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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/934,789	11/06/2015	Thomas F. Kauffman	AH-016-US-02	9688
27091	7590	02/10/2020	EXAMINER	
H.B. FULLER COMPANY Patent Department 1200 WILLOW LAKE BLVD. P.O. BOX 64683 ST. PAUL, MN 55164-0683			HOCK, ELLEN SUZANNE	
			ART UNIT	PAPER NUMBER
			1782	
			NOTIFICATION DATE	DELIVERY MODE
			02/10/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte THOMAS F. KAUFFMAN, SCOTT C. SCHMIDT, CLAUDIA
MOSANU, TIMOTHY W. ROSKA, AMANDA L. SCHMIT,
SHARF U. AHMED, and GARY J. ROY

Appeal 2018-008680
Application 14/934,789
Technology Center 1700

Before KAREN M. HASTINGS, MICHAEL P. COLAIANNI, and
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ requests our review under 35 U.S.C. § 134(a) of the Examiner's decision to finally reject claims 1–28.² We have jurisdiction over this appeal under 35 U.S.C. § 6(b). We heard oral arguments from Appellant's representative on January 23, 2020.

We AFFIRM IN PART and enter a NEW GROUND OF REJECTION pursuant to 37 C.F.R. § 41.50(b).

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies H.B. Fuller Company as the real party in interest. Appeal Brief filed May 3, 2018 (“Appeal Br.”) at 3.

² Final Office Action entered December 8, 2017 (“Final Act.”).

CLAIMED SUBJECT MATTER

Appellant claims a hot melt adhesive composition. Appeal Br. 7–8. Claim 1 illustrates the subject matter on appeal, and is reproduced below with contested subject matter italicized:

1. A hot melt adhesive composition comprising:
at least 40% by weight of an *unmodified*, semi-crystalline *propylene polymer* comprising at least 50% by weight propylene;
at least 15% by weight non-functionalized wax, the non-functionalized wax being *selected from* the group consisting of *polyethylene wax, Fischer Tropsch wax, and combinations thereof*, the *non-functionalized wax comprising a first non-functionalized wax and a second non-functionalized wax different from the first non-functionalized wax*; and
no greater than 8% by weight of an ethylene-ethylenically unsaturated ester copolymer.

Appeal Br. Ai (Claims Appendix) (emphasis added).

REJECTIONS

The Examiner maintains the following rejections in the Examiner’s Answer entered August 13, 2018 (“Ans.”):

- I. Claims 1–13 and 18–23 under 35 U.S.C. § 102(a)(1) as anticipated by Tse et al. (WO 2012/051239 A1, published April 19, 2012);
- II. Claims 24–26 under 35 U.S.C. § 102(a)(1) as anticipated by, or alternatively, under 35 U.S.C. § 103 as obvious over, Tse;
- III. Claims 1, 2, 4–11, 13, 14, 18, and 26–28 under 35 U.S.C. § 102(a)(1) as anticipated by Rodriguez et al. (US 2010/0132886 A1, published June 3, 2010); and
- IV. Claims 15–17 under 35 U.S.C. § 102(a)(1) as anticipated by, or alternatively, under 35 U.S.C. § 103 as obvious over, Rodriguez.

FACTUAL FINDINGS AND ANALYSIS

Upon consideration of the evidence relied upon in this appeal and each of Appellant's contentions, we do not sustain the Examiner's rejection of claims 1–13 and 18–23 under 35 U.S.C. § 102(a)(1) as anticipated by Tse (Rejection I). We, however, enter a new ground of rejection against claim 1 under U.S.C. § 103 as unpatentable over Tse, for the reasons discussed below. We sustain the Examiner's rejection of claims 24–26 under 35 U.S.C. § 103 as obvious over Tse (Rejection II), but designate our affirmance as including new grounds of rejection, for the reasons discussed below. We do not reach the Examiner's alternative rejection of claims 24–26 under 35 U.S.C. § 102(a)(1) as anticipated by Tse, because this rejection is cumulative to the rejection of these claims under 35 U.S.C. § 103 as obvious over Tse. We sustain the Examiner's rejection of claims 1, 2, 4–11, 13, 14, 18, 26, and 28 under 35 U.S.C. § 102(a)(1) as anticipated by Rodriguez, but reverse the Examiner's rejection of claim 27 under 35 U.S.C. § 102(a)(1) as anticipated by Rodriguez (Rejection III). We do not sustain the Examiner's rejection of claims 15–17 under 35 U.S.C. § 102(a)(1) as anticipated by, or alternatively, under 35 U.S.C. § 103 as obvious over, Rodriguez (Rejection IV).

We review appealed rejections for reversible error based on the arguments and evidence the appellant provides for each issue the appellant identifies. 37 C.F.R. § 41.37(c)(1)(iv); *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) (explaining that even if the Examiner had failed to make a prima facie case, “it has long been the Board's practice to require an applicant to identify the alleged error in the examiner's

rejections”)).

Rejection I

We first address the Examiner’s rejection of claims 1–13 and 18–23 as anticipated by Tse. Appellant presents arguments for claim 1 only, to which we accordingly limit our discussion. Appeal Br. 10–15; 37 C.F.R. § 41.37(c)(1)(iv).

Claim 1 recites a hot melt adhesive composition comprising, in part, a polypropylene polymer, a first non-functionalized wax, and a second non-functionalized wax different from the first non-functionalized wax. Claim 1 requires the first and second waxes to be selected from polyethylene wax, Fischer Tropsch wax, and combinations thereof.

