

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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GEORGE T. BAYER  
and KIM A. WYNNS

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Appeal No. 1999-0764  
Application 08/745,199

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ON BRIEF

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Before WARREN, KRATZ and JEFFREY T. SMITH, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal and Opinion*

We have carefully considered the record in this appeal under 35 U.S.C. § 134, including the opposing views of the examiner, in the answer, and appellants, in the brief and reply brief, and based on our review, find that we cannot sustain the rejection of appealed claims 1 through 4, 6, 7, 9 through 12 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Krutenat in view of Davis '501, and the rejection of appealed claims 5, 9 and 13<sup>1</sup> under 35 U.S.C. § 103(a) as being unpatentable over Krutenat in view of Davis '501 as applied to claims 1 through 4, 6, 7, 9

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<sup>1</sup> Claims 1 through 7 and 9 through 14 are all of the claims in the application (specification, pages 9-11).

through 12 and 14, further in view of Davis ‘777.’<sup>2</sup> For the reasons pointed out by appellants in the brief and reply brief, the examiner has failed to make out a *prima facie* case with respect to both grounds of rejection.

It is well settled that “[t]he consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that [the claimed process] should be carried out and would have a reasonable likelihood of success viewed in light of the prior art. [Citations omitted] Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant’s disclosure.” *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). Thus, a *prima facie* case of obviousness is established by showing that some objective teaching, suggestion or motivation in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention as a whole, including each and every limitation of the claims, without recourse to the teachings in appellants’ disclosure. *See generally, In re Rouffet*, 149 F.3d 1350, 1358, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998); *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629-30 (Fed. Cir. 1996); *In re Fine*, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988); *Dow Chem.*, 837 F.2d at 473, 5 USPQ2d at 1531-32.

The appealed claims are directed to a method for coating a surface of an alloy product using a diffusion mixture consisting essentially of aluminum, silicon and an ammonium halide activator in the amounts specified, with the balance an inert filler. Such a method is generally referred to as a “pack cementation method” (specification, page 1). Certain appealed claims are drawn to a metal alloy product having an aluminum and silicon diffusion coating on at least one surface prepared by said method. The examiner addresses only the claimed method even though the ground of rejection involves the product claims as well.

The examiner finds that Krutenat discloses a pack cementation method for forming an

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<sup>2</sup> Answer, pages 4-6. We observe that while the examiner did not include “in view of Davis” in stating the second ground of rejection in the answer (page 5), it is clear from page 9 of the answer and page 2 of the final rejection (Paper No. 5) that the Davis ‘501 is part of this ground of rejection.

aluminum-silicon coating on a metal substrate that uses a diffusion mixture containing aluminum, silicon and sodium chloride as an activator (e.g., col. 6). This method differs from the claimed method essentially in the presence of the sodium chloride instead of an ammonium halide activator in the diffusion mixture. The examiner relies on the use of ammonium halide and sodium chloride activators in a method of chromizing the surface of a metal substrate in Davis '501 to show the interchangeability of such activators, and finds that one of ordinary skill in this art would have substituted the ammonium halide activators for the sodium chloride activators in the method of Krutenat because Davis '701 "teaches that these two compounds are equivalent [and] thus one would expect them to behave identically" (answer, page 4).

Appellants submit that the teachings of Davis '501 with respect to the halide activator in the chromizing method are not applicable to halide "activators for an aluminum and silicon diffusion coating system," and point to the discussion of the differences in the two methods in the declaration of appellant Bayer<sup>3</sup> (brief, pages 4-5; see also brief, pages 5-7, and reply brief, pages 1-2).

The examiner does not address the issues raised by appellants, contending instead that "one of ordinary skill in this art would have had a reasonable expectation of success in substituting an ammonium halide activator for the sodium halide activator taught by Krutenat . . . because a sodium activator works in an Al-Si system and a Cr system, as evidenced by Krutenat and Davis '501, and this would have suggested to one of ordinary skill in the art that activators disclosed by Davis '501 as equivalent to sodium chloride would be likely to work in the Al-Si system of Krutenat" (answer, page 6). In this respect, the examiner further points to a statement by declarant Bayer that he and others were "surprised" by the results reported in the declaration because "[w]e expected similar results" from the ammonium chloride salts and the sodium chloride salts (declaration, ¶ 4), and contends that "Mr. Bayer's expectation of comparable results using either NH<sub>4</sub>Cl or NaCl supports the Examiner's position that one of ordinary skill in the art would have expected an ammonium salt to work in the Al-Si system taught by Krutenat" (answer, page 7).

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<sup>3</sup> The declaration under 37 CFR § 1.132 was submitted November 17, 1997 (Paper No. 4).

