UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LIE-ZHONG GONG, JAMES W. NOWICKI,
RENU LAMBA, and JAGRUTI B. PATEL

Appeal 2006-1305
Application 10/236,270
Technology Center 1700

Decided: February 28, 2007

Before BRADLEY R. GARRIS, CHUNG K. PAK, and
LINDA M. GAUDETTE, Administrative *Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 1 and 3-20. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

We AFFIRM.

INTRODUCTION

The claims are directed to a hot melt adhesive formulation having high heat resistance and cold resistance. Claims 1 and 19 are illustrative:

1. A hot melt adhesive formulation having high heat resistance and cold resistance and comprising from about 20 to about 45 wt % of an ethylene copolymer having a high polar content and melt flow index of less than about 400 grams/10 minutes, from about l to about 30 wt % of an ethylene copolymer having a low polar content and melt flow index greater than 400 grams/10 minutes, a terpene phenol tackifier, and a wax.

19. A hot melt adhesive formulation comprising an ethylene copolymer having a high polar content, an ethylene copolymer having a low polar content, a terpene phenol tackifier, and a wax, wherein said ethylene copolymer having a high polar content has a low melt flow index, and said ethylene copolymer having a low polar content has a high melt flow index.

The Examiner relies on the following prior art references as evidence of obviousness:

Daughenbaugh	US 4,701,517	Oct. 20, 1987
Watanabe (as translated)	JP 100130436	May 19, 1998

The rejections as presented by the Examiner are as follows:

1. Claims 1, 3-9, and 18-20 are rejected under 35 U.S.C § 103(a) under 35 U.S.C § 103(a) as unpatentable over Watanabe in view of Daughenbaugh.

2. Claims 1 and 3-20 are rejected under 35 U.S.C § 103(a) as unpatentable over the admitted prior art (Specification 1-2) in view of Watanabe and Daughenbaugh.

We refer to the Brief and to the Answer for a complete discussion of the opposing viewpoints expressed by the Appellants and by the Examiner concerning the above-noted rejections.

OPINION

For the reasons set forth in the Answer and below, we sustain each of these rejections.

REJECTION UNDER 35 U.S.C § 103(a) OVER WATANABE AND DAUGHENBAUGH

Claims 1, 3-9, and 18-20 are rejected under 35 U.S.C § 103(a) as unpatentable over Watanabe in view of Daughenbaugh.

We first address independent claim 1.

We note that independent claim 1 recites a hot melt adhesive formulation comprising "an ethylene copolymer having a high polar content" and "an ethylene copolymer having a low polar content." On this record, neither the Appellants nor the Examiner have offered an express interpretation of "high polar content" and "low polar content."

During prosecution, we generally give the claims their broadest reasonable interpretation "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004). However, when the claim terms lack clarity on their face, we resort to the specification to determine their meaning. *Fitness, Inc. v. Brunswick Corp.,* 288 F.3d 1359, 1365-67, 62 USPQ2d 1658, 1662-64 (Fed. Cir. 2002) (When the claim term chosen by a patent applicant deprives a claim of clarity, one must resort to other intrinsic evidence of a definite meaning.); *Seatttle Box Company, Inc. v. Industrial Crafting & Packing, Inc.,* 731 F.2d 818, 826, 221 USPQ 568, 573-74 (Fed. Cir. 1984)("When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree.").

The phrases "high polar content" and "low polar content" recited in claims 1 and 19 are words of degree and lack clarity on their face. Thus, we look to the Specification for guidance. Looking to the Specification for the meaning of the phrases "high polar content" and "low polar content," we first note that Appellants relate "polar content" with "vinyl content" on pages 2-3 and 5. Therefore, we interpret the term "polar content" throughout this opinion as encompassing "vinyl content." We also note that Appellants only describe what is meant by high polar/vinyl content and low polar/vinyl content with respect to their "particularly preferred adhesive" (Specification 5). Specifically, with respect to the "particularly preferred adhesive," an ethylene copolymer having a high polar/vinyl content is disclosed as an ethylene vinyl acetate with a "vinyl acetate content . . . from about 33 to about 60 wt %" (*id.*). In addition, an ethylene copolymer having a low polar/vinyl content is disclosed as an ethylene vinyl acetate with a "vinyl acetate content . . . below about 32 wt %" (*id.*). Thus, we interpret the claim limitation "an ethylene copolymer having a high polar [i.e., vinyl] content" as encompassing an ethylene vinyl acetate with a "vinyl acetate content . . . of from about 33 to about 60 wt %" and the claim limitation of "an ethylene copolymer having a low polar [i.e., vinyl] content" as encompassing an ethylene vinyl acetate with a "vinyl acetate content . . . of below about 32 wt %." This is a reasonable interpretation in light of the Specification and as evinced by dependent claim 4.