The Examiner finds that Tse discloses an adhesive composition comprising at least one propylene-based copolymer and one or more waxes, which may be “the same or different types of waxes,” and “are non-functionalized, such as polyethylene wax, Fischer-Tropsch waxes, and combinations.” Final Act. 2–3 (citing Tse ¶¶ 11, 14, 20, 33, 140).

Appellant argues that Appellant’s Specification defines the term “wax” as “a polymer or an oligomer having a heat of fusion greater than 60 Joules per gram and a viscosity no greater than 750 centipoise (cP) at 190 °C.” Appeal Br. 12 (citing Spec. 7, ll. 3–5). Appellant argues that although Tse discloses polypropylene-based adhesive compositions that may optionally include a wax component, Tse does not teach that the “waxes should exhibit a heat of fusion greater than 60 J/g and a viscosity of no greater than 750 cP at 190 °C, as required by claim 1.” Appeal Br. 11–13.

Although Tse does disclose that the adhesive composition described in the reference may include one or more polyethylene waxes and/or

Fischer-Tropsch waxes (Tse ¶¶ 140, 142), the Examiner does not identify any disclosure in Tse that describes the heat of fusion or the viscosity of the polyethylene and Fischer-Tropsch waxes. The Examiner does point out in the Answer, however, that Tse discloses exemplary adhesive compositions that include POLYWAX 3000 (“PW3000”), and Appellant’s Specification discloses that POLYWAX 3000 is a “[u]seful polyethylene wax” for the hot melt adhesive composition of Appellant’s invention (Ans. 4–5), providing the Examiner with a reasonable basis for concluding that POLYWAX 3000 meets the definition of “wax” set forth in Appellant’s Specification. Spec. 11, ll. 3–10; *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977). None of Tse’s exemplary adhesive compositions include a Fischer-Tropsch wax, however, and the Examiner does not identify any disclosure in Tse of a Fischer-Tropsch wax having a heat of fusion and viscosity as prescribed by Appellant’s definition of “wax.” Nor does the Examiner provide evidence establishing that all Fischer-Tropsch waxes have a heat of fusion and viscosity within the ranges required by Appellant’s definition of “wax.”

Consequently, on the record before us, the Examiner does not provide a sufficient factual basis to establish that Tse discloses an adhesive composition comprising a first non-functionalized wax and a second non-functionalized wax different from the first non-functionalized wax, where each wax is selected from polyethylene wax, Fischer Tropsch wax, and combinations thereof, and has a heat of fusion greater than 60 J/g and a viscosity of no greater than 750 cP at 190 °C, as required by claim 1.

We, accordingly, do not sustain the Examiner’s rejection of claim 1 and claims 2–13 and 18–23, which each depend from claim 1, under 35 U.S.C. § 102(a)(1) as anticipated by Tse. We, however, enter a new ground

of rejection against claim 1 under U.S.C. § 103 as unpatentable over Tse pursuant to our authority under 37 C.F.R. § 41.50(b), for reasons that follow.

Tse discloses a hot melt adhesive composition comprising from about 5% by weight to about 90% by weight of a propylene-based polymer that includes at least 60% by weight propylene, and has a crystallinity of from about 0.5% to about 50% (semi-crystalline propylene polymer). Tse ¶¶ 11, 13, 14, 20, 33. The propylene polymer content range disclosed in Tse of from about 5% by weight to about 90% by weight overlaps the range of “at least 40% by weight” propylene polymer recited in claim 1, rendering the recited range prima facie obvious. *In re Peterson*, 315 F.3d 1325, 1329–330 (Fed. Cir. 2003) (“In cases involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a prima facie case of obviousness”). And the propylene content of at least 60% by weight in the propylene-based polymer disclosed in Tse overlaps the range of “at least 50% by weight” propylene recited in claim 1, rendering the recited range prima facie obvious. *Peterson*, 315 F.3d at 1329–330.

Appellant’s Specification defines an “unmodified polymer” as “a polymer that has not been modified in the presence of a free radical initiator.” Spec. 7, ll. 8–9. Tse discloses that the propylene-based polymer may be “degraded” by treating the polymer with a free radical initiator to increase the melt flow rate of the polymer. Tse ¶ 42. Tse indicates, however, that such degradation of the polymer is optional, stating that the propylene-based copolymer component of Tse’s adhesive composition “*may* be a degraded (i.e., vis-broken) polypropylene-based polymer described herein.” Tse ¶ 48. Tse thus discloses an “unmodified” propylene-based

polymer, as defined in Appellant's Specification, by indicating that degradation of the propylene-based polymer by treatment with a free radical initiator is optional.

Tse discloses that the hot melt adhesive composition may include from about 1% to about 50% by weight of one or more waxes, which may be the same or different, and Tse discloses four preferred classes of suitable waxes, which include Fischer-Tropsch waxes and polyethylene waxes (non-functionalized waxes). Tse ¶¶ 140, 142, 147. The wax content range disclosed in Tse of from about 1% to about 50% by weight overlaps the range of "at least 15% by weight non-functionalized wax" recited in claim 1, rendering the recited range *prima facie* obvious. *Peterson*, 315 F.3d at 1329–330.

These disclosures in Tse would have suggested a hot melt adhesive composition having all the features recited in claim 1 to one of ordinary skill in the art before the effective filing date of Appellant's application, rendering the claimed composition *prima facie* obvious.

