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SERVILLA WHITNEY LLC
33 WOOD AVE SOUTH
SUITE 830
ISELIN, NJ 08830

EXAMINER	
TAI, XIUYU	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT D. SCHILLER and KEVIN M. SCHOCK

Appeal 2019-001577
Application 14/441,430
Technology Center 1700

Before MARK NAGUMO, JEFFREY B. ROBERTSON, and MICHAEL G. McMANUS, *Administrative Patent Judges*.

ROBERTSON, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

STATEMENT OF THE CASE

Appellant[2] appeals under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 3 and 5–11. (*See* Appeal Br. 6.) We have jurisdiction pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

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[1] This Decision includes citations to the following documents: Specification filed May 7, 2015 ("Spec."); Final Office Action mailed April 5, 2018 ("Final Act."); Appeal Brief filed September 5, 2018 ("Appeal Br."); Examiner's Answer mailed November 9, 2018 ("Ans."); and Reply Brief filed December 14, 2018 ("Reply Br.").

[2] We use the word "Appellant" to refer to "Applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as BASF Coatings GmbH. (Appeal Br. 3.)

THE INVENTION

Appellant states the invention relates to organic electrocoat coating compositions and methods. (Spec. ¶ 2.)

Claim 3 is representative and reproduced below from the Claims Appendix to the Appeal Brief:

> 3. An aqueous coating composition comprising a cathodically electrodepositable binder comprising a principal resin and a blocked polyisocyanate crosslinker, wherein the aqueous coating composition further comprises zirconium silicate and a catalyst consisting essentially of a member that is one or more of bismuth lactate, bismuth dimethylpropionate, bismuth subnitrate, bismuth subsalicylate, and mixtures thereof; wherein the zirconium silicate comprises a primary particle size in a range of greater than 1 μm to about 10 μm.

(Appeal Br. (Claims Appendix) 13.)

Claim 6 is also independent and recites an aqueous coating composition including a cathodically electrodepositable binder, zirconium silicate having the same particle size range as recited in claim 3, a bismuth compound other than bismuth hydroxide, where the "coating composition is free of tin compounds and free of bismuth hydroxide." (*Id*.)

REJECTION

The Examiner rejected claims 3 and 5–11 under pre-AIA 35 U.S.C. § 103(a) as obvious over Kawaraya et al. (US 2007/0149655 A1, published June 28, 2007, hereinafter "Kawaraya") and Grosse Brinkhaus et al. (US 2011/0094890 A1, published April 28, 2011, hereinafter "Grosse Brinkhaus"). (Final Act. 3–4.)

We select independent claims 3 and 6 for disposition of this appeal, which are representative of the subject matter claimed, and decide the appeal

on the basis of the arguments presented for these claims (*see* Appeal Br. 9–12). 37 C.F.R. § 41.37(c)(1)(iv).

ISSUES

The Examiner found Kawaraya discloses a cationic electrodeposition composition in an aqueous medium including a resin, blocked isocyanate cross-linker, and at least one metallic compound such as zirconium silicate, where the particle size of the metallic compound ranges from 60 nm to 4500 nm (0.06 microns to 4.5 microns), which overlaps the claimed range. (Final Act. 3.) The Examiner found Kawaraya does not disclose the electrodeposition composition comprises a bismuth compound as a catalyst. (*Id.*) The Examiner found Grosse Brinkhaus discloses aqueous electrodeposition compositions includes a binder having a resin and blocked isocyanates and a bismuth subnitrate catalyst, which Gross Brinkhaus discloses can lower the baking temperatures of the film and produce a surface free from defects with outstanding corrosion resistance. (*Id.*) Therefore, the Examiner determined it would have been obvious to include a catalyst of bismuth subnitrate as suggested by Grosse Brinkhaus. (*Id.* at 3–4.) The Examiner stated also the combination of Kawaraya and Grosse Brinkhaus is free from tin compounds and bismuth hydroxide as recited in claim 6. (*Id.* at 4.)

Appellant argues Kawaraya excludes metallic compounds with particle sizes of greater than 1 μm to about 10 μm as recited in claim 3, as evidenced by certain examples in Kawaraya where metallic compounds having particle sizes greater than 1000 nm (1 μm) did not meet Kawaraya's specified criteria with respect to corrosion resistance, finished appearance,

and paint stability. (Appeal Br. 9–10.) Appellant also argues the Examiner's reasoning for combining the prior art is based on insufficient rational underpinnings because Kawaraya does not exemplify zirconium silicate particles of greater than 1 μm to about 10 μm, and the different purposes of the zirconium silicate in Kawaraya as compared to the present claims is represented by the difference in particle sizes. (*Id.* at 10.) Regarding claim 3, Appellant argues the Examiner's rationale to use bismuth subnitrate to lower baking temperature is not supported because Kawaraya already discloses adequate baking temperatures, and the baking temperatures in Kawaraya are lower than baking temperatures disclosed in Gross Brinkhaus that exhibited poor solvent resistance. (*Id.* at 10–11.) Regarding claim 6, Appellant argues also Kawaraya does not disclose or suggest a coating composition free of bismuth hydroxide. (*Id.* at 11–12.)

