

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT C. MAHAR

Appeal No. 94-2973
Application No. 07/956,529¹

ON BRIEF

Before DOWNEY, HANLON and OWENS, Administrative Patent Judges.
HANLON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-5 and 7-22, all of the claims pending in the application. Claims 1 and 22 are representative of the subject matter on appeal and read as follows:

¹ Application for patent filed October 5, 1992.

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1. A method of preparing a stable aqueous slurry of magnesium hydroxide comprising:

(a) forming an aqueous mixture of

(i) from about 30 to about 70 percent by weight magnesium hydroxide;

(ii) from about 0.2 to about 20 percent by weight based on the weight of magnesium hydroxide of one or more polymeric anionic dispersants and salts thereof; and

(iii) from about 0.2 to about 20 percent by weight based on the weight of magnesium hydroxide of one or more water-soluble alkali metal salts selected from the group consisting of alkali metal hydroxides, alkali metal halides, alkali metal carbonates, alkali metal sulfates, alkali metal nitrates, alkali metal silicates and alkali metal salts of C₂-C₁₀ polycarboxylic acids;

and

(b) agitating the mixture to suspend the magnesium hydroxide.

22. A method of preparing a stable aqueous slurry of magnesium hydroxide comprising:

(a) forming an aqueous mixture of

(i) from about 30 to about 70 percent by weight magnesium hydroxide;

(ii) from about 0.2 to about 20 percent by weight based on the weight of magnesium hydroxide of one or more polymeric anionic dispersants and salts thereof wherein the dispersant is selected from the group consisting of polymers formed from one or more monomers selected from the group consisting of acrylic acid, methacrylic acid, crotonic acid, maleic acid, maleic anhydride, itaconic acid, mesaconic acid, fumaric acid, citraconic acid, vinylacetic acid, acryloxypropionic acid, vinylsulfonic acid, styrenesulfonic acid, 2-acrylamido-2-methylpropanesulfonic acid, allylsulfonic acid, allylphosphonic acid, vinylphosphonic acid, vinylsulfonic acid and salts thereof; and from 0 to about 50 percent by weight of one or more monomers selected from the group consisting of methylacrylate, ethylacrylate, butyl acrylate,

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methyl methacrylate, butyl methacrylate, isobutyl methacrylate, acrylamide, methacrylamide, N-tertiarybutyl-acrylamide, N-methylacrylamide, N,N-dimethylacrylamide, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, N-vinylpyrrolidone, N-vinylformamide, phosphoethyl methacrylate, allyl alcohol, methallyl alcohol, acrylonitrile, vinyl acetate, and styrene; and

(iii) from about 0.2 to about 20 percent by weight based on the weight of magnesium hydroxide of one or more water-soluble alkali metal salts; and

(b) agitating the mixture to suspend the magnesium hydroxide.

The references relied upon by the examiner are:

Hirsch et al. (Hirsch)	4,450,013	May 22, 1984
Kriz et al. (Kriz)	4,588,649	May 13, 1986
Shioji et al. (Shioji)	4,818,783	Apr. 4, 1989

The following rejections are at issue in this appeal:

(1) Claims 1-5, 7-15 and 19-22 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Shioji.

(2) Claims 16 and 20 are rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Shioji and Hirsch.

(2) Claims 17 and 18 are rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Shioji, Hirsch and Kriz.

Grouping of claims

According to appellant, the claims are grouped as follows
(Brief, p. 5):

- (1) Claims 1-5, 7-15 and 19-21 stand or fall together;
- (2) Claim 22 stands separately;
- (3) Claims 16 and 20 stand or fall together; and
- (4) Claims 17 and 18 stand or fall together.

Claim 1

Claim 1 is rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Shioji. We reverse this rejection.

Claim 1 recites a method of preparing an aqueous slurry of magnesium hydroxide comprising forming an aqueous mixture of specific amounts of (i) magnesium hydroxide, (ii) one or more polymeric anionic dispersants and salts thereof, and (iii) one or more specific water-soluble alkali metal salts. The mixture is agitated to suspend the magnesium hydroxide.

Shioji discloses a method for producing an aqueous dispersion of inorganic pigment, such as magnesium hydroxide, by combining as a dispersant (I) at least one member selected from the group consisting of (a) a carboxyl group-containing water-soluble polymer and (b) a water-soluble condensed phosphate and

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(II) a water-soluble anionic modified polyvinyl alcohol (col. 3, lines 3-18 and lines 34-46). There is no dispute that the polymeric dispersants and phosphate dispersants disclosed in Shioji may be used alone or in combination with each other (Reply Brief, p. 3). Shioji further discloses that typical examples of the water-soluble condensed phosphate (b) include "sodium, potassium, lithium, and other alkali metal salts" (col. 6, lines 6-8).

We agree with appellant that claim 1 "requires the combination of one or more polymeric anionic dispersants and one or more selected alkali metal salts which do not include phosphate salts" (Brief, p. 6; emphasis in original). According to the examiner (Answer, p. 10):

The disclosure of Shioji at col. 7, line 62 to col. 8, line 5 clearly shows inorganic metal salts that fall within the scope of the presently claimed inorganic metal salts or alkali metal salts.

