

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SERGE MOREAU and BERNARD SARDAN

Appeal No. 1998-3179
Application No. 08/718,696

ON BRIEF

Before KIMLIN, OWENS and TIMM, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 2, 10 and 11, all the claims remaining in the present application. Claim 1 is illustrative:

1. A process for separating nitrogen from a gas mixture containing nitrogen and at least one gas which is less polar than nitrogen, and employing a technique of differential adsorption of the gases, called PSA process, using an adsorbent of zeolite type, according to which the PSA process is used at a temperature greater than 50°C by employing as adsorbent a zeolite whose nitrogen adsorption isotherm at 20°C exhibits a curvature characterized by a parameter C defined by the formula:

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$$C = \frac{P_1 q(P_2)}{P_2 q(P_1)}$$

where $q(P_1)$ denotes the quantity of nitrogen adsorbed at pressure P_1 and

$q(P_2)$ that adsorbed at pressure P_2 , and

the pressures P_1 and P_2 are defined respectively from the high and low pressures of the PSA cycle in question,

C being at least equal to 2.9.

In the rejection of the appealed claims, the examiner relies upon the following references:

Coe et al. (Coe)	5,152,813	Oct. 6, 1992
Chao et al. (Chao)	5,413,625	May 9, 1995

Appellants' claimed invention is directed to a process for separating nitrogen from a gas mixture, such as air, utilizing a PSA process conducted at a temperature greater than 50°C. The process makes use of a zeolite adsorbent which conforms to the parameter C , as defined in claim 1. According to appellants, they have surprisingly found that:

[Some zeolites which cannot be utilized on an industrial scale for separating air and nitrogen in the usual temperature conditions employed in the pressure swing adsorption processes, namely a temperature lower than or equal to the ambient temperature, can be advantageously employed, providing that the pressure swing adsorption process is used at a temperature preferably greater than 50°C [sentence bridging pages 2 and 3 of Brief].

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Appealed claims 1, 2 and 10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Chao. Claim 11 stands rejected under 35 U.S.C. § 103 as being unpatentable over Chao in view of Coe.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we will not sustain the examiner's rejections for essentially those reasons expressed by appellants.

We consider first the examiner's § 102 rejection over Chao. It is appellants' position that Chao does not describe a zeolite adsorbent having a C value of at least equal to 2.9. Appellants demonstrate at pages 5-7 of their Brief that all the adsorbents exemplified by Chao have a C value less than the claimed 2.9. Appellants have also submitted a Declaration under Rule 1.132 by one of the present inventors in support of this conclusion. According to appellants, the "Tables clearly demonstrate that the CHAO et al. reference simply fails to disclose or explicitly or implicitly zeolites exhibiting C values of at least 2.9 as those claimed by appellants" (page 7 of Brief).

On the other hand, the examiner, although not disputing appellants' data, emphasizes that it is the 100% exchanged CaX adsorbent (labeled 5) of Example 3 of Chao that is relied upon in the

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rejection. According to the examiner, "[t]hat 100% exchanged CaX does have a C value of greater than 2.9" (page 4 of Answer, lines 6 and 7). It seems that although the examiner recognizes that appellants' Brief, at page 6, shows that the C value of CaX is less than 2.9, the examiner reasons that if appellants' Example II shows that a 95% exchanged CaX has a C value of 2.9, so must the 100% exchanged CaX of Chao.

The problem with the examiner's reasoning is that appellants' data and declaration provide evidence that the 100% exchanged CaX adsorbent of Chao has a C value of less than 2.9, i.e., 1.87. Accordingly, while it would seem from the present record that CaX adsorbents having a C value of at least equal to 2.9 were known in the art, the evidence of record weighs in favor of appellants' position that the adsorbents described in Chao do not exhibit the C parameter recited in the appealed claims.

The co-reference of the examiner's § 103 rejection is relied upon for the obviousness of the claim 11 recitation of the gas mixture including hydrogen and nitrogen and, consequently, does not remedy the deficiency of Chao discussed above.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is reversed.

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REVERSED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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