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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MASAHIKO TANAKA, MIYOKO OGIHARA, and JUNKO KAKO

Appeal 2020-002304
Application 14/383,010
Technology Center 1600

Before JEFFREY N. FREDMAN, DEBORAH KATZ, and DAVID COTTA, *Administrative Patent Judges*.

KATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] seeks our review, under 35 U.S.C. § 134(a), of the Examiner's decision to reject claims 1, 2, 5, 10 and 17.[2] We have jurisdiction under 35 U.S.C. § 6(b). We REVERSE.

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[1] We use the word "Appellant" as defined in 37 C.F.R. § 1.42. Appellant identifies Otsuka Pharmaceutical Co., Ltd. as the real party in interest. (Appeal Br. 3.)

[2] We consider the Final Office Action mailed January 14, 2019 ("Final Act."); the Appeal Brief filed August 15, 2019 ("Appeal Br."); the Examiner's Answer mailed on November 29, 2019 ("Ans."); the Reply Brief filed January 28, 2020 ("Reply Br."); and the oral argument held on October 1, 2020, in reaching our decision.

The Examiner rejected claims 1, 2, 5, 10, and 17 under 35 U.S.C. § 103(a) as being obvious over Liu,[3] Caetano,[4] and optionally Shinohara[5] or Hüttinger.[6] (Final Act. 4–8.)

Appellant's Specification is directed to sunscreen compositions. (Spec. ¶ 1.)

Appellant's claim 1, with bracketed numbers added for clarity, recites:

> A sunscreen composition free from a metal oxide comprising [1] three or more oil-soluble ultraviolet absorbers, [2] composite silicone particles having an average particle diameter of 10 μm or less, and [3] an electrolyte,
>
> wherein:
>
> [1] the oil-soluble ultraviolet absorbers are at least three members selected from the group consisting of ethylhexyl methoxycinnamate, octocrylene, diethylamino hydroxybenzoyl hexyl benzoate, and polysilicone-15,
>
> [2] the composite silicone particles are composite silicone particles in which silicone rubber is coated with a silicone resin, and
>
> [3] the electrolyte is at least one electrolyte selected from the group consisting of sodium chloride, magnesium chloride, calcium chloride, adenosine phosphate and salts thereof, ascorbic acid and salts thereof, glucoside ascorbate and salts thereof, and sodium ascorbyl phosphate,
>
> [1] the oil-soluble ultraviolet absorbers are contained in an amount of 10 to 25 wt.%,
>
> [2] the composite silicone particles are contained in an amount of 4 to 20 wt.%,

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[3] Liu et al., U.S. Patent Application Publication 2007/0173599 A1, published July 26, 2007.
[4] Caetano et al., International Patent Application Publication WO 2009/067095 A1, published May 28, 2009.
[5] Shinohara et al., International Patent Application Publication WO 2010/147238 A1, published December 23, 2010.
[6] Huttinger et al., U.S. Patent 4,698,178, issued October 6, 1987.

> [3] the electrolyte is contained in an amount of 0.5 to 5 wt.%,
>
> the sunscreen composition is in the form of a water-in-oil type (W/O) emulsion, and
>
> the sunscreen composition is in a reversible separation state which is separated into two layers when allowed to stand and returns to a homogeneous single-layer emulsion form by shaking.

(Appeal Br. 20.) Thus, Appellant's claim 1 recites a sunscreen composition free from a metal oxide and including three ingredients present within recited ranges.

The Examiner finds, and we agree, that Liu teaches water-in-oil emulsions comprising particle silicone elastomers and oil soluble UV protection agents, both in concentrations encompassing or overlapping with the ranges recited in claim 1. (*See* Final Act. 4; *see* Liu Abstract, ¶¶ 14, 35, 38, 53, 56, p. 8.) We also agree that Liu teaches including electrolytes recited in claim 1, such as ascorbic acid, specifically sodium ascorbyl phosphate, in the composition at concentrations from about 0.001% to about 30%. (*See* Final Act. 4; *see* Liu ¶¶ 74, 76, 77.) We agree, further, that Caetano teaches using one or more sunscreens in compositions for the skin, including suncreens recited in claim 1. (*See* Caetano ¶ 78; *see* Final Act. 5.) Thus, Liu and Caetano together teach each of the separate components of the claimed sunscreen composition.

In addition, Liu teaches:

> It has been surprisingly found that the emulsifying silicone elastomer, when combined with the alkyl-substituted silicone emulsifier hereinafter described, provides a water-in-oil emulsion having improved stability and enhanced UV protection benefit.

