

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

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRADLEY LEONARD BEACH, TERENCE EDWARD FRANNEY,
and
ELAINE YEAP MONEY

Appeal No. 2005-1480
Application No. 10/212,498

ON BRIEF

Before KIMLIN, OWENS, and TIMM, *Administrative Patent Judges*.
TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 1-7 which are all the claims pending in the application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

The claimed subject matter relates to hydroxyacid-free dispersants and pigment dispersions and inks containing the dispersants. According to Appellants, a common component of most dispersants is methacrylic acid (MAA) (specification, p. 5, ll. 10-11). The majority of commercially available dispersants unintentionally contain hydroxyacids as an impurity (specification, p. 5, ll. 13-14). Appellants remove the hydroxyacid impurities by ultrafiltration (specification, p. 6, ll. 7-8), a term used by Appellants interchangeably with reverse osmosis to describe the processes and apparatus of their invention (specification, ¶ 0027).

Claim 1 is illustrative of the subject matter on appeal:

1. A dispersant composition comprising a dispersant in an aqueous vehicle, said dispersant having a methacrylic acid component and a hydrophobic component, wherein hydroxyacids in said dispersant composition have been removed, and wherein said dispersant contained 3-hydroxybutyric acid as an impurity prior to said hydroxyacids being removed.

The claims are rejected under 35 U.S.C. § 103(a). As evidence of obviousness, the Examiner relies upon the following prior art references:

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| Putzar | 4,465,492 | Aug. 14, 1984 |
| Yui et al (Yui) | 5,977,207 | Nov. 2, 1999 |

Specifically, claims 1-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Putzar in view of Yui.

Appellants state that all of the claims are argued to stand or fall together (Brief, p. 10).

We select claim 1 to represent the issues on appeal.

Appellants have not persuaded us of reversible error on the part of the Examiner. We affirm and in so doing we incorporate by reference the findings of fact and conclusions of law set forth in the Answer as well as the responses to argument advanced by the Examiner in the Answer. We add the following primarily for emphasis.

OPINION

As an initial matter, we point out that claim 1 is directed to a dispersant composition. “The term ‘composition’ in chemistry is well-established. It generally refers to mixtures of substances.” *PIN/NIP Inc. v. Platte Chemical Co.*, 304 F.3d 1235, 1243, 64 USPQ2d 1344, 1351 (Fed. Cir. 2002). The interpretation of the claim must preserve its identity as a product claim and must recognize as a matter of chemistry that the composition exists from the moment it is created. *See Exxon Chem. Pats., Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557, 35 USPQ2d 1801, 1804 (Fed. Cir. 1995), *cert. denied*, 518 U.S. 1020 (1996). The dispersant composition of claim 1 does not exist until all its component ingredients are mixed together. With regard to the claim recitations directed to the presence and then removal of hydroxyacids, what the composition contained previously can only serve to limit the claimed dispersant composition where the prior composition necessarily results in a compositional or structural difference in the resulting dispersant composition. Nothing in the present record indicates that the presence and then removal of the hydroxyacids changes the resulting dispersant composition. We, therefore,

interpret claim 1 as limited to a dispersant composition comprising a dispersant in an aqueous vehicle wherein the dispersant has a methacrylic acid component and a hydrophobic component.

With the above claim interpretation in mind, we turn to the issues presented by the rejection and argument. The issue, as framed by Appellants arguments, is whether the evidence shows that those of ordinary skill in the art would have subjected a dispersant containing methacrylic acid to the reverse osmosis purification process of Putzar. Appellants have failed to convince us that the Examiner made a reversible error in concluding that such would have been undertaken by one of ordinary skill in the art. There is no dispute here that Putzar describes subjecting synthetic anionic dispersants to a reverse osmosis purification process. Putzar exemplifies a wide range of chemically different dispersants as starting materials for the reverse osmosis purification process (Putzar, col. 51 to col. 2, l. 17). One of the exemplified dispersants is said to be a condensation product of styrene, acrylic acid, and maleic anhydride (col. 2, ll. 7-8 and 11).¹ As the Examiner acknowledges, Putzar does not expressly identify a dispersant containing methacrylic acid. But methacrylic acid and acrylic acid are chemically similar, differing only by a methyl group. Moreover, as evidenced by Yui, both acrylic acid and methacrylic acid were understood as useful as the hydrophilic component of a carboxyl-based dispersant which can have styrene as the hydrophobic component. (Yui, col. 4, ll. 49-56 and col. 4, ll. 57-58). Moreover, the purpose of the reverse osmosis process is to remove impurities such

¹The Examiner finds, and Appellants do not dispute, that styrene is the hydrophobic component of such a dispersant in accordance with the hydrophobic component required by claim 1 (Answer, p. 4).

as low molecular weight constituents (e.g., non-reacted starting materials) which have no dispersibility and act only as ballast (Putzar, col. 1, ll. 12-17). That purpose has general applicability in the dispersant field. The evidence supports the conclusion of the Examiner.