Our review of Watanabe reveals that it "pertains to hot melt compositions, more specifically to hot melt compositions in which an ethylene - vinyl acetate copolymer is the main component and which has

[sic, have] excellent thermobonding resistance, cold-bonding resistance, and operability" (Translation 3). Watanabe also discloses "discover[ing] that the cold-bonding resistance and the operability can be made favorable by combining . . . [an] ethylene – vinyl acetate copolymer with another ethylene – vinyl acetate copolymer that has a different melt index and a different vinyl acetate content" (Translation 5). Thus, Watanabe's ethylene-vinyl acetate copolymer component comprises first and second ethylene-vinyl acetate copolymers (*id.*). The combined amounts of the two ethylene-vinyl acetate copolymers of Watanabe are disclosed as preferably 5-60 wt % of the first ethylene-vinyl acetate copolymer and 95-40 wt % of the second ethylene-vinyl acetate copolymer (Translation 10).

Watanabe broadly discloses the first ethylene-vinyl acetate copolymer (designated as EVA1 by the Examiner) as having a melt flow index of 10-5,000 grams/10 minutes and a vinyl acetate content of 5-40% (Translation 6). The second ethylene-vinyl acetate copolymer (designated as EVA2 by the Examiner) is broadly disclosed as having a melt flow index of 10-800 grams/10 minutes and a vinyl acetate content of 21-50% (*id.*). The Examiner notes:

> Watanabe discloses a hot melt adhesive having high heat and cold resistance comprising EVAl having a low polar content (vinyl content of 5-40%) and a high melt flow index (10-5000 g/10 minutes), [and] EVA2 having a high polar content (vinyl content of 21- 50%) and a low melt flow index (10-800 g/10 minutes). [Answer 8; emphasis deleted.]

Thus, according to the Examiner, Watanabe's EVA1 having the relatively low polar (vinyl) content of 5-40 wt % and relatively high melt flow index of 10-5000 grams/10 minutes corresponds to the claimed ethylene copolymer having the low polar (vinyl) content of below about 32 wt %, as interpreted above, and the high melt flow index of greater than 400 grams/10 minutes. In addition, according to the Examiner, Watanabe's EVA2 having the relatively high polar (vinyl) content of 21-50 wt % and relatively low melt flow index of 10-800 grams/10 minutes corresponds to the claimed ethylene copolymer having the high polar (vinyl) content of from about 33-60 wt %, as interpreted above, and the low melt flow index of less than 400 grams/10 minutes.

Watanabe's Examples 1 through 3 further illustrate the hot melt adhesive formulations contemplated by its disclosure (Table 1; Translation 18). Examples 1 through 3 of Watanabe use a first ethylene-vinyl acetate copolymer EVA-A having a polar (i.e., vinyl acetate) content of 15 wt % and a melt flow index of 850 grams/10 minutes (Translation 14). This ethylene-vinyl acetate corresponds to Appellants' "ethylene copolymer having a low polar content" having a melt flow index "greater than 400 grams/10 minutes." The examples also include a second ethylene-vinyl acetate copolymer EVA-B (Examples 1 and 3) or EVA-C (Example 2). EVA-B has a polar (i.e., vinyl acetate) content of 27 wt % and a melt flow index of 360 grams/10 minutes (Translation 15). EVA-C has a polar (i.e., vinyl acetate) content of 28 wt % and a melt flow index of 150 grams/10 minutes (Translation 16). The melt flow indices of EVA-B and EVA-C fall within the claim 1 melt flow index limitation of "less than about 400

grams/10 minutes" of Appellants' "ethylene copolymer having a high polar content." We recognize that the vinyl acetate content of Watanabe's second ethylene vinyl acetate copolymer is less than the vinyl acetate content disclosed for the ethylene vinyl acetate copolymer having high polar content of the preferred adhesive formulation. However, Watanabe is not limited to its examples since, as noted above, it teaches higher vinyl contents for his second EVA.

