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ROHM AND HAAS COMPANY
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EXAMINER

HUANG, CHENG YUAN

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* VIVEK KALIHARI and JOHN A. ROPER III

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Appeal 2017-004985  
Application 14/226,872  
Technology Center 1700

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Before TERRY J. OWENS, MONTÉ T. SQUIRE, and BRIAN D. RANGE,  
*Administrative Patent Judges.*

RANGE, *Administrative Patent Judge.*

DECISION ON APPEAL

SUMMARY

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–6 and 8–13. We have jurisdiction. 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> Appellant is the Applicant, Dow Global Technologies LLC. According to the Appeal Brief, the real party in interest is “ROHM AND HAAS COMPANY and DOW GLOBAL TECHNOLOGIES LLC.” Appeal Br. 4.

## STATEMENT OF THE CASE<sup>2</sup>

Appellant describes the invention as relating to pigmented paper coating with improved brightness. Spec. 1:2. The Specification explains that titanium dioxide (TiO<sub>2</sub>) is known as a pigment to improve optical properties of a paper coating. *Id.* at 1:4–5. Phosphate or phosphonate are known to enhance adsorptivity of binder to the titanium oxide, but phosphate and phosphonate contain impurities that are of concern to, for example, the Food and Drug Administration. *Id.* at 1:25–31. Appellant thus seeks a paper coating formulation with enhanced brightness but without requiring phosphate and phosphonate functionalized binders. *Id.* at 1:31–2:3. Claim 1, reproduced below with formatting modified for readability and emphasis added to certain key recitations, is the only independent claim on appeal and is illustrative of the claimed subject matter:

1. A laminate comprising  
coated or uncoated paper or paperboard;  
and a 5- to 35- $\mu$ m thick layer of a film adhered to the  
coated or uncoated paper or paperboard;  
wherein the film comprises
  - a) from 3 to 25 weight percent of a  
polymeric binder;
  - b) from 5 to 35 weight percent TiO<sub>2</sub>; and
  - c) **from 0.05 to 2 weight percent  
tetrapotassium pyrophosphate;**wherein the polymeric binder comprises vinyl  
acetate, vinyl-acrylic, or styrene-acrylic polymer,  
or blends thereof; and

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<sup>2</sup> In this Decision, we refer to the Final Office Action dated June 10, 2016 (“Final Act.”), the Appeal Brief filed September 12, 2016 (“Appeal Br.”), and the Examiner’s Answer dated December 14, 2016 (“Ans.”).

wherein the weight percentages are all based on  
the weight of the film.

Appeal Br. 17 (Claims App.).

#### REFERENCES

The Examiner relies upon the prior art below in rejecting the claims  
on appeal:

Kruse et al. ("Kruse")	US 4,892,787	Jan. 9, 1990
Ercillo et al. ("Ercillo")	US 5,827,609	Oct. 27, 1998
Wen et al. ("Wen")	US 2003/0024437 A1	Feb. 6, 2003
Hua et al. ("Hua")	US 2005/0123761 A1	June 9, 2005
Hiscock et al. ("Hiscock")	US 2006/0207737 A1	Sep. 21, 2006
Jensen et al. ("Jensen")	WO 2000/0032700 A1	June 8, 2000
Mukkamala	EP 1 911 881 A1	April 16, 2008

#### REJECTIONS

The following rejections are before us on appeal:

Rejection 1. Claims 1–6, 8, 9, and 12 under 35 U.S.C. § 103 as  
unpatentable over Mukkamala in view of Hua as evidenced by Ercillo.  
Ans. 2.

Rejection 2. Claims 10, 11, and 13 under 35 U.S.C. § 103 as  
unpatentable over Mukkamala in view of Hua and further in view of  
Hiscock. *Id.* at 4.

Rejection 3. Claims 1–6, 8, 9, and 12 under 35 U.S.C. § 103 as  
unpatentable over Wen in view of Mukkamala and Kruse. *Id.* at 4.

Rejection 4. Claims 10, 11, and 13 under 35 U.S.C. § 103 as unpatentable over Wen in view of Mukkamala, Kruse, and Hiscock. *Id.* at 8.