Although Appellant argues, in the context of addressing the rejection of claim 1 as anticipated by Tse, that one of ordinary skill in the art would have had to selectively pick and choose from the various passages in Tse to arrive at the composition of claim 1, including selecting a wax component from among more than eight classes of components that Tse discloses may optionally be included in Tse's adhesive composition (Appeal Br. 12–15), such picking and choosing from among Tse's disclosures is "entirely proper in the making of a [section] 103[] obviousness rejection." *In re Arkley*, 455 F.2d 586, 587–88 (CCPA 1972); *see also Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) ("That the '813 patent

discloses a multitude of effective combinations does not render any particular formulation less obvious. This is especially true because the claimed composition is used for the identical purpose.”).

Appellant also argues when addressing the anticipation rejection that Tse does not teach that Tse’s adhesive composition should include 1) at least 15% by weight non-functionalized wax that 2) exhibits a heat of fusion greater than 60 J/g and a viscosity of no greater than 750 cP, 3) is selected from the group consisting of polyethylene wax, Fischer Tropsch wax, and combinations thereof, and 4) includes two different non-functionalized waxes, as required by claim 1. Appeal Br. 13.

As discussed above, however, Tse disclose that the hot melt adhesive composition of Tse’s invention may include one or more waxes in an amount that overlaps the wax content range recited in claim 1, and Tse discloses that the waxes included in the composition may be the same or different. As also discussed above, Tse discloses that Fischer-Tropsch waxes and polyethylene waxes are two of the four preferred waxes suitable for use as the wax component in Tse’s adhesive composition. We find no disclosure in Tse indicating that any particular Fischer-Tropsch or polyethylene wax would be unsuitable for use in Tse’s adhesive composition. Consequently, Tse’s general disclosure of the suitability of Fischer-Tropsch waxes and polyethylene waxes as the wax component in Tse’s adhesive composition would have suggested that any and all Fischer-Tropsch waxes and polyethylene waxes could be used successfully in the composition for their intended purpose, including those that exhibit a heat of fusion greater than 60 J/g and a viscosity of no greater than 750 cP at 190°C.

Tse’s disclosures as a whole, therefore, would have suggested a hot

melt adhesive composition comprising at least 15% by weight of a first non-functionalized wax and a second non-functionalized wax different from the first non-functionalized wax, each of which is selected from polyethylene wax, Fischer Tropsch wax, and combinations thereof, and exhibits a heat of fusion greater than 60 J/g and a viscosity of no greater than 750 cP at 190°C, as required by claim 1.

Appellant further argues when addressing the anticipation rejection that Tse discloses exemplary functionalized waxes (EPOLENE C-16 and EPOLENE C-18) that have viscosities greater than 750 cP at 190°C, and Appellant contends that, consequently, “it is not the case that the term ‘wax’ as used by Tse et al. inherently refers to a polymer that exhibits a heat of fusion of greater than 60 J/g and a viscosity of no greater than 750 cP at 190°C.” Appeal Br. 13.

Claim 1, however, recites that the claimed adhesive composition comprises “*non-functionalized wax*” rather than functionalized wax. Thus, even if Tse discloses functionalized waxes that have viscosities greater than 750 cP at 190°C as Appellant asserts, such disclosure does not demonstrate that the *non-functionalized* waxes disclosed in Tse would not exhibit a heat of fusion of greater than 60 J/g and a viscosity of no greater than 750 cP at 190°C.

Appellant also argues in the context of addressing the anticipation rejection over Tse that “none of the example compositions of Tse et al. that include an unmodified propylene polymer include at least 15% by weight of a non-functionalized wax selected from the group consisting of polyethylene wax, Fischer Tropsch wax, and combinations thereof,” but, rather, “the maximum amount of non-functionalized polyethylene wax or Fischer

Tropsch wax in the Example compositions of Tse et al. is 8% by weight.”
Appeal Br. 13 (citing Tse Tables 6–14).

Tse’s disclosures are not limited to the experimental examples provided in the reference, however, and the entirety of Tse’s disclosures must be considered for what they would have fairly suggested to one of ordinary skill in the art at the time of Appellant’s invention. *In re Fracalossi*, 691 F.2d 792, 9974 n.1 (CCPA 1982) (explaining that a prior art disclosure is not limited to its examples); *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012) (“A reference must be considered for everything that it teaches, not simply the described invention or a preferred embodiment.”); *see also In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976) (“all disclosure of the prior art, including unpreferred embodiments, must be considered”).

As discussed above, although Tse may not exemplify an adhesive composition that includes at least 15% by weight of a first non-functionalized wax and a second non-functionalized wax different from the first non-functionalized wax, each of which is selected from polyethylene wax, Fischer Tropsch wax, and combinations thereof, *Tse’s disclosures as a whole* nonetheless would have suggested such a composition.

Because Tse would have suggested a hot melt adhesive composition having all the features recited in claim 1 to one of ordinary skill in the art before the effective filing date of Appellant’s application, we enter a new ground of rejection against claim 1 under 35 U.S.C. § 103 as obvious over Tse. We leave it to the Examiner to consider the patentability of claims 2–23, which each depend from claim 1, under 35 U.S.C. § 103 as obvious over Tse alone, or in combination with additional prior art. The fact that we do not

address claims 2–23 in our new ground of rejection of claim 1 should not be construed to mean that we consider these claims to be directed to subject matter patentable over Tse.

Rejection II

We turn now to the Examiner’s rejection of claims 24–26 under 35 U.S.C. § 102(a)(1) as anticipated by, or alternatively, under 35 U.S.C. § 103 as obvious over, Tse.