We agree with appellant that Shioji does not disclose water-soluble alkali metals salts falling within the scope of claim 1. As correctly pointed out by appellant (Reply Brief, p. 4):

"The disclosure of Shioji at col. 7, line 62 to col. 8, line 5" **does not disclose any alkali metal salts**. As stated above, Shioji discloses only "hydroxides, carbonates, halides, and phosphates of calcium, magnesium[,] aluminum and other similar polyvalent metals" (col. 7, line 68-col. 8, line 2, emphasis

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added). Appellant's claims clearly state that the salts of component (iii) are **alkali** metal salts. ALKALI METALS ARE, BY DEFINITION, NOT POLYVALENT. [Emphasis in original.]

The examiner further asserts that "[e]ven if the salts shown at col. 8 of Shioji are in fact not alkali metal salts, the fact is that Shioji has disclosed monovalent alkali metal salts at col. 5" (Answer, p. 11). Shioji discloses that (col. 5, lines 30-41):

The acid type monomers [used for obtaining the carboxyl group-containing water-soluble polymer (a)] . . . can be used as acid form monomers or as salt form monomers obtained by neutralizing the acid form monomers with an alkali substance. When an acid form monomer is to be used, at least 30 mol % of the carboxyl group in the produced carboxyl group-containing water-soluble polymer (a) is desired to be neutralized with an alkali substance before the polymer is put to use, in due consideration of the effect of dispersion to be obtained [emphasis added].

Claim 1 recites a method of preparing a magnesium hydroxide slurry comprising "forming an aqueous mixture of" magnesium hydroxide, polymeric anionic dispersants and alkali metal salts. Shioji discloses that an alkali substance neutralizes the carboxyl group in the produced carboxyl group-containing water-soluble polymer (a) "before the polymer is put to use." Therefore, the alkali metal salts disclosed in Shioji are not in mixture with the carboxyl group-containing polymers but rather are chemically combined with them to form a polymer salt (compare

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(a)(ii) of claim 1 ("polymeric anionic dispersants and salts thereof"). Thus, Shioji fails to disclose a method of preparing a magnesium hydroxide slurry comprising "forming an aqueous mixture of" magnesium hydroxide, polymeric anionic dispersants and alkali metal salts.

Rejection of claim 22

Claim 22 is rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Shioji. We affirm this rejection.

Claim 22 relates to a method of preparing an aqueous slurry of magnesium hydroxide comprising forming an aqueous mixture of specific amounts of (i) magnesium hydroxide, (ii) one or more polymeric anionic dispersants and salts thereof, and (iii) "one or more water-soluble alkali metal salts." In contrast to claim 1, claim 22 does not exclude phosphate salts. Therefore, the water-soluble condensed phosphates (b) disclosed in Shioji are "water-soluble alkali metal salts" within the scope of claim 22. See col. 6, lines 6-8 (typical examples of the water-soluble condensed phosphate (b) include sodium, potassium, lithium, and other alkali metal salts). The fact that the method of claim 22 "requires the use of the combination of one or more alkali metal salts and one or more polymeric anionic dispersants which do not

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include polyvinyl alcohols" is of no moment (Brief, p. 6; emphasis in original). In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 802 (CCPA 1981) ("the term 'comprises' permits the inclusion of other steps, elements, or materials").

Appellant further argues that (Brief, p. 8):

Shioji does not teach or suggest a method of preparing a stable slurry of magnesium hydroxide using a combination of 0.2 to about 20 percent by weight based on the weight of magnesium hydroxide of one or more of the polymeric anionic dispersants recited in Applicant's Claim 22 together with 0.2 to about 20 percent by weight based on the weight of magnesium hydroxide of one or more water-soluble alkali metal salts.

Shioji discloses that the combination of both (a) the carboxyl group-containing water-soluble polymer and (b) the water-soluble condensed phosphate are present in an amount of from 0.1 to 2 parts by weight, based on 100 parts by weight of the inorganic pigment (col. 7, lines 18-26). The amounts disclosed in Shioji fall within the range recited in claim 22. See In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990)(where the difference between the claimed invention and the prior art is a range the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range).

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Claims 2-5 and 7-21

Since claims 2-5 and 7-21 are dependent on claim 1, and the rejection of claim 1 has been reversed, the rejections of claims 2-5 and 7-21 are also reversed. See 37 CFR § 1.75(c) ("Claims in dependent form shall be construed to include the limitations of the claim incorporated by reference into the dependent claim.")

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

MARY F. DOWNEY)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
ADRIENE LEPIANE HANLON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
TERRY J. OWENS)	
Administrative Patent Judge)	

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APPLICATION NO. 07/956,529

APJ HANLON

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DECISION: **ED**

Typed By: Jenine Gillis

DRAFT TYPED: 26 Apr 99

FINAL TYPED:

JENINE GILLIS

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Serial No. 07/956,529

Judge HANLON

Judge DOWNEY

Judge OWENS

Received: 09 Jun 98

Typed: 10 Jun 98

DECISION: AFFIRMED-IN PART

Send References: Yes No

Panel Change: Yes No

3-Person Conf. Yes No

Heard: Yes No

Remanded: Yes No

Index Sheet-2901 Rejection(s): _____

Acts 2: _____

Palm: _____

Mailed:

Updated Monthly Disk: _____

Updated Monthly Report: _____