We find that Watanabe's Examples 1 through 3 teach making a hot melt adhesive formulation comprising first and second ethylene vinyl acetate copolymers, with the second ethylene vinyl acetate copolymer having a polar content higher than the polar content of the first ethylene vinyl acetate copolymer and with the second ethylene vinyl acetate copolymer having melt flow index lower than the melt flow index of the first ethylene vinyl acetate copolymer.

In addition to the two ethylene vinyl acetate copolymers, Watanabe's hot melt adhesive compositions can include a tackifier in the amount of up to 200 weight parts per 100 weight parts of the hot melt composition and a wax in the amount of up to 150 weight parts per 100 weight parts of the hot melt composition (Translation 6). Watanabe also teaches the use of a terpene resin as a tackifier (Translation 11).

The Examiner finds: "Thus, Watanabe clearly recognizes forming a hot melt adhesive having high heat and cold resistance from a composition comprising EVAl, EVA2, tackifier, and resin [sic, wax] wherein EVAl has a low polar content and high melt flow index as it relates to EVA2" (Answer 5).

The Examiner also notes that "Watanabe discloses the use of (aromatic) terpene tackifiers" (*id.*) but "is silent as to the use of any particular terpene tackifier, it being noted Watanabe is not limited to any particular tackifier" (*id.*).

The Examiner relies on the reference to Daughenbaugh to meet the claimed terpene phenol tackifier (*id.*). Daughenbaugh "relates to novel terpolymers which are particularly adapted for use as tackifiers in adhesive compositions" (col. 1, ll. 6-8). Daughenbaugh specifically teaches the use of a vinyl aromatic/terpene/phenol terpolymer as a tackifier for adhesive compositions (Abstract), including hot melt adhesive compositions comprising ethylene-vinyl acetate copolymers (col. 3, ll. 40-45). Thus, the Examiner concludes:

> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the tackifier . . ., in the compositions taught by Watanabe any well known terpene tackifier such as a terpene phenol tackifier . . . as shown for example by Daughenbaugh for similar use in ethylene vinyl acetate copolymer hot melt adhesives as only the expected results would be achieved. [Answer 5.]

Appellants argue that "[t]here is no disclosure [in Watanabe] that the two EVAs be different from one another in terms of polar content and in terms of melt flow index" (Br. 5).

The Examiner responds that "[t]he examples of Watanabe specifically disclose EVAl and EVA2 as different wherein the polar content of EVAl is less than that of EVA2 and the melt flow index of EVAl is larger than that of EVA2" (Answer 8).

We disagree with Appellants' arguments since Watanabe expressly discloses "discover[ing] that the cold-bonding resistance and the operability can be made favorable by combining . . . [an] ethylene – vinyl acetate copolymer with another ethylene - acetate copolymer that has a different melt index and a different vinyl acetate content" (Translation 5). In addition, as noted by our discussion above, Watanabe's Examples 1 through 3 (Translation 18) clearly teach or would have suggested to one of ordinary skill in the art that the ethylene-vinyl acetate copolymer component of the hot melt adhesive composition comprises two different ethylene-vinyl acetate copolymers with a first ethylene-vinyl acetate copolymer having a vinyl acetate content lower than the vinyl acetate content of the second ethylene-vinyl acetate copolymer and the first ethylene-vinyl acetate copolymer having a melt flow index higher than the melt flow index of the second ethylene-vinyl acetate copolymer. Thus, we concur with the Examiner's finding that Examples 1 through 3 of Watanabe teach "forming a hot melt adhesive having high heat and cold resistance from a composition comprising [a first ethylene-vinyl acetate copolymer] EVAl , [a second ethylene-vinyl acetate copolymer] EVA2, tackifier, and resin [sic, wax] wherein EVAl has a low polar content and high melt flow index as it relates to EVA2" (Answer 5).

