

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 17

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte RAFAEL PI SUBIRANA,  
ESTER PRAT QUERALT, and JOAQUIM BIGORRA LLOSAS

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Appeal No. 2002-0448  
Application No. 09/194,824

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ON BRIEF

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Before SCHEINER, ADAMS, and GREEN, Administrative Patent Judges.

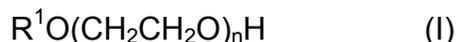
ADAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 11-15, which are all the claims pending in the application.

Claim 11 is illustrative of the subject matter on appeal and is reproduced below:

11. A process for increasing the viscosity of an aqueous surface-active composition comprising adding to the aqueous surface-active composition a viscosity increasing-effective amount of a reaction product of a hydroxycarboxylic acid selected from the group consisting of tartaric acid, malic acid, citric acid and mixtures thereof, and a fatty alcohol polyglycol ether corresponding to formula I:



wherein R<sup>1</sup> is an alkyl and/or alkenyl group containing from 6 to 22 carbon atoms, and n is a number from 20 to 150, and wherein the reaction product has a Brookfield viscosity of at least 2,000 mPas, as measured using a 5% by weight sample of the reaction product in water.

The references relied upon by the examiner are:

Tesmann et al. (Tesmann)	5,034,159	Jul. 23, 1991
Pereira et al. (Pereira)	5,302,377	Apr. 12, 1994
European Patent Application Turchini et al. (Turchini)	0 199 131	Oct. 29, 1986

#### GROUND OF REJECTION

Claims 11-15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite in the recitation of the phrase “viscosity-increasing effective amount.”<sup>1</sup>

Claims 11-14 stand rejected under 35 U.S.C. § 102(b), as being anticipated by Turchini.

Claims 11-15 stand rejected under 35 U.S.C. § 103, as being unpatentable over Pereira in view of Turchini and Tesmann.

We reverse.

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<sup>1</sup> We note that the examiner failed to identify this rejection as pending under the “Grounds of Rejection” section of the Answer. Nevertheless, given the examiner’s response to appellants’ arguments, *see* Answer, pages 13-14, it appears that the examiner intended to maintain this rejection. Accordingly, we have included this rejection as part of our deliberations.

## DISCUSSION

### THE REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH:

As set forth in Amgen Inc. v. Chugai Pharmaceutical Co., Ltd., 927 F.2d 1200, 1217, 18 USPQ2d 1016, 1030 (Fed. Cir. 1991):

The statute requires that “[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” A decision as to whether a claim is invalid under this provision requires a determination whether those skilled in the art would understand what is claimed. See Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624, 225 USPQ 634, 641 (Fed. Cir. 1985) (Claims must “reasonably apprise those skilled in the art” as to their scope and be “as precise as the subject matter permits.”).

Furthermore, claim language must be analyzed “not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary skill in the pertinent art.” In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

According to the examiner (Answer, page 14),

[s]ince the claimed invention is directed to a process of increasing the viscosity using a reaction product, wherein the product can potentially have various types of utility, and further since each utility is interchangeable with the other, the metes and bounds of the phrase ‘viscosity-increasing effective amount’ is not clear, and thus the term is indefinite.”

In response, appellants argue (Brief, page 10),

a person of ordinary skill in the art will easily be able to determine what amount of the claimed reaction product to employ in order to achieve a desired level of viscosity. The precise amount of reactant to be used will depend on the needs of the routineer with respect to the degree of thickness they want to achieve.

As we understand the examiner's position, it is not that the terms "viscosity-increasing," or "effective amount" are indefinite, but instead, it is because the reaction product may be capable of another use that the phrase "viscosity-increasing effective amount" is indefinite. What is unclear is why any other use of the reaction product would be relevant with regard to the claim limitation a "viscosity increasing-effective amount." In our opinion, the only question relevant to the phrase at issue is would a person of ordinary skill in the art understand what is claimed – or perhaps more simply, would a person of ordinary skill in the art appreciate from reading the claims in light of the specification that an effective amount of the reaction product can be used to increase the viscosity of an aqueous surface-active composition? In our opinion, appellants' argument concisely answers this question in the affirmative.

Accordingly, we reverse the rejection of claims 11-15 under 35 U.S.C. § 112, second paragraph, as being indefinite in the recitation of the phrase "viscosity-increasing effective amount."