The difficulty that we have with the examiner's position is that the examiner does not first establish that there was a reasonable suggestion in the prior art to modify the method of Krutenat by changing the halide activator before addressing the question of whether such a modification would have a reasonable likelihood of success. Thus, on this record, it reasonably appears that the "suggestion" found by the examiner was provided by appellants' disclosure. *See Dow Chem. Co.*, 837 F.2d at 473, 5 USPQ2d at 1531. Indeed, the examiner does not address appellants' arguments that the teachings of Davis with respect to the chromizing method would not have provided the suggestion to one of ordinary skill in this art to modify the diffusion mixture that formed the pack in the method of forming an aluminum-silicon coating in the method of Krutenat by using different halide activators, and relies on declarant Bayer's expression of surprise at the test results obtained in the declaration for a finding of a reasonable expectation of success as support for the "suggestion" (answer, page 7). In this respect, we agree with appellants' that "Mr. Bayer's statement . . . is not directed to whether . . . [the] prior art provides a teaching, suggestion or motivation to modify the Krutenat pack mix and substitute NH<sub>4</sub>Cl for NaCl" (brief, page 9).

On this record, we must, therefore, conclude that the examiner has not shown that the prior art would have provided one of ordinary skill in this art with a teaching, suggestion or motivation to modify the method of Krutenat in order to arrive at the claimed method encompassed by the appealed claims, which is necessary to establishing a *prima facie* case of obviousness, and thus we must reverse both grounds of rejection.

The examiner's decision is reversed.

*REMAND TO THE EXAMINER*

We decline to exercise our authority under 37 CFR § 1.196(b) and enter on the record a new ground of rejection of appealed claims 11 through 14,<sup>4</sup> drawn to metal alloy products, as being unpatentable under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Krutenat, because it is not apparent to us that Krutenat is the only applicable prior art in this respect.

Accordingly, we remand this application to the examiner to apply Krutenat and any other applicable prior art developed by the examiner to appealed claims 11 through 14 which are drawn to a metal alloy product having an aluminum and silicon diffusion coating on at least one surface, characterized as prepared by the method of appealed claim 1. The patentability of method claims and of product claims styled in product-by-process format based on the claimed method, *see, e.g., In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985), are separate issues as the patentability of the claimed method does not confer patentability on the product made therewith. *See In re Wertheim*, 541 F.2d 257, 271, 191 USPQ 90, 103 (CCPA 1976) (“These claims are cast in product-by-process form. Although appellants argue, successfully we have found, that the [reference] disclosure does not suggest . . . appellants’ process, the patentability of the products defined by the claims, rather than the processes for making them, is what we must gauge in light of the prior art.”).

We find that one of ordinary skill in this art in routinely following the teachings of Krutenat by using aluminum, silicon and a halide activator to prepare aluminum-silicone coatings on metal substrates would have reasonably arrived at metal alloy products having an aluminum and silicon diffusion coating that *prima facie* reasonably appear to be identical or substantially identical to the metal alloy products having an aluminum and silicon diffusion coating defined in product-by-process style in at least appealed claim 11, even though the product of claim 11 is characterized as produced by a method which utilizes a different halide activator. When the examiner makes the rejection on the record that, *prima facie*, the claimed products are identical or substantially identical to the products produced by the method of Krutenat and/or other applied prior art, the burden would then shift to appellants to establish by effective argument and/or objective evidence that the claimed products patentably distinguishes over the teachings of Krutenat and/or other applied prior art, whether the rejection is based on “anticipation” under § 102(b) and/or on “prima facie obviousness” under § 103(a), jointly or alternatively. *See, e.g., In re Spada*, 911 F.2d 705, 708-09, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990) (“The Board held that the compositions claimed by Spada ‘appear to be identical’ to those described by Smith.

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<sup>4</sup> Claims 12 and 14 are duplicates. In the event that these claims are held to be allowable, see Manual of Patent Examining Procedure § 706.03(K) Duplicate Claims (8th ed., August 2001;

While Spada criticizes the usage of the word ‘appear’, we think that it was reasonable for the PTO to infer that the polymerization by both Smith and Spada of identical monomers, employing the same or similar polymerization techniques, would produce polymers having the identical composition.”); *In re Best*, 562 F.2d 1252, 1254-56, 195 USPQ 430, 432-34 (CCPA 1977) (“Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See *In re Ludtke*, [441 F.2d 660, 169 USPQ 563 (CCPA 1971)]. Whether the rejection is based on “inherency” under 35 USC § 102, on “prima facie obviousness” under 35 USC § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO’s inability to manufacture products or to obtain and compare prior art products. [Footnote and citation omitted.]”); *Wertheim*, 541 F.2d at 271, 191 USPQ at 103-04; *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 325-26 (CCPA 1974); citing *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972) (“In *Brown*, the court was in effect saying that the [PTO] bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature than would be the case when a product is claimed in the more conventional fashion.”).

We have considered the evidence in the Bayer declaration in this respect and find that, on this record, the “samples that correspond to Krutenat” reasonably appear to possess “Surface Al-Si” characteristics indicating that the coated metal products would fall into at least appealed claim 11. While declarant Bayer states that thickness of the coating is a consideration (declaration, e.g., page 5), we do not find any limitation in at least appealed claim 11 which is directed to this product property. Thus, the evidence of record does not, on this record, reasonably appear to patentably distinguish the claimed products encompassed by at least appealed claim 11 from the products produced by the method of Krutenat.

*Reversed*  
*Remanded*

CHARLES F. WARREN	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
PETER F. KRATZ	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
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JEFFREY T. SMITH	)	
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