Therefore, we are unpersuaded by Appellants' argument and, in view of Watanabe's disclosure, including Examples 1 through 3, agree with the Examiner's conclusion that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine/optimize the amounts of each component as a function of achieving the desired heat and

cold resistance properties" (Answer para. bridging 8 and 9). *See In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990); *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980); *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). *Compare In re Sebek*, 465 F.2d 904, 907, 175 USPQ 93, 95 (CCPA 1972).

Appellants argue that "Watanabe is completely silent as to the use of . . . [a terpene phenol] tackifier" (Br. 5). While Appellants' argument is accurate, the argument does not support a non-obviousness conclusion since, as we noted above, the Examiner relies on Daughenbaugh to address this specific claim feature.

Appellants argue that Daughenbaugh's terpenes "are not terpene phenols" (Br. 6). We note that Daughenbaugh expressly refers to its tackifier compositions as "vinyl-substituted aromatic/terpene/phenol terpolymers" (col. 1, ll. 11-12). Daughenbaugh's compositions require "at least one monoterpene hydrocarbon" and "at least one phenol" (col. 1, ll. 25-29). As noted by the Examiner, Appellants' statement that Daughenbaugh's terpenes are not terpene phenols is unsupported by any evidence or argument controverting Daughenbaugh's disclosure (Answer 9). Thus, we are unconvinced by Appellants' argument.

Appellants also argue that "there is no disclosure or suggestion that the tackifiers of Daughenbaugh, let alone terpene phenols, could be used in the hot melt compositions of Watanabe without affecting the characteristics of the adhesive" (Br. 6). However, as correctly noted by the Examiner, Daughenbaugh clearly teaches the use of his terpene phenol tackifiers in hot melt adhesives comprising ethylene-vinyl acetate copolymers in col. 3,

ll. 40-45. Like Daughenbaugh's hot melt adhesives, Watanabe's hot melt adhesives comprise ethylene-vinyl acetate copolymers (Translation 3) and may include a terpene tackifier (Translation 11). Based on this, a person with ordinary skill in the art would have had a reasonable expectation of success in using the tackifier of Daughenbaugh in the composition of Watanabe. *See In re O'Farrell*, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1680-81 (Fed. Cir. 1988). On this record, Appellants have provided no evidence to support their position that using the tackifiers of Daughenbaugh in Watanabe's hot melt adhesives containing ethylene-vinyl acetate copolymers would affect the characteristics of Watanabe's adhesives such that the proposed combination would be unsuccessful.

Thus, based on the combined teachings of Watanabe and Daughenbaugh, we are unpersuaded by Appellants' argument and agree with the Examiner's conclusion that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use . . . the tackifier [of Daughenbaugh] . . . in the compositions taught by Watanabe" for the reasons given above and by the Examiner (Answer 5).

Dependent claims 3, 8, 9, and 18, which ultimately depend from independent claim 1, were not separately argued in accordance with 37 C.F.R. § 41.37(c)(1)(vii)(2004). Therefore, they stand or fall with claim 1.

Accordingly, we sustain the rejection of claims 1, 3, 8, 9, and 18 under 35 U.S.C § 103(a) as unpatentable over Watanabe in view of Daughenbaugh for the reasons given above.

Regarding claim 4, Appellants argue that "[t]here is no disclosure or suggestion in the combined disclosures that would motivate the skilled artisan to make a hot melt adhesive" with the features recited in claim 4 (Br. 7).

The Examiner counters:

> [While] the specific value limitations of a property may not be specifically disclosed in Watanabe depending upon the interpretation of the term "about", in view of the [broad] disclosure of Watanabe . . . , it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine/optimize the amounts of each component as a function of achieving the desired heat and cold resistance properties as doing so would require nothing more than ordinary skill and routine experimentation. [Answer 10.]

