- II. Regarding auxiliary request 2, the Opposition Division held that:
 - the invention was sufficiently disclosed;
 - the subject-matter of claim 1 was novel over D1 (US RE38844) and involved an inventive step starting from D1.
- III. Oral proceedings were held before the Board on 12 May 2022 per videoconference.
- IV. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed and the patent maintained in the form found allowable by the opposition division (main request), or in the alternative that the patent be maintained on the basis of auxiliary request 1 filed with the reply to the statement of grounds of appeal.
- V. Independent claim 1 of the main request with the feature numbering used on page 4 of the appealed decision reads as follows:

(I) An evaporative emission control canister system (100), including one or more canisters (101, 300) and comprising:

(I.a) an initial adsorbent volume (201) having

(I.a.1) an effective incremental adsorption capacity at 25°C of greater than 35 grams n-butane/L between vapor concentration of 5 vol% and 50 vol% n-butane; and

(I.b) at least one subsequent adsorbent volume (202; 202, 203, 204; 301; 301, 302; 301, 302, 303) having

(I.b.1) an effective incremental adsorption capacity at 25°C of less than 35 grams n-butane/L between vapor concentration of 5 vol% and 50 vol% n-butane,

(I.b.2) an effective butane working capacity (BWC) of less than 3 g/dL, and

(I.b.3) a g-total BWC of between 2 grams and 6 grams,

(I.c) wherein the initial adsorbent volume and the at least one subsequent adsorbent volume are located within a single canister, or the initial adsorbent volume and the at least one subsequent adsorbent volume are located in separate canisters that are connected to permit sequential contact by fuel vapor, and

(I.d) wherein the canister system has a two-day diurnal breathing loss (DBL) emissions of no more than 20 mg at no more than about 210 liters of purge applied after the 40 g/hr butane loading step.

VI. Claim 1 of auxiliary request 1 differs from claim 1 of the main request only by the deletion of the terms "no more than about" in front of the 210 liters of purge in the last feature of claim 1 (feature I.d).

Reasons for the Decision

1. Following the criteria set in G4/95, the Board rejected the request of the appellant that their accompanying person be allowed to make oral submissions on technical issues.
- 1.1 During oral proceedings under Article 116 EPC in the context of opposition appeal proceedings, a person accompanying the professional representative of a party may be allowed to make oral submissions on specific legal or technical issues on behalf of that party, otherwise than under Article 117 EPC, in addition to the complete presentation of the party's case by the professional representative.
 - (a) Such oral submissions cannot be made as a matter of right, but only with the permission of and under the discretion of the EPO.
 - (b) The following main criteria should be considered by the Board when exercising its discretion to allow the making of oral submissions by an accompanying person in opposition or opposition appeal proceedings:
 - (i) The professional representative should request permission for such oral submissions to be made. The request should state the name and qualifications of the accompanying person, and should specify the subject-matter of the proposed oral submissions.
 - (ii) The request should be made sufficiently in advance of the oral proceedings so that all opposing parties are able properly to prepare themselves in relation to the proposed oral submissions.
 - (iii) A request which is made shortly before or at the oral proceedings should in the absence of exceptional circumstances be refused, unless each opposing party agrees to the making of the oral submissions requested.
 - (iv) The Board should be satisfied that oral submissions by an accompanying person are made under

the continuing responsibility and control of the professional representative.

1.2 The appellant argued that the accompanying technical expert would only make oral submissions on technical matter if necessary. This request was not surprising as the appellant requested their accompanying technical expert be allowed to make oral submissions before the oral proceedings in opposition in a similar way.

1.3 The Board considered that the criteria for making oral submissions under G4/95 were not met. As argued by the respondent, the appellant requested with letter of 6 May 2022, six days before the day of the oral proceedings in appeal that the accompanying technical expert be allowed to make oral submission and did not state the subject-matter of the proposed oral submissions. Under these circumstances the respondent was unable to prepare themselves to respond to such oral submissions.

The Board nevertheless allowed that an interruption of the proceedings be made if the appellant's representative needed to consult the technical expert provided the request for the interruption was justified.