Accordingly, the dispositive issues with respect to this rejection are:

Has Appellant identified a reversible error in the Examiner's determination that it would have been obvious to have formulated an aqueous composition including zirconium silicate having a primary particle size of greater than 1 μm to about 10 μm and a bismuth subnitrate catalyst in view of Kawaraya and Gross Brinkhaus as recited in claim 3?

Has Appellant identified a reversible error in the Examiner's determination that it would have been obvious to have formulated an aqueous composition "free of tin compounds and bismuth hydroxide" in view of Kawaraya and Gross Brinkhaus as recited in claim 6?

DISCUSSION

Issue 1

We are unpersuaded by Appellant's argument zirconium silicate having a particle of greater than 1 μm to about 10 μm would not have been obvious in view of Kawaraya. As the Examiner found, Kawaraya discloses several examples according to the invention including metal compounds having particle sizes up to 4500 nm (4.5 μm), which overlap the particle size ranges recited in claim 3. (Kawaraya, Table 5 (Examples 5–7), *see* Tables 2, 3; ¶¶ 71, 72.) We are not persuaded by Appellant's argument Kawaraya's Examples 5–7 "did not excel in all parameters of finished appearance, corrosion resistance, and exposure resistance" compared to Examples 1 and 2 (Appeal Br. 9–10, (emphasis omitted)), because Kawaraya discloses Examples 5–7 are according to the invention and not as comparative examples. (Kawaraya, ¶¶ 71–73, compare Table 5 with Table 6.) Thus, we are not persuaded by Appellant's argument that Kawaraya discloses different particle sizes than recited in claims 3 and 6.

Even if we were to agree with Appellant that Kawaraya discloses particle sizes above 1000 nm (1 μm) are unsuitable by virtue of the 1–1000 nm range (Kawaraya, ¶ 12), the range recited in claim 1 of "greater than 1 μm to about 10 μm" is "so close that prima facie one skilled in the art would have expected them to have the same properties." *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 783 (Fed. Cir. 1985). In this regard, the Specification does not disclose any particular criticality to the particle size of "about 1 μm to about 10 μm" disclosed therein, and states the slurry may be processed "until solid particles reach a desired particle size." (Spec. ¶ 18.)

In addition, we are unpersuaded by Appellant's argument Kawaraya does not exemplify zirconium silicate, because Kawaraya discloses electrodeposition paint including a metallic compound, which Kawaraya discloses can be zirconium silicate. (Kawaraya ¶¶ 10, 11.) Moreover, we are not persuaded by Appellant's argument the metallic compounds in Kawaraya are added for a different purpose than for the instant claims. As stated by the Supreme Court in *KSR*, "[i]n determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007).

We are unpersuaded also by Appellant's argument there is insufficient rational underpinning to apply the bismuth subnitrate catalyst disclosed in Grosse Brinkhaus in the method of Kawaraya. As discussed above, the Examiner's rationale relies on Grosse Brinkhaus for the use of a bismuth subnitrate catalyst, which can lower the baking temperature of the film and form a resulting film free from surface defects with outstanding corrosion resistance. (Final Act. 3, Grosse Brinkhaus ¶¶ 4, 6.) Although Appellant contends Kawaraya discloses baking temperatures already lower than the baking temperatures disclosed in Grosse-Brinkhaus to be unsuitable for producing crosslinked baked paint films (Reply Br. 3, citing Kawaraya ¶¶ 47, 54; Grosse Brinkhaus ¶¶ 58–61, Table 1), Kawayara's temperature range of 100 °C to about 200 °C (¶ 47) is a general range, and also includes temperatures higher than 165 °C, which is disclosed in Gross Brinkhaus as a lower baking temperature obtained by using bismuth subnitrate. (Grosse Brinkhaus Table 1.) In addition, Appellant does not present any argument

with respect to the Examiner's rationale that by using bismuth subnitrate as a catalyst, the resulting film provides outstanding corrosion resistance. Indeed, Grosse Brinkhaus discloses bismuth catalysts are preferentially used as crosskinking catalysts in electrocoat materials for corrosion control. (Grosse Brinkhaus, ¶ 2.) Thus, we are not persuaded by Appellant's arguments there is insufficient basis to support the Examiner's reasoning.

Issue 2

We are unpersuaded by Appellant's argument Gross Brinkhaus does not disclose coating compositions free of bismuth hydroxide. Rather, we agree with the Examiner that because Kawaraya discloses compositions where metallic compounds are selected from bismuth hydroxide, zirconium compounds including zirconium silicate, and tungsten compounds (¶¶ 7, 11), Kawaraya contemplates compositions where zirconium silicate is used as the metallic compound alone, and that composition would be free of bismuth hydroxide. (Ans. 9.)

As to the recitation in claim 6, "the coating composition is free of tin compounds," although Appellant contends Kawaraya discloses "best performing examples" use bismuth hydroxide in the presence of dioctyltin oxide (Appeal Br. 12), the Examiner points to Kawaraya, which discloses expressly that tin compounds, such as dioctyltin oxide can be omitted. (Ans. 9, Kawaraya ¶ 17.) Thus, we are not persuaded by Appellant's arguments regarding claim 6.

In sum, we affirm the Examiner's rejection of claims 3 and 5–11.

DECISION

Claims Rejected	Basis	Affirmed	Reversed
3 and 5–11	§ 103 Kawaraya and Gross Brinkhaus	3 and 5–11	
Overall Outcome		3 and 5–11	

FINALITY AND RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED