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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEALBOARD

Ex parte MIKE MUSGRAVE, DANG LE, LUYI SUN,
and DAVID SMITH

Appeal 2011-009559
Application 11/906,605
Technology Center 1700

Before BRADLEY R. GARRIS, MICHAEL P. COLAIANNI, and JAMES C. HOUSEL, *Administrative Patent Judges*.

HOUSEL, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final decision rejecting claims 1-20. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.[1]

THE REJECTIONS

The Examiner has maintained the following rejections:

Rejection 1: Claims 1-8 and 16-20 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Ans. 4.

Rejection 2: Claims 7, 15, and 19 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Ans. 5.

Rejection 3: Claims 1-19 have been rejected under 35 U.S.C. § 102(b) as anticipated by Marczinke. Ans. 6-8.

Rejection 4: Claims 1-20 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Marczinke. Ans. 8-12.

Rejection 5: Claims 6, 14, and 16-19 have been rejected 35 U.S.C. § 103(a) as unpatentable over Marczinke in view of Morini. Ans. 12-14.

Product Claims 1, 7, and 16, and method Claim 9 are illustrative of the subject matter on appeal:

> 1. An injection stretch blow molded (ISBM) article formed of a single polymer, wherein the polymer is a propylene based random copolymer exhibiting *a molecular weight distribution*

[1] Our Decision refers to Appellants' Brief (App. Br.) filed September 30, 2010, and the Examiner's Answer (Ans.) mailed February 18, 2011.

> *of from about 9 to about 20* and a *unimodal molecular weight distribution*.
>
> 7. The article of claim 1, wherein the propylene based random copolymer exhibits a melt flow rate (as measured by *ASTM D1238L*) of from about 2g./10 min. to about 30 g./10 min.
>
> 9. A method of forming an injection stretch blow molded article formed of a single polymer, comprising:
>
> providing the single polymer, wherein the single polymer is a propylene based random copolymer exhibiting *a molecular weight distribution of from about 9 to about 20* and the single polymer is formed in a single reaction zone;
>
> injection molding the propylene based random copolymer into a preform; and
>
> stretch-blowing the preform into an article.
>
> 16. An injection stretch blow molded (ISBM) article formed of a single polymer, wherein the polymer is a propylene based random copolymer formed from a Ziegler-Natta catalyst comprising a succinate internal donor and exhibiting *a unimodal molecular weight distribution*.

App. Br., Claims App'x (emphasis added).

ANALYSIS

Appellants set forth separate, substantive arguments for claims as grouped in the rejections, but do not separately argue the patentability of the claims in each rejection group. Accordingly, for Rejection 1, claims 2-8 and 16-20 stand or fall together with independent claim 1; for Rejection 2, claims 15 and 19 stand or fall together with claim 7; for Rejections 3 and 4, claims 2-8, 10-15, and 17-20 stand or fall together with their respective

independent claims 1, 9, and 16; for Rejection 5, all claims being argued as a group, we select claim 16 to address the merits of Appellants' arguments regarding these claims. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2011).

Rejection 1

"[The written description] inquiry is a factual one and must be assessed on a case-by-case basis." *Purdue Pharma L.P. v. Faulding, Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000). "In order to satisfy the written description requirement, the disclosure as originally filed does not have to provide *in haec verba* support for the claimed subject matter at issue." *Id.* Nonetheless, the disclosure must convey with reasonable clarity to those skilled in the art that the inventor was in possession of the invention. *Id.*, ("Put another way, one skilled in the art, reading the original disclosure, must immediately discern the limitation at issue in the claims."). While the written description requirement does not demand either examples or an actual reduction to practice, actual "possession" or reduction to practice outside of the specification is not enough. *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010). Rather, it is the specification itself that must demonstrate possession. *Id*.

The Examiner finds that the original disclosure as filed does not provide *in haec verba* support for the claim limitation "unimodal molecular weight distribution". Ans. 4. Moreover, the Examiner finds that the original disclosure also does not implicitly support this limitation. *Id*. In particular, the Examiner finds that Specification paragraph [0029] fails to mention any modality of the polymer. *Id*. While the Examiner finds that this paragraph discusses the types and numbers of reactors, and various reaction parameters, the Examiner finds no indication that any particular modality of

the polymers is specifically envisioned. *Id*. The Examiner further finds that the use of a single reactor does not imply a unimodal molecular weight distribution, instead finding that "it is possible to prepare bi- or multi modal polymers in a single reactor, e.g. by using multiple catalysts." *Id*. The Examiner therefore concludes that the claim limitation "unimodal molecular weight distribution" lacks adequate written descriptive support and is new matter. *Id*.

Appellants argue that "[t]he Examples clearly demonstrate use of unimodal polymer, including 7525MZ, as does the attached material data sheet regarding 7525MZ, which is a unimodal polymer." Br. 3; Br. Evidence App'x. However, the Examiner responds that the data sheet fails to provide any indication of the modality of the 7525MZ polymer's molecular weight distribution. Ans. 15. Moreover, the Examiner responds that while the examples include the 7525MZ polymer, there is no evidence or other indication in the specification that this polymer or any of the other example polymers have a unimodal molecular weight distribution. *Id*. In addition, the Examiner finds that even if example 7525MZ polymer inherently has a unimodal molecular weight distribution, such would not provide adequate written descriptive support for the broadly claimed genus of propylene based random copolymers. *Id*. at 15. The Examiner therefore concludes that the claim limitation "unimodal molecular weight distribution" lacks adequate written descriptive support and is new matter. *Id*.

Having reviewed the record including the data sheet for the 7525MZ polymer, we are in agreement with the Examiner that there is nothing in the original written description supporting a polymer having a "unimodal molecular weight distribution", either expressly or impliedly. The Examiner

made a *prima facie* determination that the number of reactors (i.e. a single reactor) is not determinative of the product polymer's modality. Appellants have failed to direct our attention to any evidence rebutting the Examiner's determination that the number of reactors is not determinative of the product polymer's modality. Appellants fail to direct our attention to any portion of the data sheet indicating the 7525MZ polymer has this property, nor do we find any. Appellants fail to direct our attention to any portion of the original disclosure indicating that any of the disclosed example polymers have this property, nor do we find any. Finally, we agree with the Examiner that even if the single example 7525MZ polymer inherently has a unimodal molecular weight distribution, such is insufficient to support the more broadly claimed genus of propylene based random copolymers having a unimodal molecular weight distribution. Appellants provide neither argument nor evidence supporting the proposition that disclosure of a single species of a genus provides adequate written descriptive support that inherent, but undisclosed properties of the species are possessed by all members of the genus. *In re Curtis*, 354 F.3d 1347, 1356 (Fed. Cir. 2004) ("a disclosure of a species does not always suffice to describe broadly claimed subject matter."). As such, we sustain Rejection 1 for the reasons given by the Examiner.

<u>Rejection 2</u>

The Examiner finds that the original disclosure as filed does not provide *in haec verba* support for the claim limitation "as measured by ASTM D1238L". Ans. 5. The Examiner finds that the designation "L" appended to ASTM D1238 is the portion that lacks adequate written descriptive support. *Id*. Moreover, the Examiner finds that the original disclosure also does not implicitly support this limitation. *Id*. In particular,

the Examiner finds that Specification paragraph [0041] makes no mention of the melt flow test conditions. *Id*. The Examiner further finds that while the data sheet for the 7525MZ polymer discloses the ASTM D1238L test for determining the melt flow for this polymer, "there is no indication in the specification as originally filed that the more generally claimed polymers had a melt flow within the scope of the presently recited range and test conditions." *Id*. In other words, even if the 7525MZ polymer of the example has a melt flow in the recited range as tested by ASTM D1238L, such fails to support that all the polymers within the scope of the disclosed test ASTM D1238 would likewise share the same melt flow property claimed.

Appellants argue that the properties of the 7525MZ polymer are inherently included by virtue of the reference to this polymer in Specification paragraph [0041]. Br. 4. Further, Appellants contend that the testing method recited in the data sheet was properly incorporated into the Specification and as such, is not new matter. *Id*.

In response, the Examiner notes that the test conditions for measuring the melt flow rate are critical given the claim limitation directed to the melt flow rate. Ans. 17. The Examiner finds that melt flow rate is directly dependent on the test conditions, which have only been disclosed by reference to ASTM D1238, not to ASTM D1238L. *Id*. Presumably, the test conditions for ASTM D1238 may be different from ASTM D1238L. *Id*. at 19. In addition, the Examiner finds that even though the data sheet shows example 7525MZ polymer inherently has a melt flow rate as measured by ASTM D1238L within the recited range, such fails to support a shift in the genus class of propylene based random copolymers disclosed from those

having a melt flow rate within the recited range under ASTM D1238 to those having a melt flow rate within this range under ASTM D1238L. *Id*. at 18. The Examiner also disputes Appellants' contention that the testing method from the data sheet was properly incorporated into the Specification. *Id*. at 18-19. The Examiner therefore concludes that the claim limitation "ASTM D1238L" lacks adequate written descriptive support and is new matter. *Id*. at 19-20.