> Herein, stability of the composition relates to stability of emulsion and stability of color/shade of the composition. Stability of emulsion means absence of phase separation and significant change in viscosity/rheology.

(Liu ¶¶ 21–22; *see* Appeal Br. 8.) Appellant argues that one of ordinary skill in the art would not have considered that "disclosure like that of Liu, which teaches compositions having an 'absence of phase separation' (Liu at ¶¶ [0021]-[0022]), could be relied upon to productively advance efforts toward a composition as claimed, which is 'separated into two layers when allowed to stand.'" (*See* Appeal Br. 8–9.)

Although we disagree with Appellant that Liu necessarily teaches a composition with the *absence* of phase separation, we agree that Liu teaches less phase separation is preferable. As the Examiner states: "It appears more likely that Liu would be desiring the absence of an irreversible phase separation (a composition that would not be able to return to a homogeneous emulsion form even by shaking) within its emulsion rather than teaching away from a composition with a reversible separation state." (Ans. 4.) Thus, the Examiner seems to acknowledge that the goal of Liu, to decrease separation, is not the same as the goal of Appellant's claimed composition, to achieve a "reversible separation state which is separated into two layers when allowed to stand and returns to a homogeneous single-layer emulsion form by shaking."

The Examiner finds that the properties of the sunscreen composition recited in claim 1 would naturally flow from the teachings of the prior art because all of the ingredients and structural features of the recited in formulation are taught and including an electrolyte as claimed would cause

the composition to exhibit a reversible separation state. (*See* Final Act. 7–8, citing Spec. ¶ 107 (Table 8).) Even if, though, Liu teaches each of the components, it does not exemplify a composition that includes each of them in concentration within the ranges recited in claim 1. Instead, to arrive at the claimed composition one would have to choose an electrolyte "in an amount of 0.5 to 5 wt.%" from the range of 0.001 – 10% taught in Liu. (*See* Liu ¶ 74.)

Although such choosing is normally acceptable under a rejection for obviousness under 35 U.S.C. § 103, Liu teaches that "[t]he type and amount of skin active agents are selected so that the inclusion of a specific agent does not affect the stability of the composition." (Liu ¶ 75.) Thus, even though the teachings of individual ingredients in a sunscreen composition encompass the individual ingredients recited in claim 1, Liu teaches to not choose an ingredient that would affect the stability, that is, the phase separation, of the composition. (*See id.* at ¶ 22.)

The Examiner cites Wakamatsu to show that it was known at the time of filing that electrolytes can cause the separation of the water phase from the oil phase and thus affect phase separation. (*See* Final Act. 9, citing Wakamatsu ¶ 2.) In light of this finding, we are not persuaded that one of ordinary skill in the art would have chosen a concentration of sodium ascorbyl phosphate or any other electrolyte to achieve a sunscreen composition "in a reversible separation state which is separated into two layers when allowed to stand and returns to a homogeneous single-layer emulsion form by shaking" as claimed because Liu teaches that more stable compositions are preferable. (*See* Liu ¶¶ 21, 22, 75.) We are persuaded that

if one were to follow the teachings of Liu, there would be no reason to choose an electrolyte as recited in claim 1.

The Examiner cites Shinohara for its teaching to include purine nucleic acids, including adenosine phosphates, in skin compositions to prevent water loss. (*See* Final Act. 5–6, citing Shinohara 7:26–29, 8:22–32, 10:16–18.) Similarly, the Examiner cites to Hüttinger for its teaching to include sodium chloride as an electrolyte at 2 weight % in water-in-oil emulsions for cosmetics. (*See* Final Act. 6, citing Hüttinger 1:10–13, 2:40–48, 4:56–60.) We agree with the Examiner that both Shinohara and Hüttinger provide reasons to include electrolytes in a composition for the skin other than to affect the stability of the emulsion. But we are not persuaded that one of ordinary skill in the art would have modified the composition taught in Liu to include these electrolytes because it was known that such electrolytes would also alter the stability of the emulsion and Liu expressly states that skin active agents should be selected so that they do not affect the stability of the composition.

Accordingly, we disagree with the Examiner that one of ordinary skill in the art would have considered the claimed sunscreen composition to be obvious over either Liu or the combination of Liu and either Shinohara or Hüttinger.

Conclusion

Upon consideration of the record and for the reasons given, we reverse the Examiner's rejection.

In summary:

Claims Rejected	35 U.S.C. §	Basis/Reference(s)	Affirmed	Reversed
1, 2, 5, 10, 17	103(a)	Liu, Caetano, optionally Shinohara or Hüttinger		1, 2, 5, 10, 17

REVERSED