We note that Appellants have not contested the Examiner's specific conclusion of obviousness on this issue. In addition, Watanabe's disclosure including Examples 1 through 3 establish as result effective variables the claim 4 parameters of ethylene vinyl acetate amount, vinyl content, and melt flow index. Indeed, Appellants' claimed ranges for vinyl content and melt flow index are overlapped by Watanabe's disclosed ranges (Translation 6). Thus, we agree with the Examiner's conclusion that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine/optimize the amounts of each component as a function of achieving the desired heat and cold resistance properties" (Answer 10). *Woodruff*, 919 F.2d at 1578, 16 USPQ2d at 1936-37; *Boesch*, 617 F.2d at 276, 205 USPQ at 219; *Aller*, 220 F.2d at 456, 105 USPQ at 235. *Compare Sebek*, 465 F.2d at 907, 175 USPQ at 95.

Claim 5 depends from claim 4 and was not specifically argued. Therefore, it stands or falls with claim 4.

Accordingly, we sustain the rejection of claims 4 and 5 under 35 U.S.C § 103(a) as unpatentable over Watanabe in view of Daughenbaugh for reasons given above.

Regarding claim 6,[1] Appellants argue that "[n]either Watanabe [n]or Daughenbaugh suggest[s] a hot melt adhesive comprising a terpene phenol tackifier having a softening point . . . of less than about 115 ^{o}C, as claimed by applicants" (Br. para. bridging 7 and 8).

As correctly indicated by the Examiner, Daughenbaugh (col. 1, ll. 11-13) "discloses . . . terpene phenol tackifiers hav[ing] softening points between 60 [sic, 69] and 130^{o}C" (Answer 5). This softening point temperature range overlaps Appellants' claim 6 softening point temperature range "of less than about 115^{o}C."

Thus, we disagree with Appellants' aforenoted argument and agree with the Examiner's conclusion that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use . . . terpene phenol tackifier[s] having softening points between 60 [sic, 69]-130 [e.g., less than 115] ^{o}C as shown for example by Daughenbaugh" for the reasons given above and by the Examiner (Answer 5).

Claim 7 depends from claim 6 and was not specifically argued. Therefore, it stands or falls with claim 6.

[1] We note that claim 6 is in conflict with claim 5, from which claim 6 depends, and thus, not in compliance with 37 C.F.R. § 1.75(c). This conflict should be resolved in any further prosecution that may occur.

Accordingly, we sustain the rejection of claims 6 and 7 under 35 U.S.C § 103(a) as unpatentable over Watanabe in view of Daughenbaugh for reasons given above.

We now address independent claim 19.

Claim 19 is also directed to a hot melt adhesive formulation comprising two different ethylene-vinyl acetate copolymers of different polarity and melt flow indices. Like claim 1, claim 19 does not specifically state ranges for what constitutes low or high polar (i.e., vinyl) content for each ethylene-vinyl acetate copolymer. We refer to the earlier discussion on our interpretation of these terms in view of the Specification.

Claim 19 additionally recites the high polar content ethylene copolymer as having a "low melt flow index" and the low polar content ethylene copolymer as having a "high melt flow index." On this record, neither the Answer nor the final Office action contains any express interpretation of the claimed limitations "low melt flow index" and "high melt flow index."

We again turn to the Specification for the meaning of the terms "low melt flow index" and "high melt flow index" . We note that Appellants again only describe what is meant by low melt flow index and high melt flow index with respect to their "particularly preferred adhesive" (Specification para. bridging 2 and 3). Specifically, with respect to the "particularly preferred adhesive," an ethylene copolymer having a low melt flow index is disclosed as an ethylene vinyl acetate with a melt flow index of "less than about 400 grams/10 minutes" (Specification 5). An ethylene copolymer having a high melt flow index is disclosed as an ethylene vinyl

acetate with a melt flow index of "greater than about 400 grams/10 minutes" (*id.*).

We find that the broad language of independent claim 19 also encompasses the preferred hot melt adhesive formulations and, therefore, in view of the Specification, we interpret the claim 19 limitation of an ethylene copolymer having a "low melt flow index" as encompassing an ethylene vinyl acetate with a melt flow index of "less than about 400 grams/10 minutes." In addition, we interpret the claim 19 limitation of an ethylene copolymer having a "high melt flow index" as encompassing an ethylene vinyl acetate with a melt flow index of "greater than about 400 grams/10 minutes." This interpretation is clearly reasonable in light of the Specification.

Our interpretation above results in claim 19 being of the same breadth as independent claim 1. Thus, we refer to our discussion of the rejection above as applied to independent claim 1. However, if independent claim 19 is interpreted more broadly than independent claim 1, then the Examiner's obviousness rejection over Watanabe in view of Daughenbaugh is even more well founded with respect to independent claim 19.

Since Appellants' arguments regarding this combination of references have been found unpersuasive for the reasons discussed above, we sustain the obviousness rejection of claim 19, as well as of dependent claim 20, which was not separately argued.

REJECTION UNDER 35 U.S.C § 103(a) OVER THE ADMITTED PRIOR ART IN VIEW OF WATANABE AND DAUGHENBAUGH

Claims 1 and 3-20 are rejected under 35 U.S.C § 103(a) as unpatentable over the admitted prior art (Specification 1-2) in view of Watanabe and Daughenbaugh.

The Examiner finds:

> The admitted prior art discloses that it is conventional in the art to use ethylene vinyl acetate copolymer based hot melt adhesives in case and carton sealing operations for packaging food and consumer goods. The admitted prior art teaches that when these hot melt adhesives are used to bond substrates such as polymer laminated paperboard in case and carton sealing the bond strength suffers unless a hot melt adhesive with excellent heat and cold resistance is used. [Answer 7.]

The Examiner then concludes:

> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use . . . the high heat and cold resistant ethylene vinyl acetate copolymer hot melt adhesive taught by Watanabe . . . [as modified by Daughenbaugh in the prior rejection] to case and carton seal polymer laminated paperboard with high bond strength. [*Id.*]

We note that Appellants have not contested the Examiner's reliance on the admitted art. We also note that the arguments presented regarding this rejection on pages 8 through 10 of the Brief are the same as the arguments addressed in the prior rejection. We again find these arguments unconvincing for reasons presented above.

Accordingly, we sustain the rejection of claims 1 and 3-20 under 35 U.S.C § 103(a) as unpatentable over the admitted prior art (Specification 1-2) in view of Watanabe and Daughenbaugh.

CONCLUSION

The Examiner's rejection of claims 1, 3-9, and 18-20 under 35 U.S.C § 103(a) as unpatentable over Watanabe in view of Daughenbaugh is affirmed.

The Examiner's rejection of claims 1 and 3-20 under 35 U.S.C § 103(a) as unpatentable over the admitted prior art (Specification 1-2) in view of Watanabe and Daughenbaugh is affirmed.

Thus, the decision of the Examiner is AFFIRMED.

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) (2006).

AFFIRMED

clj

LINDA M. GAUDETTE, *Administrative Patent Judge, dissenting:*

I respectfully dissent from the decision of the Majority affirming the Examiner's rejections of appealed claims 1 and 3-20 under 35 U.S.C. § 103(a). In my view, the present record does not include sufficient fact finding and explanation to enable meaningful review without resort to speculation. *See In re Hyatt*, 211 F.3d 1367, 1371, 54 USPQ2d 1664, 1666 (Fed. Cir. 2000) ("Board must explain the basis for its rulings sufficiently to enable meaningful judicial review"). More specifically, it is unclear from the record whether the Examiner has established a prima facie case of obviousness because the Examiner does not provide explicit interpretations of the claim phrases "high heat resistance and cold resistance" and "high polar content" and "low polar content." It is further unclear from the record whether the Appellants challenge the Examiner's conclusions of obviousness based on the Examiner's claim interpretation and/or the Examiner's findings with respect to the prior art.

"High heat resistance and cold resistance:" A prima facie case of obviousness may be made when the only difference between the claimed invention and the prior art is a difference in the range or value of a particular variable. *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ2d 1379, 1382, (Fed. Cir. 2003); *In re Woodruff*, 919 F.2d at 1578, 16 USPQ2d at 1936. In this case, the Examiner relied on the overlapping vinyl acetate content and melt index ranges of Watanabe's and Appellants' copolymers to establish prima facie obviousness. *See In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 2007) ("A prima facie case of obviousness exists where the prior art and claimed ranges overlap."). Independent

claim 1 and its dependent claims, however, further include the limitation of "high heat resistance and cold resistance." *See In re Kaslow*, 707 F.2d 1366, 1373, 217 USPQ 1089, 1094-95 (Fed.Cir.1983) (in an obviousness determination, the claimed invention must be considered as a whole).

The phrases "high heat resistance and cold resistance" are defined in the Specification as "the ability to maintain an acceptable fiber tearing bond at elevated temperatures of about 125°F, preferably 140°F" and "the ability to maintain a high strength bond in the cold with no tendency to fracture at 40°F (4°C), preferably 0°F." Specification 9. The Examiner concluded, without further explanation, that Watanabe discloses a hot melt adhesive having high heat resistance and cold resistance. It is unclear from the record whether the Examiner actually looked to the Specification to ascertain the meaning of "high heat resistance and cold resistance" and then determined that these claim features, *as interpreted in light of the Specification*, were inherent in the applied prior art.[2] While the Examiner may require an applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on, *see In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1432 (Fed. Cir. 1997); *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977), the Applicant must clearly be on notice that the Examiner views such characteristic as inherent in the prior art, thereby providing an opportunity for the Applicant to prepare a competent response.

[2] The Examiner does state that Watanabe would intrinsically have a heat resistance equal to or greater than 140°F as recited in claim 8. Final Rejection 4.

Appellants argued, *inter alia*, that "[t]he combined disclosures of Watanabe and Daughenbaugh fail to suggest a hot melt adhesive formulation having high heat resistance and cold resistance" (Br. 5). It is unclear from the record whether Appellants are asserting that the Examiner has not met the burden of showing that the prior art discloses or suggests a hot melt adhesive formulation having "high heat resistance and cold resistance" as defined in the Specification, whether they are alleging unexpected results, *see In re Woodruff*, 919 F.2d at 1578, 16 USPQ2d at 1936 (applicant may overcome prima facie showing of obviousness by showing "that the claimed range achieves unexpected results relative to the prior art range"), or whether they are making a general statement. In other words, Appellants do not precisely identify the error(s) in the Examiner's rejection.

"High polar content" and "low polar content:" In order to make a proper comparison between the claimed invention and the prior art, the Examiner must first construe the language of the claims. *See In re Paulsen*, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). Because the Examiner's interpretation of "high polar content" and "low polar content" is not apparent from the record, it is impossible to determine whether Appellants are aware of the Examiner's interpretation and have been afforded an opportunity to present evidence to rebut the Examiner's position or to amend the claims, all of which include these limitations, to more clearly delineate the scope of the invention. *See Gechter v. Davidson*, 116 F.3d 1454, 1460, 43 USPQ2d 1030, 1035 (Fed. Cir. 1997) (requiring explicit claim construction as to any terms in dispute).

It appears that the scope and breadth of the terms "high polar content" and "low polar content" cannot be ascertained from the Specification. *See* Majority 4. If the scope and breadth of the claims cannot be properly determined, then the claims should be rejected under 35 U.S.C. § 112, ¶ 2. *See In re Zletz*, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (if claims do not "particularly point[ ] out and distinctly claim[ ]", in the words of section 112, appropriate PTO action is to reject the claims for that reason) and *In re Bigio*, 381 F.3d 1320, 1324, 72 USPQ2d 1209, 1211 (Fed. Cir. 2004)("[A] patent applicant has the opportunity and responsibility to remove any ambiguity in claim term meaning by amending the application.").

Therefore, I would remand the Application to the Examiner with instructions to reopen prosecution, requiring that any further action on the part of the Examiner clearly set forth an explicit construction of the claim terms in dispute, a detailed analysis of any applied prior art based on such construction, and specific fact finding and explanation in support of any rejections.

clj

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