Having reviewed the record including the data sheet for the 7525MZ polymer, we are in agreement with the Examiner that there is nothing in the original written description supporting a genus of propylene based random copolymers having melt flow rates "(as measured by ASTM D1238L)" of from about 2g./10 min. to about 30 g./10 min, either expressly or inherently. The Examiner made a *prima facie* determination that the melt flow rate value is dependent on the test conditions. Appellants fail to direct our attention to any portion of the original disclosure or the data sheet indicating otherwise, nor do we find any. Appellants have failed to direct our attention to any evidence rebutting the Examiner's determination that the claimed genus of propylene based random copolymers would not be the same for either ASTM D1238 and ASTM D1238L, nor do we find any.

We further agree with the Examiner that even though the single example 7525MZ polymer inherently has a melt flow rate within the claimed range as measured by ASTM D1238L, such is insufficient to support the more broadly claimed genus of propylene based random copolymers having melt flow rate within the range as measured by this newly disclosed test. Contrary to Appellants' contention, the testing method recited in the data sheet was not properly incorporated into the Specification. The standard for

determining whether and to what extent a patent application incorporates material is whether one of ordinary skill in the art would understand the application as describing with sufficient particularity the material to be incorporated. *Harai v. Lee*, 656 F.3d 1331, 1334 (Fed. Cir. 2011). Appellants fail to direct our attention to any portion of the original disclosure mentioning ASTM D1238L, or any portion attempting in any way to incorporate this test from the data sheet. The original disclosure provides nothing informing one of ordinary skill in the art as to Appellants' desire to rely on any test other than ASTM D1238 when determining the melt flow rate of the genus of propylene based random copolymers. As such, we sustain Rejection 2 for the reasons given by the Examiner.

Rejection 3

The Examiner finds that Marczinke discloses injection stretch blow molded articles formed from a propylene based random copolymer having a molecular weight distribution of about 9. Ans. 6. Appellants argue that Marczinke's teaching that the molecular weight distribution is at most 6 fails to read on the claimed distribution range of about 9 to about 20. Br. 4. The Examiner responds that the disclosure does not provide an express definition for the term "about" as used in the claimed distribution range. Ans. 20. Nonetheless, the Examiner looks to the molecular weight distribution of the example A, the 7525MZ polymer for providing guidance on the meaning of this term. The issue before us therefore is: Does example A provide guidance as to the meaning of the term "about" as applied to the recited molecular weight distribution such that Marczinke's teaching of "at most 6" reads on "about 9". We answer this question in the negative and therefore will not sustain this rejection.

The Examiner's reliance on the molecular weight distribution of the 7525MZ polymer is premised on Appellants' reliance in their arguments on the disclosure of this polymer as an indicator of the modality of the molecular weight distribution as well as the test condition for determining the melt flow rate. Since Appellants are arguing the inherent properties of the 7525MZ polymer support limitations on the claimed genus of polymers, the Examiner concludes that the molecular weight distribution of this polymer should similarly be used for assessing this same property for the claimed genus. While we understand the temptation to rely on Appellants' arguments for written descriptive support based on the 7525MZ polymer, such reliance is contrary to the original disclosure and cannot form the basis for supporting an anticipatory rejection of the claims. Initially, as set forth above, we have not found Appellants' arguments regarding the 7525 MZ polymer to be persuasive. In addition, a plain reading of the Specification compels a contrary view of the 7525MZ polymer relative to the claimed invention.