2. The submissions of the appellant with letter of 8 March 2022 do not constitute an amendment to their appeal case - Article 13(2) RPBA 2020

2.1 In response to the preliminary opinion of the Board under Article 15(1) RPBA 2020, the appellant submitted with letter of 8 March 2022 that under the summary of the invention, D1 (column 3, lines 42-64) teaches how to reduce the Incremental Adsorption Capacity (IAC) to less than 11,4 g/L.

2.2 The respondent considers that these submissions and in particular the above newly cited passage should not be taken into account as they constitute an amendment to the appellant's appeal case under Article 13(2) RPBA 2020. Such an amendment should not be permitted as it is an argument which should have been made in response to the decision of the Opposition Division and not at this late stage of the proceedings.

2.3 The Board does not consider that the appellant's submissions constitute an amendment to their appeal case. The passage cited is under the summary of the invention and constitutes the essence of the invention disclosed in D1. In their statement of grounds of appeal the appellant referred to D1 and cited specific passages of D1; however, even if the particular passage in the summary of the invention was not cited explicitly therein, the Board cannot recognize in the explicit reference to a passage of D1 describing the invention in a more general manner an amendment of the appeal case, as anyway the disclosure of D1 discussed in the statement of grounds could not be evaluated on the basis of specific passages thereof only, disregarding its general teaching.

3. Novelty of the subject-matter of claim 1 of the main request

In line with the opinion of the Opposition Division, the Board considers that the subject-matter of claim 1 is novel over D1.

The disclosure in D1 of features I, I.a, I.a.1, I.b, I.b.1 and I.c of claim 1 is not disputed by the parties.

- 3.1 The appellant is of the opinion that:
- the range of less than 3 g/dL for the effective butane working capacity (BWC) corresponds to a range of less than about 11.4 grams n-butane/L for the effective incremental capacity (IAC) and,
 - the range of 2 grams to 6 grams for the g-total BWC within the context of claim 1 further defining an effective BWC of less than 3 g/dL comes down to defining an effective adsorbent volume greater than 0.66 dL for the subsequent adsorbent volume.

The appellant is of the opinion that claim 43 and example 2 in the table on column 8 of D1 disclose all the features of claim 1.

The appellant considers that the only difference between the subject-matter of claim 1 and D1 lies in the range of the effective incremental adsorption capacities (IAC) for the subsequent adsorbent volume being less than 11,4 grams n-butane/L instead of less than 35 grams n-butane/L (claim 43 of D1) with the specific value of 16 grams n-butane/L (example 2 of D1). However, the sub-range less than 11,4 grams n-butane/L cannot be in their view considered novel over the range of less than 35 grams n-butane/L as it does not meet the criteria set for selection inventions to be novel:

- (a) The selected range (less than 11,4 grams n-butane/L) is not narrow over the range disclose in D1 (less than 35 grams n-butane/L).
- (b) The selected sub-range is not sufficiently far removed from the incremental adsorption capacity of example 2 (16 grams n-butane/L); and
- (c) The selected area is an arbitrary specimen from the prior art. No special effect is provided in the sub-

range less than 11,4 grams n-butane/L compared to the range less than 35 grams n-butane/L.

3.2 The respondent is of the opinion that the subject-matter of claim 1 is novel because D1 fails to disclose features:

- (I.b.2) *"an effective butane working capacity (BWC) of less than 3 g/dL"* and
- (I.b.3) *"a g-total BWC of between 2 grams and 6 grams"*.

The respondent is of the opinion that the g-total BWC of between 2 grams to 6 grams cannot translate to an effective volume of more than 0,66 dL. If the subsequent adsorbent volume has an effective butane working capacity (BWC) of less than 3 g/dL, and a volume of 0,66 dL then the g-total BWC would be lower than 2 grams, outside the claimed range.

The respondent further argues that the general teaching in claim 43 and example 2 of D1 cannot be combined as the IAC ranges defined in claim 43 for the initial adsorbent volume and the subsequent adsorbent volume are not disclosed with any specific values of the adsorbent volumes.

3.3 The Board agrees with the differences identified by the respondent: features I.b.2 and I.b.3 are not directly and unambiguously disclosed in D1.

