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Datasheet for the decision of 10 April 2019

Case Number: T 0614/16 - 3.3.06

Application Number: 09166207.2

Publication Number: 2277799

IPC: B65D81/20, H01L23/26, B01J20/28, B65D81/26

Language of the proceedings: EN

Title of invention:
Hydrated humidity control substance and process for its preparation

Patent Proprietor:
Airsec S.A.S.

Opponents:
Sanner GmbH
Lefèvre, Angèle

Headword:
silica gel mixer / AIRSEC

Relevant legal provisions:
EPC Art. 54, 56, 100(a)

Keyword:
Novelty - (no)
Inventive step - common general knowledge

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

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 0614/16 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 10 April 2019

Appellant: (Patent Proprietor)	Airsec S.A.S. 6, rue Louise Michel 94600 Choisy le Roi (FR)
Representative:	Hütter, Klaus Clariant Produkte (Deutschland) GmbH Patent Management Industriepark Höchst, G 860 65926 Frankfurt am Main (DE)
Respondent: (Opponent 1)	Sanner GmbH Schillerstrasse 76 64625 Bensheim (DE)
Representative:	Reiser & Partner Patentanwälte mbB Weinheimer Straße 102 69469 Weinheim (DE)
Respondent: (Opponent 2)	Lefèvre, Angèle 2, rue des Près 67114 Eschau (FR)
Representative:	dompatent von Kreisler Selting Werner - Partnerschaft von Patent- und Rechtsanwälten mbB Deichmannhaus am Dom Bahnhofsvorplatz 1 50667 Köln (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 5 January 2016 revoking European patent No. 2277799 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	S. Arrojo
	R. Cramer

Summary of Facts and Submissions

I. In its statement of grounds of appeal the patentee (from now on "the appellant") requested to set aside the decision to revoke European patent Nr. 2 277 799 and to maintain it as granted or, auxiliarly, in amended form on the basis of auxiliary requests 1-4 filed with the statement of grounds of appeal. It also filed an experimental report (D50) and requested to admit this new evidence into the proceedings.

II. In its reply opponent 1 (from now on "respondent 1") requested to reject the appeal and not to admit into the proceedings auxiliary requests 1-4 and the newly filed evidence D50. It also requested to admit its own experimental report D51 and document D52, an extract from Wikipedia, filed with this reply.

III. Opponent 2 (from now on "respondent 2") made in essence the same requests as respondent 1 and filed a document D51 identical to that filed by respondent 1.

IV. In response to the Board's preliminary opinion that the requests on file did not appear to meet the requirements of Articles 54 and 56 EPC, the appellant filed an auxiliary request 5 by a letter dated 12 March 2019.

V. By letter dated 11 March 2019 respondent 1 maintained its written requests and indicated that it would not be attending the oral proceedings.

VI. At the oral proceedings the discussion focused on the question of whether claim 1 of auxiliary request 5 was inventive in view of the combination of document D1 ("The use of equilibrated silica gel for the protection

of glass with incipient crizzling", R.H. Brill) with document D3 (WO 2009/013243 A1).

After announcing the conclusion that auxiliary request 5 did not comply with Article 56 EPC and that the higher ranking requests would likely not be allowable at least for the same reasons, the parties indicated that they had no further comments or requests to make.

VII. After closure of the debate, the outstanding requests were the following:

The appellant requested to set aside the decision and to maintain the patent as granted, or, in this order, one of:

- auxiliary requests 1-4 filed with the statement of grounds of appeal;
- auxiliary request 5 filed with letter dated 12 March 2019.

The respondents requested that the appeal be dismissed.

VIII. Claim 1 of the main request reads:

"Process for preparing a hydrated moisture control substance comprising the following steps:
(i) providing a predetermined amount by weight of humidity control substance having a moisture content lower than the moisture content desired with respect to the relative humidity of the atmosphere to be established and/or maintained within a sealable packaging material,
(ii) determining the amount of water necessary in order to impart the desired moisture content to the humidity control substance by using the correlation between equilibrium moisture content of said humidity control

substance and the relative humidity of the surrounding atmosphere,
(iii) introducing said predetermined amount of the humidity control substance into a mixing apparatus,
(iv) introducing at least a portion of said amount of water into the mixing apparatus under mixing, wherein the flow rate is sufficiently low to avoid agglomeration, and allowing the humidity control substance to adsorb the water to form the hydrated humidity control substance,
(v) optionally repeating step (iv) until said amount of water has been completely introduced into the mixing apparatus."

IX. Claim 1 of auxiliary requests 1 and 3 is identical to that of the main request.

X. Claim 1 of auxiliary requests 2, 4 and 5 corresponds to that of the main request with the following additional requirement:

"and whereby said mixing apparatus is a paddle mixer".