Rejection 5. Claims 1–3, 5–6, 10, and 11 on the ground of nonstatutory double patenting as being unpatentable over claims 7 and 8 of copending Application No. 14/207,810 in view of Jensen. *Id.* at 9.

#### ANALYSIS

Rejections 1 and 2. The Examiner rejects claims 1–6, 8, 9, and 12 as obvious over Mukkamala in view of Hua as evidenced by Ercillo. Ans. 2. The Examiner applies the same combination to claims 10, 11, and 13 in further view of Hiscock. *Id.* at 4.

The Examiner finds that Mukkamala teaches a laminate (coated paper and paperboard) with composition and ranges overlapping those of claim 1 except that Mukkamala fails to teach that its dispersant is tetrapotassium pyrophosphate. Ans. 2 (citing Mukkamala). The Examiner makes use of Ercillo to calculate the thickness of the Mukkamala film. *Id.* The Examiner finds that Hua teaches a laminate for paper that makes use of 0.05 to 3 weight percent tetrapotassium pyrophosphate (TKPP) dispersant). *Id.* at 3. The Examiner determines that it would have been obvious to combine the teachings of Mukkamala and Hua and provides the following explanation:

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to include tetrapotassium pyrophosphate, including amount as presently claimed, in the dispersant of Mukkamala in order to serve as a surface activating agent and allow production of pigments having improved light stability (Hua et al., paragraph [0038]).

*Id.*

Appellant argues that Mukkamala does not strictly require dispersant but instead indicates that, if dispersant is used, its amount should be minimized. Appeal Br. 8–9. Appellant argues that Hua provides many different choices for dispersants. *Id.* at 10.<sup>3</sup> Appellant argues that Hua teaches removing dispersant before reaching its final composition. *Id.* at 12. Appellant further argues that the Examiner has not shown that a person of skill would understand that using Hua’s TKPP with Mukkamala would result in improved brightness and that the Examiner has not adequately considered the context of Mukkamala when combining Hua’s TKPP. *Id.* at 9, 11.

On the whole, we agree with Appellant that the Examiner has not adequately explained why a person of skill in the art would have used Hua’s TKPP in Mukkamala’s laminate. In particular, Appellant presents evidence that because of TKPP’s water solubility, a person of skill in the art would not have considered TKPP suitable for Mukkamala’s polymer preparation. July 23, 2015, Declaration of Dr. John Roper (“Roper Decl.”), ¶ 6. The Examiner has not adequately explained why this testimony is incorrect or why a person of skill in the art would have nonetheless reached the proposed combination. In view of Dr. Roper’s testimony, the preponderance of the evidence does not support that a person of skill in the art would have reason

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<sup>3</sup> We note that although Hua teaches many possible dispersants (referred to as surfactants in Hua and Wen), Hua names TKPP first when identifying a preferred dispersant. Hua ¶ 37. Wen is the similar. Wen ¶ 48. Accordingly, Appellant’s position that a person of skill in the art would not have been likely to choose TKPP from the possibilities of Hua (or Wen) is not persuasive.

to combine TKPP with Mukkamala's laminate with a reasonable expectation of success.

The Examiner's use of the other cited references does not cure this error. We therefore do not sustain these two rejections.

Rejections 3 and 4. The Examiner rejects claims 1–6, 8, 9, and 12 as obvious over Wen in view of Mukkamala and Kruse. Ans. 4. The Examiner applies the same combination to claims 10, 11, and 13 in further view of Hiscock. *Id.* at 8.

We review appealed rejections for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential), cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board's practice to require an applicant to identify the alleged error in the examiner's rejections.”). After considering the evidence presented in this Appeal and each of Appellant's arguments concerning these two rejections, we are not persuaded that Appellant identifies reversible error. Thus, we affirm these two rejections for the reasons expressed in the Final Office Action and the Answer. We add the following primarily for emphasis.

With respect to the rejections based on Wen, Appellant do not substantively argue recitations of any of the dependent claims. We therefore limit our discussion to claim 1. All remaining claims stand or fall with that claim. 37 C.F.R. § 41.37(c)(1)(iv) (2013).