We affirm the Examiner’s rejection of claims 24–26 under 35 U.S.C. § 103 as obvious over Tse for the reasons discussed below. We designate our affirmance as including new grounds of rejection, however, because our reasons for affirmance differ materially from those expressed by the Examiner (Final Act. 9–10). *In re Leithem*, 661 F.3d 1316, 1319 (Fed. Cir. 2011) (“Mere reliance on the same statutory basis and the same prior art references, alone, is insufficient to avoid making a new ground of rejection where the Board relies on new facts and rationales not previously raised to the applicant by the examiner.”).

We need not reach the Examiner’s alternative rejection of claims 24–26 under 35 U.S.C. § 102(a)(1) as anticipated by Tse, because this rejection is cumulative to the rejection of these claims under 35 U.S.C. § 103 as obvious over Tse.

Claims 24 and 25

Claim 24 depends from claim 20, which depends from claim 1. Claim 20 recites that the hot melt adhesive composition of claim 1 comprises from 45% by weight to about 70% by weight unmodified, semicrystalline propylene polymer; from about 20% by weight to about 35% by weight non-functionalized wax; and from about 1% by weight to about

10% by weight functionalized wax. Claim 24 recites that the hot melt adhesive composition of claim 20 exhibits a heat stress resistance of greater than 60°C, greater than 50% fiber tear at -18°C, and greater than 50% fiber tear at 60°C.

Claim 25 depends from claim 20 and recites that the hot melt adhesive composition of claim 20 exhibits a viscosity of no greater than 1500 centipoise at 149°C.

As discussed above, Tse discloses a hot melt adhesive composition comprising at least 40% by weight of a propylene-based copolymer having a crystallinity of from about 0.5% to about 50% (semi-crystalline propylene polymer), and from about 1% to about 50% by weight of one or more waxes, such as Fischer-Tropsch waxes and polyethylene waxes (non-functionalized waxes). Tse ¶¶ 12, 14, 20, 33, 41, 48, 51, 140, 142, 147. Tse further discloses that the hot melt adhesive composition may comprise from 2% to 10% by weight of one or more functional waxes. Tse ¶¶ 80, 81, 82, 84, 91.

The propylene polymer content disclosed in Tse of at least 40% by weight encompasses the propylene polymer content range of from 45% by weight to about 70% by weight recited in claim 1, rendering the recited range prima facie obvious. *Peterson*, 315 F.3d at 1329–330. Similarly, the wax content range disclosed in Tse of from about 20% by weight to about 35% by weight overlaps the range of “at least 15% by weight non-functionalized wax” recited in claim 1, rendering the recited range prima facie obvious. *Id.* And the functionalized wax content range of 2% to 10% by weight disclosed in Tse overlaps the range of from about 1% by weight to about 10% by weight functionalized wax recited in claim 1, rendering the recited range prima facie obvious. *Id.*

Tse's disclosures as a whole, therefore, would have suggested a hot melt adhesive composition having the features recited in claim 20. Consequently, a reasonable basis exists for finding that such an adhesive composition suggested by Tse would have the properties recited in claims 24 and 25, and the burden shifts to Appellant to show otherwise. *In re Spada*, 911 F.2d 705, 709 (Fed. Cir. 1990) (“[W]hen the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.”); *Best*, 562 F.2d at 1255 (“Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. Whether the rejection is based on ‘inherency’ under 35 U.S.C. § 102, on ‘prima facie obviousness’ under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO’s inability to manufacture products or to obtain and compare prior art products.”).

On the record before us, Appellant does not meet this burden because Appellant does demonstrate through factual evidence that the adhesive composition suggested by Tse having the features recited in claim 20 would not have the properties recited in claims 24 and 25. Appeal Br. 23–26.

Rather, Appellant argues that because Tse does not expressly teach the composition of claim 24 or claim 25, and because none of the compositions of Tse’s experimental examples meet the limitations of claims 24 and 25, “there is no composition in Tse [] that could inherently exhibit the properties required by” claims 24 and 25. Appeal Br. 24–25. Appellant

argues that Tse does not teach that the properties recited in claim 24 “are important properties” for Tse’s hot melt adhesive composition, and does not teach or suggest how to achieve such properties, and, therefore, one of ordinary skill in the art would not have had a reason to attempt to formulate a composition having such properties, and would not have known how to do so. Appeal Br. 24. Appellant argues that “for the skilled artisan to even attempt to arrive at the composition of claim 25 from Tse [], he or she would have to make a series of selections” from Tse’s disclosures, and “[t]here is nothing in Tse [] that provides the requisite teaching, suggestion or reason that would motivate the skilled artisan to make these selections” necessary to arrive at the composition of claim 20 (and claim 25). Appeal Br. 25–26.

As discussed above, however, although Tse may not “expressly teach” a hot melt adhesive composition meeting the limitations of claim 20, from which claims 24 and 25 depend, Tse’s disclosures as a whole nonetheless would have suggested such a composition to one of ordinary skill in the art before the effective filing date of the present application. Any selecting from among Tse’s related disclosures (discussed above) to arrive at such a composition is “entirely proper” in the context of an obviousness analysis. *Arkley*, 455 F.2d at 587–88.