Appellants attempt to make a distinction between the dispersant of Putzar and the dispersant of Yui on the basis of reaction chemistry. Specifically, according to Appellants, Putzar forms a condensation polymer while Yui forms an addition polymer. We are not persuaded that this is a valid distinction in the context of the issues under review. First, Yui does not disclose that the copolymer of the carboxyl-based dispersant is made by addition polymerization. Second, as pointed out by the Examiner, acrylic acid and methacrylic acid have the same basic chemical structure CH_2CZCOOH . They differ only at the Z position: In acrylic acid Z is hydrogen, in methacrylic acid Z is a methyl group (Answer, p. 6). One of ordinary skill in the art would expect that the reaction mechanism would be the same for methacrylic acid as acrylic acid when substituting one for the other. One of ordinary skill in the art would thus have a reasonable expectation of success in substituting methacrylic acid for acrylic acid in the dispersant disclosed by Putzar.

Appellants further argue that the invention is based on the recognition that methacrylic acid is exceptionally prone to contamination by 3-hydroxybutyric acid and that neither Putzar nor Yui teach this problem (Brief, p. 10). But what this argument ignores is that Putzar is directed specifically to the use of reverse osmosis purification to filter out low molecular weight constituents that Putzar views as contaminants (Putzar, col. 1, ll. 12-17). Hydroxyacids are low

molecular weight constituents within the meaning of Putzar (specification, ¶ 0028). Therefore, one of ordinary skill in the art would have sought to filter out hydroxyacids during the reverse osmosis process of Putzar. Putzar teaches the problem of Appellants albeit using more generalized language.

Moreover, “the motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness.” *In re Kemps*, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996). It is enough that some reason, suggestion or motivation exists in the prior art taken as a whole for making the combination. *In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992). Here, there is motivation to perform the reverse osmosis process to remove all low molecular weight constituents so that the dispersant has a low concentration of ballast and as high a concentration of active dispersant as possible (Putzar, col. 1, ll. 21-26).

We reiterate that claim 1 does not affirmatively require the presence of any hydroxyacid in the claimed dispersant composition. However, according to the specification, “the majority of commercially available dispersants unintentionally contain hydroxyacids as an impurity” (specification, p. 5, ll. 13-14). Where hydroxyacids are present in the dispersant, it is reasonable to conclude that they would be removed during the reverse osmosis of Putzar as it is the intention of Putzar to remove all low molecular weight constituents from the dispersant.

Appellants also argue that Yui could not teach that methacrylic acid and acrylic acid are equivalent or interchangeable with regard to possible contaminants because Yui has no teaching

about contaminants of the dispersant (Brief, p. 10). This argument is not convincing because what Yui indicates is that acrylic acid and methacrylic acid were known alternatives for use as the hydrophilic component of a carboxyl-based dispersant. Yui provides evidence that one of ordinary skill in the art would have had a reasonable expectation of obtaining a useful dispersant when using methacrylic acid in place of acrylic acid in the dispersant of Putzar. The rejection does not rely upon a teaching in Yui about contaminants, that evidence is found in Putzar.

Appellants also argue that “[c]onsidering that both Putzar and Yui each mention acrylic acid only once in the context of a dispersant without further detail directed to acrylic acid, no basis appears to combine the teaching of Yui with those of Putzar with respect to contamination from a methacrylic acid component.” (Brief, p. 10). In a determination of obviousness one does not take a count of how many times something is taught in a reference, one mention is enough. The purpose of the inclusion of prior art in an obviousness rejection is to provide evidence of what those of ordinary skill in the art knew at the time the invention was made. How many times that knowledge is stated is of no matter nor must it be the main topic of discussion within a particular prior art reference. *See Merck & Co v. Biocraft Laboratories*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1847 (Fed. Cir. 1989) (A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including non-preferred embodiments). What is important is that the prior art establishes that there was a reason, suggestion or motivation to make what is claimed and that one of ordinary skill in the art would

have had a reasonable expectation of success in making it. *See In re Dow Chem.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

The required suggestion and reasonable expectation of success is present under the facts of this case. From Putzar, one of ordinary skill in the art, at the time of the invention, would understand that reverse osmosis purification is a valuable method for removing low molecular weight constituents from a wide range of dispersants including those made using acrylic acid. Appellants' own specification indicates that methacrylic acid is "a common component of most dispersants." (specification, p. 5, ll. 10-11). What the prior art relied upon by the Examiner shows is that those of ordinary skill in the art understood that low molecular weight constituents present as impurities in dispersants can be removed from a variety of dispersants (Putzar) and that dispersants including methacrylic acid as a starting material were known in the art (Yui; Appellants' specification). Based on this evidence, we agree with the Examiner that it would have been obvious to one of ordinary skill in the art to subject a dispersant made using methacrylic acid to reverse osmosis in order to remove low molecular weight constituents and other impurities from the dispersant.

As a final point, we note that Appellants base no arguments upon objective evidence of non-obviousness such as unexpected results. We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 1-7 which has not been sufficiently rebutted by Appellants.

CONCLUSION

To summarize, the decision of the Examiner to reject claims 1-7 under 35 U.S.C. § 103(a) 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

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| EDWARD C. KIMLIN |) | |
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| |) | BOARD OF PATENT |
| TERRY J. OWENS |) | APPEALS |
| Administrative Patent Judge |) | AND |
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| |) | |
| CATHERINE TIMM |) | |
| Administrative Patent Judge |) | |