The Wen reference has similar teachings to Hua, but the rationale of the Examiner's rejection is substantially different. The Examiner finds that Wen teaches a laminate having, for example, overlapping ranges of titanium

dioxide and TKPP. Ans. 4 (citing Wen); *see also* Wen Abstract (indicating Wen’s pigment may be used with paper), ¶ 2 (same). The Examiner finds that Wen fails to teach 3 to 25 weight percent of a polymeric binder. Ans. 4. Mukkamala teaches a laminate comprising 5 to 35 weight percent of a polymeric binder. Ans. at 5 (citing Mukkamala). The Examiner determines:

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to include a polymeric binder, including amount presently claimed, in the composition of Wen et al. in view of Kruse et al. in order to impart film-forming characteristics (Mukkamala, paragraph [0075]).

Appeal Br. 5. The Examiner relies on Kruse to reach the layer thickness of claim 1. Ans. 5–6 (citing Kruse).

Appellant argues that Wen and Hua use similar approaches and argues that “Wen brings nothing new to the table except an explicit teaching away from optimizing spacing of TiO<sub>2</sub> particles using simple blends such as TiO<sub>2</sub> slurry and TKPP.” Appeal Br. 13–14. Appellant also argues that neither Hua nor Wen discloses films with spacers. *Id.*

Appellant’s arguments are unpersuasive. Appellant fails to persuasively rebut the Examiner’s stated reason why a person of skill in the art would have combined the teachings of Mukkamala (i.e., in order to impart film-forming characteristics). Appellant’s argument regarding spacers is unpersuasive because claim 1 does not recite or require a lack of spacers. Contrary to what Appellant implies, claim 1 also does not recite or require a “simple blend.” Rather, claim 1 is a comprising claim and permits inclusion of unrecited spacers.

Appellant also argues unexpected results and relies on the Roper Declaration to support this argument. Appeal Br. 14–16. The Examiner

finds that the Appellant has not provided evidence to show unexpected results across the claimed thicknesses and has not provided evidence that thickness is not important. Ans. 14–17. The Examiner also finds that Appellant has not established unexpected results (improved brightness) at a TKPP value above 0.67. *Id.* at 17–18. The evidence supports the Examiner’s position. *See, e.g.*, Roper Decl. ¶¶ 9–14 (failing to establish unexpected results across claimed range of thicknesses and failing to establish unexpected results above 0.67 wt % TKPP).

Appellant also does not persuasively establish that the improved brightness really would have been unexpected to a person of ordinary skill in the art. While Appellant does explain that the inventor did not initially think to use TKPP (Roper Decl. ¶ 9), the record lacks evidence as to why a person of skill in the art would not have expected TKPP to have better brightness.

Overall, Appellant’s unexpected results argument is unpersuasive because evidence of unexpected results commensurate in scope with the claims and evidence that the results are truly unexpected is lacking. *See In re Peterson*, 315 F.3d 1325, 1330–31 (Fed. Cir. 2003) (explaining that applicant may overcome a *prima facie* case of obviousness by showing unexpected results but showing of unexpected results “must be commensurate in scope with the claims which the evidence is offered to support”) (internal quotes and citation omitted).

Because Appellant does not establish reversible error, we sustain these rejections.

Rejection 5. Appellant does not dispute the Examiner’s obviousness type double patenting rejection of claims 1–3, 5–6, 10, and 11. Appeal Br. 16. We thus summarily sustain this rejection.

DECISION

For the above reasons, we reverse the Examiner's rejections of (1) claims 1–6, 8, 9, and 12 under 35 U.S.C. § 103 as unpatentable over Mukkamala in view of Hua as evidenced by Ercillo and (2) claims 10, 11, and 13 under 35 U.S.C. § 103 as unpatentable over Mukkamala in view of Hua and further in view of Hiscock.

We affirm the Examiner's rejections of claims (3) claims 1–6, 8, 9, and 12 under 35 U.S.C. § 103 as unpatentable over Wen in view of Mukkamala and Kruse, (4) claims 10, 11, and 13 under 35 U.S.C. § 103 as unpatentable over Wen in view of Mukkamala, Kruse, and Hiscock, and (5) claims 1–3, 5–6, 10, and 11 on the ground of nonstatutory double patenting as being unpatentable over claims 7 and 8 of copending Application No. 14/207,810 in view of Jensen.

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

AFFIRMED