And although Tse may not explicitly teach that the hot melt adhesive composition of claim 20 exhibits the properties recited in claims 24 and 25, the fact that Appellant recognized that such a composition exhibits the recited properties does not impart patentability to the composition, because a composition having such properties would have naturally flowed from the suggestion stemming from Tse’s disclosures as a whole of such a composition (as discussed above). *PAR Pharm., Inc. v. TWI Pharm., Inc.*,

773 F.3d 1186, 1195 (Fed. Cir. 2014) (concept of inherency, when applied to obviousness, is present “when the limitation at issue is the ‘natural result’ of the combination of prior art elements”); *Ex parte Obiaya*, 227 USPQ 58, 60 (BPAI 1985) (“The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious.”); *In re Spada*, 911 F.2d 705, 709 (Fed. Cir. 1990) (explaining that a chemical composition and its properties are inseparable.)

We, accordingly, sustain the Examiner’s rejection of claims 24 and 25 under 35 U.S.C. § 103 as obvious over Tse.

Claim 26

Claim 26 recites “[a] package comprising: the hot melt adhesive composition of claim 1; a first substrate comprising fibers; and a second substrate comprising fibers, the second substrate bonded to the first substrate through the adhesive composition.”

Appellant argues that Tse does not teach the composition of claim 1, and Tse “also fail[s] to provide any reason, suggestion or motivation for making the selections required to attempt to arrive at the composition of claim 1 from which claim 26 depends.” Appeal Br. 26–27.

As discussed above, however, Tse’s disclosures as a whole would have suggested a hot melt adhesive composition as recited in claim 1. We further point out that Tse explicitly discloses that Tse’s hot melt adhesive composition “may be applied to any substrate,” such as spun bonded fibers, and may be applied using conventional coating techniques. Tse ¶¶ 164, 165. Tse’s disclosures as a whole, therefore, would have suggested a package as recited in claim 26,

We, accordingly, sustain the Examiner's rejection of claim 26 under 35 U.S.C. § 103 as obvious over Tse.

Rejection III

We next address the Examiner's rejection of claims 1, 2, 4–11, 13, 14, 18, and 26–28 as anticipated by Rodriguez.

Claims 1, 2, 4–11, 13, 14, 18, and 26

Appellant argues claims 1, 2, 4–11, 13, 14, 18, and 26 together on the basis of claim 1, to which we accordingly limit our discussion. Appeal Br. 15–18; 37 C.F.R. § 41.37(c)(1)(iv).

Rodriguez discloses an adhesive composition comprising at least 80% by weight of a base polyolefin polymer that comprises at least 80% by weight propylene. Rodriguez ¶¶ 20. Appellant does not dispute the Examiner's finding that Rodriguez discloses that "the polyolefin base polymer is unmodified, semi-crystalline propylene polymer." *Compare* Final Act. 5 (citing Rodriguez ¶ 41), *with* Appeal Br. 15–18.

Rodriguez discloses that the adhesive composition comprises from 1 to 15% by weight of at least two wax components, which may be "the same or different types of waxes." Rodriguez ¶¶ 31, 76. Rodriguez discloses four preferred classes of waxes, which include Fischer-Tropsch waxes and polyethylene waxes (non-functionalized waxes). Rodriguez ¶ 78.

Appellant argues that Rodriguez does not disclose that the two waxes in Rodriguez's adhesive composition must exhibit a viscosity of no greater than 750 cPs at 190°C and heat of fusion greater than 60 J/g. Appeal Br. 16. Appellant argues that, to the contrary, Rodriguez discloses that the second wax can have a viscosity as high as 10,000 cP at 190°C, and at least two of

the waxes disclosed in Rodriguez exhibit viscosities of greater than 750 cPs at 190°C—PEwax 2 and PEwax 3, which have viscosities of 2783 mPa·s³ at 190°C and 1007 mPa·s at 190°C, respectively. Appeal Br. 16 (citing Rodriguez ¶¶ 70, 212 (Table 2)).

Appellant’s arguments do not identify reversible error in the Examiner’s rejection, for reasons that follow.

Rodriguez’s disclosures directed to suitable waxes for use in Rodriguez’s adhesive composition are not limited to the PEwax 2 and PEwax 3 waxes used in Rodriguez’s experimental examples. Rather, Rodriguez discloses that suitable polyethylene waxes include POLYWAX 3000, and suitable Fischer-Tropsch waxes include BARECO PX-105. Rodriguez ¶¶ 81, 82. As discussed above, Appellant’s Specification discloses that POLYWAX 3000 is “[u]seful polyethylene wax” for the hot melt adhesive composition of Appellant’s invention. Spec. 11, ll. 3–10. The Specification also discloses that BARECO PX-105 is a “[u]seful Fischer Tropsch wax” for Appellant’s hot melt adhesive composition. Spec. 11, ll. 23–26. A reasonable basis therefore exists for finding that the POLYWAX 3000 and BARECO PX-105 waxes disclosed in Rodriguez are both “waxes” as defined in Appellant’s Specification, and, consequently, would exhibit a viscosity of no greater than 750 cPs at 190°C and heat of fusion greater than 60 J/g. *Best*, 562 F.2d at 1255.