Reasons for the Decision

1. Main request - Article 100(a)/54 EPC

1.1 The Board has concluded that, as indicated in its preliminary opinion, the grounds under Article 100(a)/ 54 EPC prejudice the maintenance of the patent as granted.

1.2 Document D1 discloses processes for conditioning silica gel, in particular for increasing its moisture content so as to be able to maintain a closed container with pieces of crizzled glass at a relative humidity of

45-57% (page 101, left column). The document describes a series of experiments in which the moisture content of silica gel had to be increased to a desired range. In particular, liquid water was sprayed while lightly raking the particles (page 105, left column and page 107 left column) and the amount of water to be added was calculated from a calibrated correlation between the equilibrium moisture content of silica gel and the relative humidity of the surrounding atmosphere (page 105, left column).

1.3 The Board considers that the terms "mixing apparatus" and "under mixing" in steps (iii) and (iv) of claim 1 should be interpreted as encompassing any process in which the liquid water is added to the humidity control substance with the assistance of a mechanical mixing/ agitation of the solid-liquid mixture. The term "raking" is explicitly referred to in page 107, left column as a way "to expose a fresh surface [of the humidity control substance]", so that the raking process appears to imply a purposeful mechanical movement of the silica bed particles in order to promote contact between all surfaces of the particles and the liquid sprays. This process is furthermore carried out "whenever water was added" (page 107, left column), that is, during the addition of the liquid water. Thus, the Board considers that these disclosures anticipate the addition of water "under mixing" as defined in step iv) of claim 1, which in turn implies that the trays and the rakes used in D1 fall within the scope of a "mixing apparatus" as defined in step (iii) of claim 1.

1.4 The appellant argued that D1 did not disclose step (ii) because claim 1 of the patent in suit referred to "said humidity control substance", and page 5, lines 6-11 of

the patent in suit clearly established that "the process for preparing the samples for calibration has to be identical to the process for preparing the desired hydrated humidity control substance". Since in D1 the correlation used to calculate the water to be added had been obtained from a different silica gel and this had led to inconsistencies in the results (page 105, left column), it would follow that the process for calculating the water to be added according to this document would not anticipate the process proposed in claim 1.

1.5 This argumentation is not convincing, because the reference in step (ii) of claim 1 to "said humidity control substance" is not interpreted as implying that literally the same substance being moisturised should be used to obtain the correlation for calculating the amount of water to be added. Such interpretation would make no technical sense, as the main advantage of a correlation curve is precisely to extrapolate the results obtained for a single sample to other samples of the same substance. Thus, the reference to "said humidity control substance" in claim 1 is interpreted as referring to the same type of substance, which is the case in D1 because both the substance being moisturised and the one used for the correlation curve are silica gel. In any case, the Board notes that the reference in D1 itself implicitly carries with it the teaching that it would be desirable to obtain the correlation with a substance which is as similar as possible to the one being moisturised, a consideration which appears, in any case, to be rather trivial for a person skilled in the art.

Furthermore, the Board notes that claim 1 does not define the step of obtaining a correlation curve, so it

is not apparent how the cited paragraph in page 5, lines 6-11 could be of any relevance for establishing novelty of claim 1 with respect to D1.

1.6 The Board therefore concludes that document D1 anticipates all the features of claim 1.

2. Auxiliary requests 1 and 3 - Article 54 EPC

2.1 Since claim 1 of these requests is identical to that of the main request, it follows - for the same reasons - that these requests are not allowable under Article 54 EPC either.

3. Auxiliary requests 2, 4 and 5 - Article 56 EPC

3.1 The Board has concluded that auxiliary requests 2, 4 and 5 do not comply with the requirements of Article 56 EPC for the following reasons.

3.2 Closest prior art

It was agreed by all parties that document D1 represents the closest prior art.

In view of the above discussion on novelty, it follows that claim 1 differs from this document only in that the mixing apparatus is a paddle mixer.

3.3 Problem to be solved and proposed solution

The problem solved according to the patent in suit (paragraph [0015]) is to provide a process that allows the rapid and reliable preparation of hydrated humidity control substances and is suitable for the preparation

of large quantities of this substance in a time efficient manner.

To solve this problem claim 1 proposes using a paddle mixer.