THE REJECTION UNDER 35 U.S.C. § 102:

The examiner finds (Answer, page 3), "Turchini's precursor compounds – specifically citric acid and the desired ethoxylated alcohols having the general formula of  $A_nR_3$  ... possess similar chemical characteristics as the instant precursor compound, it is [e]xaminer's position that they inherently possess similar viscosity characteristics." According to the examiner (Answer, page 7):

Turchini discloses a reaction product of citric acid with their natural ethoxylated alcohols with the general formula  $R_3(OCH_2CH_2)_nOH$ , page 4[,] lines 30-50. This formula is the same as the instant fatty alcohol polyglycol ether. Therefore, Turchini discloses formation of

a reaction product of a hydroxycarboxylic acid such as citric acid with fatty alcohols having [the] same limitation as the instant fatty alcohol polyglycol ether.

Examiner further takes the position that since the precursor compositions of Turchini is the same as the instantly claimed process, their reaction product, such as those disclosed by Turchini which consisting of esters of citric acid with aliphatic polyoxyalkylated alcohols, meet the limitation of the instant reaction products.

This finding, however, is factually incorrect. With underlining to emphasize the differences, we note that the formula for the ethoxylated alcohols,

$R_3(\underline{OCH_2CH_2})_n\underline{OH}$ , set forth in Turchini is not the same as formula forth for the fatty alcohol polyglycol ether,  $R^1\underline{O(CH_2CH_2O)}_n\underline{H}$ , set in appellants' claimed invention.

Since the underlying premise of the examiner's rejection is factually incorrect we reverse the rejection of claims 11-14 under 35 U.S.C. § 102(b), as being anticipated by Turchini.

THE REJECTION UNDER 35 U.S.C. § 103:

Obviousness is a legal conclusion based on the underlying facts. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966); Continental Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1270, 20 USPQ2d 1746, 1750 (Fed. Cir. 1991); Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1566-68, 1 USPQ2d 1593, 1595-97 (Fed. Cir. 1987), cert. denied, 481 U.S. 1052 (1987). To establish a prima facie case of obviousness, there must be more than the demonstrated existence of all of the components of the claimed subject matter. There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the

substitutions required. That knowledge cannot come from the applicants' disclosure of the invention itself. Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985).

However, as set forth in In re Deuel, 51 F.3d 1552, 1558, 34 USPQ 2d, 1210, 1214-1215:

Structural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain new compounds. For example, a prior art compound may suggest its homologs because homologs often have similar properties and therefore chemists of ordinary skill would ordinarily contemplate making them to try to obtain compounds with improved properties. Similarly, a known compound may suggest its analogs or isomers, either geometric isomers (cis v. trans) or position isomers (e.g., ortho v. para).

For example, in In re Shetty, 566 F.2d 81, 85, 195 USPQ 753, 756 (CCPA 1977) the examiner noted that the claimed compound differed from the prior art compound by "a mere methylene group ... and concluded that "this minor molecular modification would clearly be obvious to the pharmaceutical chemist." The Shetty court, agreed with the examiner's position, finding "that a person skilled in chemical and/or pharmaceutical arts would not hesitate to extend the alkylene linkage of the prior art compound." Similarly, as set forth in In re Payne, 606 F.2d 303, 313-14, 203 USPQ 245, 254-55 (CCPA 1979):

An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties. In re Gyurik, 596 F. 2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979); See In re May, 574 F. 2d 1082, 1094, 197 USPQ 601, 611 (CCPA 1978); In re Hoch, 57

CCPA 1292, 1296, 428 F. 2d 1341, 1344, 166 USPQ 406, 409 (1970). ... When prior art compounds essentially "bracketing" the claimed compounds in structural similarity are all known as pesticides, one of ordinary skill in the art would clearly be motivated to make those claimed compounds in searching for new pesticides.

This backdrop sets the scene for the examiner's rejection under 35 U.S.C. § 103 (see e.g., Answer, page 10, "[s]tructural similarities may provide requisite motivation or suggestion to modify known compounds to obtain new compounds...").