Furthermore, although Rodriguez discloses that the viscosity of the second wax component may be from 190 to 10,000 mPa·s, Rodriguez nonetheless also explicitly discloses that the viscosity of the second wax component may be from 200 to 1000 mPa·s at 190°C, and discloses that the

³ One mPa·s is equal to one cP.

viscosity of the first wax component may be from about 100 mPa·s or less at 190°C. Rodriguez ¶ 71. The overlap between the viscosity ranges disclosed in Rodriguez and the range of no greater than 750 cPs required by claim 1 anticipates the required viscosity range, due to the lack of any “allegation of [the] criticality” on the record before us of a viscosity of no greater than 750 cPs. *ClearValue Inc. v. Pearl River Polymers Inc.*, 668 F.3d 1340, 1345 (Fed. Cir. 2012); *see also Ineos USA LLC v. Berry Plastics Corp.*, 783 F.3d 865, 870–71 (Fed. Cir. 2015). For example, Appellant does not direct us to any evidence demonstrating that an adhesive composition including first and second non-functionalized polyethylene and/or Fischer Tropsch waxes having a viscosity outside the range of no greater than 750 cPs would exhibit different properties or function differently from an adhesive composition including first and second polyethylene and/or Fischer Tropsch waxes having a viscosity within this range.

Appellant argues that “the rejection of claim 1 is supported by picking and choosing from among various passages in the more than 220 paragraphs that are present in Rodriguez,” and, therefore, “[f]or the skilled artisan to attempt to arrive at the composition of claim 1 from Rodriguez [], he or she would have to make a series of selections and decisions,” which demonstrates that Rodriguez “does not teach the adhesive composition of claim 1.” Appeal Br. 17–18.

Appellant’s arguments again do not identify reversible error in the Examiner’s rejection, for the following reasons.

For an anticipation rejection to be proper, the applied prior art reference “must clearly and unequivocally disclose the claimed [subject matter] or direct those skilled in the art to the [claimed subject matter]

without any need for picking, choosing, and combining various disclosures *not directly related to each other by the teachings of the cited reference.*” *In re Arkley*, 455 F.2d 586, 587–88 (CCPA 1972) (emphasis added).

As discussed above, Rodriguez discloses an adhesive composition comprising at least 80% by weight of an unmodified, semi-crystalline base polyolefin polymer comprising at least 80% by weight propylene, and from 1 to 15% by weight of at least two wax components, which may be the same or different. Rodriguez ¶¶ 20, 31, 76. Rodriguez discloses only four preferred classes of waxes, which include Fischer-Tropsch waxes and polyethylene waxes (non-functionalized waxes), and Rodriguez discloses that suitable polyethylene waxes include POLYWAX 3000, and suitable Fischer-Tropsch waxes include BARECO PX-105. Rodriguez ¶¶ 78, 81, 82. These disclosures in Rodriguez are all *directly related to each other* because they identify suitable components for use in Rodriguez’s adhesive composition, and specify the amount of the components that should be included in the composition. Combining these disclosures in the context of an anticipation analysis is, therefore, entirely proper, and one of ordinary skill in the art would at once envisage an adhesive composition having the features recited in claim 1 from these disclosures in Rodriguez. *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (“[A] reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.”) (alteration in original) (quoting *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)); *see also Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1344 (Fed. Cir. 2016) (“[A] reference may

still anticipate if that reference teaches that the disclosed components or functionalities may be combined and one of skill in the art would be able to implement the combination.”) (citing *Kennametal*, 780 F.3d at 1383)).

Contrary to Appellant’s arguments, Rodriguez, therefore, teaches an adhesive composition as recited in claim 1 within the meaning of 35 U.S.C. § 102(a)(1). We, accordingly, sustain the Examiner’s rejection of claims 1, 2, 4–11, 13, 14, 18, and 26 under 35 U.S.C. § 102(a)(1) as anticipated by Rodriguez.

Claim 27

Independent claim 27 requires the recited hot melt adhesive composition to comprise, in part, “at least 40% by weight of an unmodified, semi-crystalline propylene polymer comprising at least 50% by weight propylene,” and “from 1% by weight to 10% by weight elastomeric block copolymer comprising styrene.”

The Examiner finds that Rodriguez discloses that the base polymer of Rodriguez’s adhesive composition is preferably a propylene copolymer, and finds that Rodriguez discloses an embodiment in which the base polymer “consists essentially of a blend of two or more propylene copolymers,” which “may include an isotactic PP [polypropylene] and an elastomer.” Final Act. 7 (citing Rodriguez ¶ 32); Ans. 7 (citing Rodriguez ¶¶ 33, 40, 42). The Examiner finds that Rodriguez “discloses that elastomers include, for example, styrene based elastomers.” Ans. 7 (citing Rodriguez ¶ 32).

As Appellant points out (Appeal Br. 18–19), however, the paragraphs of Rodriguez cited by the Examiner do not disclose an adhesive composition comprising at least 40% by weight of a propylene polymer comprising at least 50% by weight propylene, and from 1% by weight to 10% by weight of

an elastomeric block copolymer comprising styrene, as required by claim 27. Rather, paragraph 32 of Rodriguez discloses that suitable base polyolefin polymers for use in Rodriguez's adhesive composition include, among others, "natural rubber or block copolymer elastomers (for example, styrene-isoprene-styrene block copolymers, styrene-butadiene-styrene block copolymers, and styrene-butadiene random copolymers," and "polypropylene such as polypropylene homopolymers and polypropylene copolymers." Paragraph 32 thus indicates that the base polyolefin polymer in Rodriguez's adhesive composition can be either a natural rubber or block copolymer elastomer containing styrene, or can be polypropylene.