3.4 Success of the solution

As indicated in the preliminary opinion, neither the patent in suit nor the subsequently filed experiments (D50 or D51) lead to the conclusion that the problem mentioned above is solved throughout the entire claimed range. In particular, the subject-matter of claim 1 is not restricted to any specific operational ranges, effectively encompassing any treatment time or rotational speed of the mixer, nor is the type of paddle mixer defined in the claim. It is furthermore not apparent how the effects of raking in D1 could be estimated without knowing important details such as the velocity or frequency of the raking. In other words, the experimental evidence in D50 merely demonstrates that using a paddle mixer at a certain rotational speed improves the homogeneity of water absorption in the silica gel versus the alternative of performing raking at a certain speed/frequency (chosen by the appellant to perform the experiments). However, since claim 1 does not define the rotational speed of the paddle mixer or the mixing time and D1 does not specify the speed/frequency of raking, these data do not appear to reliably represent the effects of the invention with respect to the closest prior art D1.

3.5 Reformulation of the problem

In view of the fact that the problem is manifestly not solved for any type of paddle mixer, any rotational

speed, any mixing type, and no evidence to the contrary has been provided by the appellant, the Board considers that the only problem solved by the selection of a paddle mixer is the less ambitious one of proposing an alternative mixer to perform the process.

3.6 Obviousness

3.6.1 Since the problem being solved is merely to find an alternative mixer, the skilled reader would look for all available solutions in the relevant prior art and in doing so he would retrieve document D3. This document relates to the preparation of humidifying control substances (page 1, line 26 - page 2, line 7) and explicitly teaches using mixing means such as drum mixers or stirring devices to rotate the humidifying control substances during the moisturising process (page 3, lines 3-5) in order to ameliorate the homogeneity of the moisture distribution in the humidifying control substance. Since a paddle mixer is one commonly known stirring device, when reading document D3, a skilled reader faced with the above problem would regard this option as an obvious choice within the broader group of stirring devices.

3.6.2 The appellant argued that the skilled reader would not consider combining the teachings of D1 and D3 for the following reasons:

- there would be no incentive to look for mixing alternatives because page 114, left column of document D1 would teach away from actively mixing the humidity control substance and the liquid water;
- if the skilled reader were to consider alternatives to D1, he would find the solution in page 114, left

column, which discloses that Dr. Stolow "discussed systems for conditioning silica gel in controlled humidity chambers", which would implicitly represent an advice to use water vapour chambers rather than spraying liquid water.

3.6.3 The Board is not convinced by these arguments. Document D1 is a scientific dissertation describing a series of experiments to moisturise silica gel particles. The cited paragraph in page 114 merely reproduces particular opinions expressed by Dr. Stolow, an external expert who is not the author of the paper. The Board considers that this paragraph needs to be interpreted within the broader context of the document. In particular, it is noted that document D1 indicates that static liquid-solid contact gives rise to slower absorption processes (see page 105, left column), which led the authors to select water spaying instead. However, since this method might leave some surfaces of the particles underexposed to water, the particles were lightly raked during the process (see page 107, left column).

Thus, all in all, document D1 is considered to teach that spraying water onto silica gel can increase the speed of water absorption but there might be problems in the homogeneity of moisture distribution. Actively mixing the particles by raking provides a solution to this problem but this might lead to decrepitation of the silica gel, which is disadvantageous in some applications.

For the Board it is clear that D1 does not teach away from using liquid sprays or raking/mixing devices, since these are, after all, the options chosen by the authors for performing the experiments and there are

implicit advantages to both options. The cited disadvantages are merely regarded as a cautionary warning to be taken into account when reproducing the experiments according to D1.

3.6.4 The appellant also argued that even if the process disclosed in D1 were combined with the teachings of D3, the resulting subject-matter would still not anticipate the invention, because the reference to "stirring devices" in D3 was not equivalent to the "paddle mixer" defined in claim 1 of the patent in suit, and because in D3 the water was not provided in the liquid form but as water vapour.

3.6.5 While it is true that there are some types of "stirring devices" which would not fall within the scope of "paddle mixer" (e.g. magnetic stirrers or helix stirrers), the Board notes that paddle mixers represent by far the single most common stirring device for almost any application. Since the problem being solved is simply to select an alternative mixer, it is not apparent for the Board how choosing the most common type of mixer could be regarded as a non-obvious solution. Furthermore, the fact that the moisturising process in D3 involves water vapour is not considered to be relevant for the discussion, because starting from D1 as closest prior art, the mixing step is precisely a way to overcome the problems of homogeneity associated to the water spraying proposed in this document. It is also noted that when looking for alternative ways for mixing the silica gel particles, there would be no reason for the skilled person to restrict the search to processes using liquid water, as the mechanics of particle mixing would be virtually identical regardless of whether water is in the liquid or in the vapour form.

3.6.6 It is thus concluded that the subject-matter of claim 1 of auxiliary requests 2, 4 and 5 is not inventive in view of the combination of documents D1 and D3.

4. The Board notes that in view of the decision to dismiss the appeal, there is no need to address the respondents' requests not to admit auxiliary requests 1-4 and D50 into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Pinna J.-M. Schwaller

Decision electronically authenticated