According to the examiner (Answer, page 4), "Pereira teaches esters of [a] polyethoxylated moiety, and a polypropoxylated moiety which differ from the instant fatty alcohol polyglycol ethers by a single methyl group, see formula II." The examiner recognizes, however, that "Pereira lacks a specific teaching for the use of their products as a viscosity modifier...." Id. To make up for this deficiency the examiner relies on Tesmann and Turchini. According to the examiner (Answer, page 5), the products of Tesmann "are similar to those taught by Pereira." Therefore, the examiner relies on Tesmann (id.), to teach "the use of ethylene oxide with saturated or unsaturated fatty alcohols as thickeners...." The examiner relies on Turchini, as discussed supra, to teach that "surfactants derived from esterification of citric acid and desired ethoxylated alcohols have thickening properties." Answer, pages 5-6.

In response, appellants argue (Brief, bridging sentence, pages 6-7), "to assume that because the alcohol reactant of Pereira is similar to Appellant's [sic] claimed ether reactant, the viscosity of the resultant reaction product will be similar is nothing more than just that, an assumption." We agree. The examiner

failed to establish that a person of ordinary skill in the art at the time the invention was made, armed with the combined teachings of Pereira, Tesmann and Turchini, would have expected that the reaction product of hydroxycarboxylic acid and a fatty alcohol polyglycol ether of the formula  $R^1O(CH_2CH_2O)_nH$  would have a Brookfield viscosity of at least 2,000 mPas, as is required by appellants' claimed invention.

While, as the examiner points out (Answer, page 11), "Pereira teaches the formation of similar type compounds and their utility as a thickener," Pereira stops short of identifying the viscosity of these compounds. As for Tesmann, appellants argue (Brief, page 7), "while it may be relied upon by the [e]xaminer to show that ethoxylated fatty alcohols can be used to increase the viscosity of aqueous compositions, the claimed invention is not directed to the use of ethoxylated fatty alcohols to achieve this result." We are not persuaded by the weight the examiner places on the ability of a structurally similar precursor (ethoxylated fatty alcohols) of Pereira's final compounds to increase the viscosity of aqueous compositions. Answer, bridging paragraph, pages 11-12. As appellants explain (Brief, page 6), "the molar ratio of alcohol to acid, the temperature at which the reaction is performed, the pressure at which the reaction is performed, and the length of time of the reaction, all contribute to the characteristics of the resultant reaction product, including its viscosity." We are not persuaded by the examiner's argument (Answer, page 13),

one of ordinary skill in the art would have been motivated to use the combined teachings of Pereira, Turchini and Tesmann and react a hydroxycarboxylic acids such as citric acid as used by Pereira, with the polyoxylated alcohols of Turchini (fatty alcohol

polyglycol ethers), and then optimize the desired viscosity effects to at least 2000 mPa as taught by Tesmann, because the [person of] ordinary skill in the art would have had a reasonable expectation to observe desirable viscosity characteristics of a reaction product for their intended outcome.

As we understand the examiner's argument, the combined teachings of Pereira, Turchini and Tesmann would motivate a person of ordinary skill in the art to react a hydroxycarboxylic acid with a polyoxylated alcohol and then "optimize" this reaction product to a viscosity of one of the original reactants, polyoxylated alcohol. While, in hindsight this may be a possible way to arrive at appellants' claimed viscosity, the examiner has failed to identify any evidence in the combination of prior art relied upon to support his argument. As set forth in In re Kotzab, 217 F.3d 1365, 1369-70, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000):

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. ... Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

...

Most if not all inventions arise from a combination of old elements. ... Thus, every element of a claimed invention may often be found in the prior art. ... However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. ... Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant [citations omitted].

In other words, “there still must be evidence that ‘a skilled artisan, ... with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.’” Ecolochem Inc. v. Southern California Edison, 227 F.3d 1361, 1375, 56 USPQ2d 1065, 1075-76 (Fed. Cir. 2000).

Given, as discussed supra, that Turchini is directed to a structurally different reactant (e.g., ethoxylated alcohols of the formula  $R_3(OCH_2CH_2)_nOH$ ) we are not persuaded by the examiner’s reliance on this reference.

Therefore, on reflection, it is our opinion that the examiner failed to meet his burden of providing the evidence necessary to establish a prima facie case of obviousness. Accordingly, we reverse the rejection of claims 11-15 under 35 U.S.C. § 103, as being unpatentable over Pereira in view of Turchini and Tesmann.

REVERSED

Toni R. Scheiner )  
Administrative Patent Judge )  
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)  
) BOARD OF PATENT  
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Appeal No. 2002-0448  
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Page 11

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