Furthermore, paragraph 33 of Rodriguez discloses that "[i]n one embodiment, base polymer components for use in formulating hot melt adhesives of embodiments of the invention are propylene homo- and copolymers and mixtures thereof, especially propylene copolymers." Paragraph 40 discloses that "[i]n another embodiment, the base polymer component of the adhesive composition consists essentially of a blend of *two or more propylene copolymers*." (emphasis added). And paragraph 42 of Rodriguez discloses that "[i]n another embodiment the hot melt adhesives comprise impact copolymers. Impact copolymers are defined to be a physical or reactor blend of isotactic PP [polypropylene] and an elastomer such as an ethylene-propylene rubber."

The paragraphs of Rodriguez cited by the Examiner, therefore, disclose that the base polyolefin polymer included in Rodriguez's adhesive composition can be a blend of two or more polypropylene copolymers, *or* can be a natural rubber or block copolymer elastomer containing styrene, and indicate the adhesive composition can further include an impact

copolymer, defined as a blend of isotactic polypropylene and an elastomer such as an ethylene-propylene rubber. We find no disclosure in the portions of Rodriguez cited by the Examiner indicating that the impact copolymer can be an elastomeric block copolymer comprising styrene, nor does the Examiner identify any such disclosure in Rodriguez. Rather, the Examiner relies on Rodriguez's disclosure that the *base polyolefin polymer* can be a natural rubber or block copolymer elastomer containing styrene when asserting that Rodriguez discloses that the *impact copolymer* can be a styrene-based elastomer.

Consequently, on the record before us, the Examiner does not identify any disclosure in Rodriguez of including *both* a propylene polymer comprising at least 50% by weight propylene *and* an elastomeric block copolymer *comprising styrene* in Rodriguez's adhesive composition. The Examiner, therefore, does not provide a sufficient factual basis to establish that Rodriguez discloses a hot melt adhesive composition having the features recited in claim 27. We, accordingly, do not sustain the Examiner's rejection of claim 27 under 35 U.S.C. § 102(a)(1) as anticipated by Rodriguez.

Claim 28

Independent claim 28 requires the recited hot melt adhesive composition to comprise at least 55% by weight of a semi-crystalline propylene polymer comprising at least 50% by weight propylene, and greater than 20% by weight wax comprising a first wax selected from the group consisting of polyethylene wax, Fischer Tropsch wax, and combinations thereof, and a second wax different from the first wax.

Appellant argues that Rodriguez "expressly and repeatedly" limits the

total amount of wax that can be present in Rodriguez's adhesive composition to 15% by weight. Appeal Br. 19 (citing Rodriguez ¶¶ 17, 63, 72).

Appellant argues that Rodriguez does not teach including greater than 20% by weight wax in a composition that includes at least 55% by weight of a semi-crystalline propylene polymer, and argues that none of the compositions of Rodriguez's experimental examples include greater than 20% by weight wax and at least 55% by weight of a semi-crystalline propylene polymer. Appeal Br. 19 (citing Rodriguez Tables 3–5).

As discussed above, however, Rodriguez discloses an adhesive composition comprising at least 80% by weight of a base polyolefin polymer comprising at least 80% by weight propylene, and from 1 to 15% by weight of at least two wax components, which may be “the same or different types of waxes.” Rodriguez ¶¶ 20, 31, 76. As also discussed above, Rodriguez discloses four preferred classes of waxes, which include Fischer-Tropsch waxes and polyethylene waxes (non-functionalized waxes). Rodriguez ¶ 78. As the Examiner finds, Rodriguez discloses blending the base polymer and the at least two wax components of the adhesive composition “with a functionalized polyolefin such that the resulting adhesive composition comprises . . . up to 10 wt% of the functionalized polyolefin.” Final Act. 7; Rodriguez ¶¶ 53, 57. As the Examiner also finds, Rodriguez discloses that the functionalized polyolefin can be a functionalized wax. Final Act. 7; Rodriguez ¶ 59.

Thus, although Rodriguez limits the amount of the first and second wax components in Rodriguez's adhesive composition to 15% by weight as Appellant argues, Rodriguez discloses that the adhesive composition can comprise—in addition to the first and second wax components—up to 10%

by weight of a functionalized wax. One of ordinary skill in the art reading the above disclosures in Rodriguez would at once envisage an adhesive composition comprising at least 80% by weight of a base polyolefin polymer that comprises at least 80% by weight propylene, 1 to 15% by weight of at least two wax components, one of which is a Fischer-Tropsch wax or a polyethylene wax (a first wax), *and up to 10% by weight of a functionalized wax (a second wax different from the first wax)*, despite the fact that Rodriguez does not explicitly exemplify such a composition. The total amount of wax in such composition, taking into consideration the upper limit of the amount of the at least two wax components, and the upper limit of the amount of the functionalized wax, overlaps the wax content range recited in claim 28, anticipating the recited range, due to the lack of any “allegation of [the] criticality” of the recited wax content on the record before us, and the lack of any evidence demonstrating that a wax content outside the range recited in claim 28 would exhibit different properties or function differently from an adhesive composition including wax in an amount within the recited range. *ClearValue*, 668 F.3d at 1345; *Ineos*, 783 F.3d at 870–71. Similarly, the content of the base polyolefin polymer comprising polypropylene discloses in Rodriguez overlaps the propylene polymer content range recited in claim 28, anticipating the recited range. *ClearValue*, 668 F.3d at 1345.

We, accordingly, sustain the Examiner’s rejection of claim 28 under 35 U.S.C. § 102(a)(1) as anticipated by Rodriguez.

Rejection IV

Finally, we address the Examiner’s rejection of claims 15–17 as anticipated by, or alternatively, as obvious over, Rodriguez.