"In one embodiment, the ISBM articles generally include a propylene based random copolymer having a molecular weight distribution of from about 9 to about 20." Spec. ¶ [0004]. Further, Appellants describe the propylene based random copolymers of the invention as exhibiting a broad molecular weight distribution "of at least 9", contrasting that against conventional propylene having molecular weight distribution "of from about 5 to about 7". Spec. ¶ [0035]. Appellants express the need for propylene based preforms that could be used to produce defect-free production of injection stretch blow molded articles. Spec. ¶ [0002]. Finally, Appellants compare three example polymers, Polymer "A" (the 7525MZ polymer),

Polymer "B", and Polymer "C". Spec. ¶ [0041]. Polymer "A has a molecular weight distribution of 6.4. *Id*. Polymers "B" and "C" have molecular weight distributions of 10. *Id*. Polymers "B" and "C" are less affected by temperature, indicating a broader processing window for injection stretch blow molding, than Polymer "A". Spec. ¶ [0042]. Finally, bottles made from Polymer "A" resulted in more bottle defects than those made from Polymers "B" and "C". Spec. ¶ [0047]. One of ordinary skill in the art when reading Appellants' Specification would reasonably conclude that Polymer "A", having a narrower processing window and more defects as well as a molecular weight distribution well below 9, is not within the scope of the claimed invention. As such, the Examiner's reliance on Polymer "A" to support a broad interpretation of the meaning of "about 9" to include 6 is misplaced. We find that the meaning of the claim limitation "about 9" would not include the molecular weight distribution of Marczinke's "at most 6". Accordingly, we will not sustain this rejection as to claims 1-15 and 17.

With regard to claims 16, 18, and 19, the Examiner finds that Marczinke teaches an injection stretch blow molded article made from a propylene based random copolymer, made in a single reaction zone with a single catalyst which will produce a unimodal molecular weight distribution. Ans. 6. The Examiner acknowledges that Marczinke fails to name a polymer made by a Ziegler-Natta catalyst comprising a succinate internal donor. *Id*. at 7. However, the Examiner finds that the catalyst is a process limitation, and that the product claimed is structurally indistinguishable from that of Marczinke. *Id*. at 7-8. The Examiner also finds that Marczinke teaches that the polymers may be formed by Ziegler-Natta catalysts. *Id*. at

22; Marczinke, col. 2, ll. 30-50. Indeed, the Examiner notes that "Appellant[s] ha[ve] not specified in what way the electron donor in the catalyst composition is critical to the structure of the polymer resulting from the polymerization process." Ans. 23.

Appellants argue that while Marczinke discloses "that polymers may be formed by either by Ziegler-Natta or metallocene catalysts", Marczinke uses metallocene catalysts to form injection stretch blow molded articles. Br. 5. Moreover, Appellants argue that the catalyst "utilized in polymerization reactions determine the properties of the polymer produced and ultimately the article formed with that polymer." *Id*. For support of this argument, Appellants direct our attention to the Specification Examples as evidence of the criticality of the succinate based Ziegler-Natta catalyst. *Id*. We note that Polymer "A" was formed using a "conventional Ziegler-Natta catalyst", while Polymers "B" and "C" were both formed using a "succinate based Ziegler-Natta catalyst". Spec. ¶ [0041]. The molecular weight distribution of Polymer "A" is below the recited "about 9 to about 20" range. *Id*. Moreover, the polymer formed with conventional Ziegler-Natta catalyst results in narrower processing windows and narrower molecular weight distributions of from about 5 to about 7. Spec. ¶¶ [0020], [0035], and [0039].

We find Appellants' Specification evidence supports their argument that the succinate based Ziegler-Natta catalyst is significant to the polymer made thereby. Accordingly, we do not sustain this rejection with regard to claims 16, 18, and 19.

<u>Rejection 4</u>

The Examiner finds that while Marczinke fails to teach a propylene based random copolymer having a molecular weight distribution of from about 9 to about 20, "it is within the ordinary level of skill in the art to adjust the molecular weight distribution of a polymer in order to control its physical properties, such as glass transition temperature, melt flow rate, melt viscosity, impact resistance, and processability for a given intended use of the polymer." Ans. 9. The Examiner further finds that the reaction parameters of Marczinke's process of making the propylene based random copolymer are result effective variables "because changing them will clearly affect the type of product obtained, including the polymer's physical properties such as its molecular weight distribution." *Id*. The Examiner concludes it would have been obvious to have utilized appropriate reaction conditions for the process of Marczinke so as to produce desired end results, including a molecular weight distribution within the scope of the claims. *Id*. at 10.

Appellants argue that Marczinke contains no suggestion or incentive to utilize a polymer with a broad, rather than narrow, molecular weight distribution. Br. 6. Appellants also argue that one skilled in the art would not have a reasonable expectation of success in injection stretch blow molding using a broad molecular weight distribution. *Id*. Appellants therefore contend that because Marczinke does not teach or suggest use of a polymer with a broad molecular weight distribution in an injection stretch blow molding process with a reasonable expectation of success, this rejection is based on impermissible hindsight. *Id*.