3.3.1 The Board concurs with the appellant that the effective BWC correlates with the effective IAC, such that an effective BWC of less than 3g/dL corresponds to an effective IAC of less than 11,4 grams n-butane/L. The correlation initially disputed by the respondent was no longer disputed.

However example 2 of D1 discloses an effective IAC of 16 grams n-butane/L, which is above the claimed range and claim 43 discloses a range for the IAC of less than 35 grams n-butane, but this range is not disclosed in combination with a volume of the subsequent adsorbent and with the two-day diurnal breathing loss (DBL). In any event even if the range of less than 35 grams n-butane of claim 43 was combined with the examples of table 8, the subrange of less than 11,4 grams n-butane/L fulfils the criteria for a subrange to be novel. The subrange less than 11,4 is narrow compared to the range of less than 35 gram n-butane/L (criteria (a)) and is sufficiently far removed from the IAC values of the examples 1-3 disclosed in the table of column 8 of D1, namely 24, 16 and 18 grams n-butane/L respectively (criteria (b)). Indeed the range of less than 35 grams n-butane/l and the subrange less than 11,4 grams n-butane/l cannot be considered identical to 0-35 grams n-butane/l and 0-11,4 grams n-butane/L, respectively, as the skilled person would not contemplate working in the low values of these range, in particular 0 grams n-butane/L. Furthermore, the Board follows the more recent case law considering that the third criteria (c) *"the selected area should not provide an arbitrary specimen from the prior art, i.e. not a mere embodiment of the prior description, but another invention (purposive selection)"* is relevant for assessing inventive step but not for novelty.

- 3.3.2 Furthermore the Board does not agree with the appellant that a g-total BWC of between 2 grams and 6 grams comes to defining an effective adsorbent volume of more than 0,66 dL for the subsequent adsorbent volume. Indeed, as argued by the respondent, if the BWC is lower than 3g/dL, then an adsorbent volume of 0,66 dL will result in

a g-total BWC of less than 2 grams. The effective volume of the subsequent adsorbent volume would have therefore to be selected such that the g-total BWC falls within the claimed range.

Consequently from the teaching of D1, the skilled would have to select an effective IAC of less than 11,4 grams n-butane/L or an effective BWC of less than 3 g/dL, which is equivalent and would have to select an effective adsorbent volume to arrive at a g-total BWC of between 2 grams and 6 grams.

4. Inventive step of the subject-matter of claim 1 of the main request

The subject-matter of claim 1 is rendered obvious by the teaching of D1 alone.

- 4.1 Starting from D1, the appellant defines the objective technical problem as to provide an evaporative emission control system with low Diurnal Breathing Loss (DBL) emissions even when a low level of purged air is used and/or when the adsorbents in the canister are purged less frequently such as in the case of hybrid vehicles (paragraph [0012] of the opposed patent).
According to the summary of the invention of D1, "*An invention is disclosed for sharply reducing diurnal breathing loss emissions from evaporative emissions canisters by the use of multiple layers or stages of adsorbents*" (D1, column 3, lines 42-45), wherein said object is achieved by providing a vent-side adsorbent volume exhibiting "*a flat or flattened adsorption isotherm*" (D1, column 3, lines 47-49). More specifically, said flat or flattened adsorption isotherm is specifically achieved by providing vent-side adsorbent volumes with low IAC (D1, column 3,

lines 51-52), wherein D1 teaches two approaches for achieving such low IAC (D1, column 3, lines 53-60): (i) by volumetric dilution, i.e. by using a filler and/or adsorbent bed voidages (this is illustrated in examples 1 and 2), and (ii) by employing an adsorbent with the desired isotherm properties.

In view of said teaching of document D1, the person skilled in the art would consider working in the range of effective IAC below 16 g/L, and specifically below 11.4 g/L. Since example 2 of D1 shows the lowest two-day DBL emissions, the skilled person would contemplate further lowering the effective IAC of the vent-side adsorbent for achieving lower two-day DBL emissions. Furthermore lowering the effective IAC to less than 11,4 g/L, which correlates to an effective BWC of less than 3g/dL, would result in a g-total BWC between 2 grams and 6 grams as the vent side adsorbent volume is of 200 mL in example 2.

