

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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARIA STRADA FRIEDRICH,
MICHAEL J. SEELY and DEV D. SURESH,

Appeal No. 2000-0073
Application 08/883,716

ON BRIEF

Before, DELMENDO, JEFFREY T. SMITH and PAWLIKOWSKI, *Administrative Patent Judges*.

JEFFREY T. SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicants appeal the decision of the Primary Examiner finally rejecting claims 1 to 13. We have jurisdiction under 35 U.S.C. § 134.

BACKGROUND

The invention is directed to a process for producing a catalyst useful in the ammoxidation of an unsaturated hydrocarbon to its corresponding ",\$ mono-unsaturated nitrile. Particularly, the invention is directed to a process for producing a promoted VSbO_x catalyst useful in ammoxidation of isobutylene or propylene to methacrylonitrile or acrylonitrile. (Specification, p. 2). The catalyst is formed by (i) forming a catalyst precursor from the vanadium compound and at least a portion of the antimony compound, a portion of the metal compound M and a portion of the support material; (ii) mixing the catalyst precursor with an aqueous sol containing the remaining portion of the support material and any remaining antimony and metal compound M to form a second slurry; (iii) drying the second slurry to form a dry mixture; and (iv) calcining the dried mixture to form the finished catalyst. Claim 1, which is representative of the claimed invention, appears below:

1. A process of preparing a supported catalyst wherein said catalyst comprises the elements and proportions indicated by the following empirical formula:



wherein M equals Sn, Ti, Fe, Cu, Nb, Ta, Co, Ni, Mg,
Li, Na, Ga and mixtures thereof,

- a is from about 0.5 to about 5.0,
- b is from about 0.1 to 5.0, and
- x is the number of oxygen atoms required to satisfy the valency requirement of the other elements.

comprising (1) mixing the vanadium compound, at least a portion of the antimony compound, and at least a portion of the M compound and an aqueous sol containing a portion of the support material to form an aqueous slurry, heating the slurry to remove the water, and calcining at a temperature of at least about 150°C to form a catalyst precursor; (2) mixing the catalyst precursor with an aqueous sol containing the remaining portion of the support for the catalyst and any remaining portion of the Sb compound and M compound to form a second slurry; (3) drying the second slurry to remove the water to form a dry mixture; and (4) calcining the dried mixture at a temperature of at least 150°C to form the finished catalyst.

As evidence of unpatentability of the claimed subject matter, the Examiner relies on the following references:

Brazdil et al. (Brazdil '016)	5,214,016	May 25, 1993
Brazdil et al. (Brazdil '588)	5,498,588	Mar. 12, 1996

Appeal No. 2000-0073
Application No. 08/883,716

The Examiner has rejected claims 1 to 13 as unpatentable under 35 U.S.C. § 103(a) over the combination of Brazdil '016 and Brazdil '588. (Answer, p. 3).

OPINION

We have carefully reviewed the claims, specification and applied prior art, including all of the arguments advanced by both the Examiner and Appellant in support of their respective positions. This review leads us to conclude that the rejection is not well founded. Accordingly, we will reverse § 103 rejection. We need to address only claim 1, which is the sole independent claim.

It is well established that the examiner has the initial burden under § 103 to establish a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). To that end, the examiner must show that some objective teaching or suggestion in the applied prior art, or knowledge generally available in the art would have led one of ordinary skill in the art to arrive at the claimed invention. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996).

Brazdil '588 discloses a process for manufacturing a catalyst containing vanadium, antimony and other metal compounds. The process includes forming a catalyst precursor having the formula $VSb_mA_aO_x$, adding a metal compound D to the surface of the catalyst precursor and calcining the surface modified precursor to produce the catalyst. (Col. 2, ll. 26 to 48). Brazdil '588 also states "the catalyst precursor can be prepared by any method known in the art for synthesis of mixed metal oxides." (Col. 2, ll. 49 to 50). Brazdil '588 discloses the metal compound D is added to the catalyst precursor any time after the precursor has been formed. (Col. 2, ll. 58 to 60).

Brazdil '016 discloses a process for manufacturing a catalyst containing vanadium, antimony and other metal compounds. The process includes forming "an aqueous slurry of a mixture of source batch materials comprising compounds of said elements to be included in the final catalyst." (Col. 2, ll. 38 to 41). The mixture of batch materials is calcined to form an activated catalyst. (Col. 2, ll. 41 to 50).

The Examiner asserts Brazdil '588 discloses an unsupported or supported mixed metal oxide catalyst, wherein the catalyst can be prepared by any method known in the art for synthesis of mixed metal oxides. (Answer, p. 3, ll. 14 to 16). The Examiner also asserts

Appeal No. 2000-0073
Application No. 08/883,716

Brazdil '016 discloses the preparation of mixed metal oxides using an aqueous slurry process. (Answer, p. 3, ll. 17 to 20). The Examiner asserts that preparing the catalyst of Brazdil '588 using the aqueous slurry method of catalyst preparation as described in Brazdil '016 would have been obvious to one of ordinary skill in the art because it is a known method. (Answer, p. 4, ll. 7 to 10).

The claimed invention requires the formation of a first aqueous slurry which does not contain all the support material, drying the slurry and calcining to form a catalyst precursor. The catalyst precursor is then combined with the remaining portion of the support material to form a second slurry which is subsequently dried and calcined to form the finished catalyst. Brazdil '016 does not describe a process where the support material is combined with the catalyst material in two separate steps as required by the claimed invention. Thus, the combination of Brazdil '588 and '016, as proposed by the Examiner, would not have led the skilled artisan to the presently claimed invention. Consequently, the Examiner has failed to establish a *prima facie* case of obviousness on the present record.

For the above reasons and those stated in the Brief, we determine that the Examiner's conclusion of obviousness is not supported by facts. "Where the legal conclusion [of obviousness] is not supported by facts it cannot stand." *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967). Accordingly, the Examiner's rejection of claims 1 to 13 over the combination of Brazdil '016 and '588 is reversed.

Appeal No. 2000-0073
Application No. 08/883,716

CONCLUSION

The rejection of claims 12 and 14-21 as unpatentable under 35 U.S.C. § 103 over the combination of Brazdil '016 and Brazdil '588 is reversed.

REVERSED

ROMULO H. DELMENDO
Administrative Patent Judge

JEFFREY T. SMITH
Administrative Patent Judge

BEVERLY A. PAWLIKOWSKI
Administrative Patent Judge

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Appeal No. 2000-0073
Application No. 08/883,716

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