We find that though Marczinke teaches the polymerization reaction conditions are not critical and may be varied over a considerable range,

Marczinke also teaches that the molar mass distribution obtainable with metallocene catalysts "is generally in the range from 1.2-6.0, preferably from 1.5 to 3.0." Marczinke, col. 10, ll. 39-44. Marczinke does teach that the molar mass distribution can be adjusted (id. at ll. 19-25 and 45-49), but there is no indication that the adjustment could result in a substantially broader distribution of about 9, nor is there any indication as to why one would have done so. Absent such guidance, we do not find sufficient support for concluding that optimization of Marczinke's polymerization reaction conditions would have resulted in the molecular weight distribution claimed.

Claims 16, 18, and 19 do not include the molecular weight distribution range of about 9 to about 20. These claims recite that the Ziegler-Natta catalyst used is succinate based internal donor. The Examiner bases this rejection on the same reasoning set forth above for Rejection 3. Appellants' rebuttal is likewise the same as set forth above. We find for substantially the same reasons articulated above, that the Examiner has failed to articulate reasoning with rational underpinning sufficient to support the legal conclusion of obviousness. *See In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness") (*quoted favorably in KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Accordingly, we do not sustain this rejection.

<u>Rejection 5</u>

Initially, we note that claims 6, 14, and 17 all include the molecular weight distribution of about 9 to about 20. We further note that the Examiner's rejection of these claims is dependent on the same reasoning relied in Rejection 4. Thus, for the same reasons we do not sustain Rejection 4, we similarly do not sustain this rejection as applied to claims 6, 14, and 17.

Turning to claims 16, 18, and 19, the Examiner finds that Marczinke teaches an injection stretch blow molded article formed from a single propylene based random copolymer, wherein the copolymer is formed using either a Ziegler-Natta or metallocene catalyst in a single reaction zone which will produce a unimodal weight distribution. Ans. 12. The Examiner acknowledges that Marczinke does not specify that the Ziegler-Natta catalyst comprises a succinate internal donor. *Id*. at 13. However, the Examiner finds that Morini teaches use of Ziegler-Natta catalysts comprising succinate internal donors for polymerizing olefins, particularly propylene. *Id*. at 14. We note that Morini teaches that broad molecular weight distributions are preferred to improve processability of the polymers and better quality of molded products. Morini, ¶ [0002]. The Examiner concludes it would have been obvious to one of ordinary skill in the art to have used a Ziegler-Natta catalyst including a succinate internal donor as taught by Morini in the propylene polymerization process of Marczinke. *Id*.

Appellants argue Marczinke necessarily requires use of a metallocene catalyst. Br. 7. Therefore, Appellants contend that combination of the Ziegler-Natta catalyst of Morini would destroy the intended function of Marczinke. *Id*. Appellants contend Marczinke overcomes the difficulties of

using polypropylene for forming injection stretch blow molded articles through the use of metallocene catalysts. *Id*.

The Examiner responds that Marczinke's metallocene catalyst is a preferred embodiment, but Ziegler-Natta catalysts may also be used. Ans. 26. Further, the Examiner notes Appellants fail to indicate how the use of Morini's specific succinate based Ziegler-Natta catalyst would destroy Marczinke's intended function. *Id*. The Examiner finds that the proposed modification of the process of Marczinke to use Morini's succinate based Ziegler-Natta catalysts would still result in propylene based random copolymers. *Id*. We agree. In other words, Appellants have not adduced any persuasive technical reasoning or otherwise in response to the Examiner's reasonable determination that an artisan would have, using no more than ordinary creativity, modified Marczinke's propylene polymerization process to include Morini's succinate based Ziegler-Natta catalysts for enhanced processability. Accordingly, the preponderance of the evidence supports the Examiner's § 103 rejection of claims 16, 18, and 19 over the combination of Marczinke and Morini.

DECISION

The decision of the Examiner is affirmed with regard to the rejections of claims 1-8 and 15-20 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement, and of claims 16, 18, and 19 under 35 U.S.C. § 103(a) over Marczinke in view of Morini, but reversed with regard to the rejections of claims 1-19 under 35 U.S.C. § 102(b) and claims 1-20 under 35 U.S.C. § 103(a) over Marczinke, and reversed with

regard to rejection of claims 6, 14, and 17 under 35 U.S.C. § 103(a) over Marczinke in view of Morini.

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).

AFFIRMED-IN-PART