Claim 15 depends from claim 1 and recites that the composition exhibits a heat stress resistance of greater than 60°C and a set time of no greater than 1 second. Claim 16 depends from claim 1 and recites that the composition exhibits a heat stress resistance of greater than 60°C, greater than 50% fiber tear at 4°C and greater than 50% fiber tear at 60°C, and a set time of no greater than 1.5 seconds. Claim 17 depends from claim 1 and recites that the composition exhibits a heat stress resistance of greater than 71°C, greater than 50% fiber tear at 4°C and greater than 50% fiber tear at 71°C, and a set time of no greater than 1.5 seconds.

The Examiner finds that Rodriguez discloses a composition as recited in claim 1 (as discussed above), but “is silent with regards to the heat stress resistance of greater than 71°C, greater than 50% fiber tear at 4°C and greater than 50% fiber tear at 71°C, and a set time of no greater than 1 second” as recited in claims 15–17. Final Act. 9. The Examiner finds, however, that exemplary adhesive composition “HMA16” disclosed in Rodriguez is “substantially similar” to the adhesive compositions of Appellant’s Examples 1–4, and, therefore, “it would naturally flow that the hot melt adhesive composition [HMA16] of Rodriguez exhibits a heat stress resistance of greater than 71°C, greater than 50% fiber tear at 4°C and greater than 50% fiber tear at 71°C, and a set time of no greater than 1 second.” Final Act. 9 (citing Spec. 22, ll. 9–10, and Rodriguez Table 5).

Rodriguez’s exemplary adhesive composition HMA16 is not “substantially similar” to the hot melt adhesive composition of Appellant’s claim 1, however, because it includes only a single non-functionalized wax, rather than first and second non-functionalized waxes as required by claim 1. Rodriguez ¶ 219 (Table 5). Specifically, although adhesive composition

HMA16 includes the non-functionalized homopolyethylene wax “PEwax2,” Table 2 of Rodriguez indicates that PEwax2 has a viscosity of 2783 mPa·s at 190°C (¶ 212), which is outside the viscosity range of no greater than 750 cP at 190°C required by the definition of “wax” set forth in Appellant’s Specification. Spec. 7, ll. 3–5. And although adhesive composition HMA16 also includes POLWAX 3000, this is the only non-functionalized wax included in the composition. Rodriguez ¶ 219 (Table 5). Thus, because adhesive composition HMA16 includes only a single non-functionalized wax, the composition is not “substantially similar” to the composition of claim 1. The Examiner, therefore, does not provide a sufficient factual basis to establish that adhesive composition HMA16 disclosed in Rodriguez would inherently exhibit the properties recited in claims 15–17.

Furthermore, Appellant identifies data set forth in Appellant’s Specification demonstrating that the combined properties of a heat stress resistance of greater than 60°C and a set time no greater than 1 second as recited in claim 15, the combined properties of a heat stress resistance of greater than 60°C and a set time no greater than 1.5 seconds as recited in claim 16, and the combined properties of a heat stress resistance of greater than 71°C and a set time no greater than 1.5 seconds as recited in claim 17, are not inherent properties of every hot melt adhesive composition encompassed by claim 1. Appeal Br. 21–22; Spec. 22, 26 (Tables 1 and 4).

Specifically, the data set forth in Tables 1 and 4 of Appellant’s Specification show that compositions encompassed by Appellant’s claim 1 do not exhibit a combination of the heat stress resistance and set time values required by each of claims 15–17. The data thus show that the recited heat stress resistance and set time values are not inherent properties of the

composition of claim 1, but, rather, further limit the claimed composition. On the record before us, the Examiner does not identify any disclosure in Rodriguez of a composition having the features recited in claim 1 that exhibits the properties recited in each of claims 15–17, or any disclosure in Rodriguez that would have suggested such a composition. We, accordingly, do not sustain the Examiner’s rejection of claims 15–17 under 35 U.S.C. § 102(a)(1) as anticipated by, or alternatively, under 35 U.S.C. § 103 as obvious over, Rodriguez.

CONCLUSION

Claims	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed	New Ground
1–13, 18–23	102(a)(1)	Tse		1–13, 18–23	
1–13, 18–23	103	Tse			1
24–26	102(a)(1)	Tse ⁴			
24–26	103	Tse	24–26		24–26
1, 2, 4–11, 13, 14, 18, 26, 28	102(a)(1)	Rodriguez	1, 2, 4–11, 13, 14, 18, 26, 28		
27	102(a)(1)	Rodriguez		27	
15–17	102(a)(1)	Rodriguez		15–17	
15–17	103	Rodriguez		15–17	
Overall Outcome			1, 2, 4–11, 13, 14, 18, 24–26, 28	3, 12, 15–17, 19–23, 27	1, 24–26

⁴ As explained above, we do not reach this rejection.

TIME PERIOD FOR RESPONSE

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b), which provides that a “new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that Appellant, **WITHIN TWO MONTHS FROM THE DATE OF THE DECISION**, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

Should Appellant elect to prosecute further before the Examiner pursuant to 37 C.F.R. § 41.50(b)(1), to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection(s), the effective date of the affirmance is deferred until conclusion of the prosecution before the Examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If Appellant elects prosecution before the Examiner and this does not result in allowance of the application, abandonment, or a second appeal, this case should be returned to the Patent Trial and Appeal Board for final action on the affirmed rejection, including any timely request for rehearing thereof.

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).

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AFFIRMED IN PART; NEW GROUND OF REJECTION
PURSUANT TO 37 C.F.R. § 41.50(b)