

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HAN YUAN-ZHANG

Appeal No. 2004-0638
Application No. 10/038,975

ON BRIEF

Before KIMLIN, WARREN and DELMENDO, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 3 and 4, all the claims remaining in the present application.

Claim 1 is illustrative:

1. In a process for preparing 1,3-propanediol by reacting ethylene oxide feed with carbon monoxide and hydrogen at hydroformylation conditions to form 3-hydroxypropanal, and hydrogenating said 3-hydroxypropanal to 1,3-propanediol, the improvement wherein the said feed ethylene oxide contains by weight more than 50 ppm aldehydes expressed as acetaldehyde.

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The examiner relies upon the following references in the rejections of the appealed claims:

Randall et al. (Randall)	3,213,113	Oct. 19, 1965
Smith et al. (Smith '017)	3,456,017	Jul. 15, 1969
Smith et al. (Smith '819)	3,463,819	Aug. 26, 1969
Ozero	4,134,797	Jan. 16, 1979
Paggini et al. (Paggini)	4,358,625	Nov. 09, 1982
Coffey	5,529,667	Jun. 25, 1996
Slaugh et al. (Slaugh '389)	5,723,389	Mar. 03, 1998
Slaugh et al. (Slaugh '478)	5,731,478	Mar. 24, 1998
Powell et al. (Powell '182)	5,777,182	Jul. 07, 1998
Powell et al. (Powell '808)	5,981,808	Nov. 09, 1999

Kirk-Othmer, 8 Encyclopedia of Chemical Technology 551-52
(2d ed., John Wiley & Sons, Inc. 1965)

Appellants' claimed invention is directed to a process for preparing 1,3-propanediol by an essentially conventional process, i.e., reacting ethylene oxide feed with carbon monoxide and hydrogen to form 3-hydroxypropanal, and then hydrogenating the intermediate to form 1,3-propanediol. Appellants' invention is directed to using a less pure form of feed ethylene oxide, namely, a feed containing more than 50 ppm acetaldehyde. According to appellants, "[t]he use of impure feed allows a lower feed material cost thus effecting essential economies in operation" (sentence bridging pages 2 and 3 of Brief).

Appealed claims 1, 3 and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Smith '819, Smith '017, Slaugh '389, Slaugh '478, Powell '182 and Powell '808 in view of

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Ozero, Paggini, Delannoy, Coffey, Randall and Kirk-Othmer. The appealed claims also stand rejected under 35 U.S.C. § 103 as being unpatentable over the stated combination of references.

Appellants submit at page 3 of the Brief that "[t]he claims presently on appeal stand or fall together." Consequently, even though appellants' Argument section of the Brief makes reference to claims 3 and 4, all the appealed claims stand or fall together with claim 1, and we will limit our consideration to the examiner's rejections of claim 1.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the appealed claims are unpatentable over the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer, which we incorporate herein, and we add the following primarily for emphasis.

There is no dispute that Smith '819, Smith '017, Slaugh '389, Slaugh '478, Powell '182 and Powell '808, the primary references, disclose the admittedly known process of preparing 1,3-propanediol by the reaction steps recited in the appealed claims. As acknowledged by the examiner, however, the primary references are silent with respect to the amount of

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impurity, acetaldehyde, present in the ethylene oxide feed. However, we concur with the examiner that the "secondary" references, particularly Delannoy and Kirk-Othmer, evidence that the ethylene oxide feeds employed in the processes of the primary references inherently possess acetaldehyde impurity levels within the claimed range, i.e., greater than 50 ppm. For instance, Kirk-Othmer expressly discloses a table for "HIGH-PURITY ETHYLENE OXIDE" which demonstrates that purified ethylene oxide may contain a maximum of 0.010% by weight acetaldehyde, or 100 ppm. Hence, based on the evidence supplied by the examiner, we find it reasonable to conclude that one of ordinary skill in the art would have understood the processes of the primary references to utilize an ethylene oxide feed containing more than 50 ppm acetaldehyde. It is well settled that when a claimed process to appears to be substantially the same as a process disclosed by the prior art, the burden is on the applicant to prove that the prior art process does not necessarily or inherently possess characteristics attributed to the claimed process. In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). While appellants rely upon the Declaration of Lawrence Candela, we agree with the examiner that the Declaration is not of sufficient

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probative value to outweigh the evidence presented by the examiner.

Appellants submit that "[a]s pointed out in the Declaration of record of Lawrence Candela, it is not consistent with good research practice to employ feed stocks which contain significant quantities of adulterants" (page 7 of Brief, second paragraph). However, as properly noted by the examiner, the claims on appeal are not limited to "research practice" but, rather, embrace conventional industrial processes. Also, although appellants maintain that only high purity material was available on the commercial market over the last several decades, this is not relevant to the dispositive issue on appeal, namely, whether the claimed process was known in the prior art at the time of the present invention. In our view, Kirk-Othmer is convincing evidence that it was known in the art to perform the claimed process for preparing 1,3-propanediol by utilizing an ethylene oxide feed comprising more than 50 ppm acetaldehyde. Also, declarant's statement that he is not aware of a commercial source of ethylene oxide containing more than 50 ppm aldehyde is irrelevant to the issue of whether the claimed ethylene oxide feed was used at some time in the prior art.

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We also are in full agreement with the examiner that the use of the claimed ethylene oxide feed in the conventional process of preparing 1,3-propanediol would have been obvious to one of ordinary skill in the art within the meaning of § 103. We subscribe to the examiner's reasoning that "[n]or is there any reason seen why one would be concerned if the starting material contained 50 ppm of aldehyde when it is known that the amount of the aldehyde that will be present in the product is 5,400 times greater than in the starting material" (page 8 of Answer, last paragraph). Since the amount of aldehyde in the starting material is insignificant relative to the amount present in the ultimate product, we concur with the examiner that "[n]o reason is seen for one to go to great expense to make the starting material highly pure with no resulting benefit in the purity of the product" (id.). We further agree with the examiner that if it was discovered in the prior art that the presence of greater than 50 ppm acetaldehyde in the ethylene oxide feed presented a problem, thereby necessitating a more highly purified feed, it logically follows that prior to this discovery that practitioners in the prior art were performing the claimed process having a higher level of acetaldehyde impurity in the ethylene oxide feed.

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We note that appellants have not refuted this reasoning by the examiner.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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ROMULO H. DELMENDO)	
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