- 4.2 The respondent does not agree with the objective technical problem considered by the appellant and defines the problem as being the provision of an improved evaporative emission control canister system. The respondent further disputes the appellant's argument that the skilled person would lower the effective BWC of the subsequent adsorbent volume. In their view, there is no reason to do so in order to reduce 2-day DBL emissions under relatively low purge. Example 13 of the patent shows that lowering the effective BWC (1,6 g/dL) does not automatically lead to a lower two-day DBL (35 g/dL) Furthermore D1 discloses that BWC of low capacity adsorbent will be of about 6 g/dL (column 5, lines 3-5) or below 8 g/dL (column 6, lines 3-6) such that the

skilled person has no incentive to reduce further the BWC below 3g/dL.

The respondent considers that even if the skilled person would use lower effective BWC they would not necessarily do so whilst retaining all the other features of Example 2. D1 does not disclose the combination of an effective BWC and an associated effective volume falling within the claimed range. In their view, starting from the example 2 of D1, the skilled person would have to select arbitrarily an effective BWC between 1 to 3 g/dL, only under these circumstances could a g-total BWC of between 2 grams and 6 grams be achieved.

- 4.3 The Board considers that whether the objective technical problem is the one defined by the appellant referring to the low level of purged air or the more general one of the respondent, the skilled person would be motivated to lower the two diurnal breathing loss (DBL) starting from the example 2 of D1. Indeed environmental awareness is continuously increasing and regulations in terms of hydrocarbons emissions are continuously more stringent. In this context, the skilled person would consider lowering the diurnal breathing loss (DBL).
- In D1 under summary of the invention the skilled person is taught to sharply reduce the DBL by using on the vent side adsorbents that exhibit a flat or flattened adsorbent isotherm and as argued by the appellant D1 teaches how to proceed. In particular, one approach is to use a filler and/or bed voidage as a volumetric diluent for flattening an isotherm. This is illustrated in examples 1 and 2.

Starting from example 2, the skilled person trying to further reduce the two-day diurnal breathing loss (DBL) would flatten further the adsorbent isotherm. By doing so the skilled person would arrive inevitably at a butane working capacity (BWC) of less than 3 g/dL (being equivalent to an IAC lower than 11,4 grams n-butane/L). In example 2, the volume of adsorbent on the vent side being of 200 mL, the g-total BWC would then be less than 6 grams.

The skilled person is all the more encouraged to further flatten the adsorbent isotherm to lower the IAC or BWC as the examples show that it has a direct impact on the two-day DBL (see figure 3 and table on column 8 of D1).

In example 1, the IAC is of 24 grams n-butane and the two-day DBL of 29.

In example 3, the IAC is of 18 grams n-butane and the two-day DBL of 13.

In example 2, the IAC is of 16 grams n-butane and the two-day DBL of 10.

While about 6 g/dL and below 8 g/dL are disclosed in D1 as BWC of low capacity adsorbent, examples 1-3 in the table on column 8, use adsorbents with lower BWC: 5,7 g/dL, 4,0 g/dL and 5,0 g/dL respectively. D1 therefore does not teach the skilled person away from working with lower BWC than 4 g/dL.

The skilled person is aware that lowering the BWC or the IAC to a too low level might have a negative impact on the two-day level. However starting from example 2 the skilled person would progressively flatten the adsorption isotherm (reduce the BWC and IAC) of the subsequent adsorbent volume to arrive at lower DBL and stop when it starts to have a negative effect.

To conclude, the skilled person starting from the example 2 of D1 would arrive without inventive skills at the subject-matter of claim 1.

5. Auxiliary request 1

As acknowledged by both parties, the amendment made to feature I.d of claim 1 whereby "*the canister system has a two-day diurnal breathing loss (DBL) emissions of no more than 20 mg at 210 liters of purge applied after the 40 g/hr butane loading step*" to overcome a possible problem of insufficiency of disclosure does not render the subject-matter of claim 1 inventive over D1.

6. In conclusion, both the main request and the auxiliary request 1 are not allowable.

Order

For these reasons it is decided that:

The decision under appeal is set aside

The patent is revoked

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated