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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARTIN WEBER, CHRISTIAN MALETZKO,
SUSANNE ZEIHNER, MARK VÖLKEL, NORBERT GÜNTHERBERG,
and RÜDIGER BLUHM

Appeal 2015-001040
Application 13/515,905
Technology Center 1700

Before ROMULO H. DELMENDO, JAMES C. HOUSEL, and
JENNIFER R. GUPTA, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

The Applicants (hereinafter the “Appellants”)¹ appeal under 35 U.S.C. § 134(a) from a final decision of the Primary Examiner to reject claims 17–34.² We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ The Appellants state that the real party in interest is “BASF SE” (Appeal Brief filed July 23, 2014, hereinafter “Appeal Br.” 2).

² Appeal Br. 2; Final Office Action mailed December 23, 2013, hereinafter “Final Act.” 1; Examiner’s Answer delivered electronically on August 25, 2014, hereinafter “Ans.” 3.

BACKGROUND

The subject matter on appeal relates to a thermoplastic molding material in which a functionalized polyarylene ether comprising carboxyl groups and having a viscosity number within a specified range is included as a component in order to increase elongation at break and improve tensile strength (Specification, hereinafter “Spec.,” 1, ll. 5–22). Representative claim 17 is reproduced from page 11 of the Appeal Brief (Claims Appendix), with the disputed limitations highlighted in italicized text, as follows:

1. A thermoplastic molding material comprising the following components:
 - (A) from 20 to 79% by weight of at least one polyarylene ether,
 - (B) from 5 to 64% by weight of at least one polyarylene sulfide,
 - (C) *from 1 to 15% by weight of at least one functionalized polyarylene ether comprising carboxyl groups* and having a viscosity number according to DIN EN ISO 1628-1 of *45 to 65 ml/g* measured in 1% strength by weight solution in N-methyl-2-pyrrolidone at 25°C,
 - (D) from 15 to 70% by weight of at least one fibrous or particulate filler and
 - (E) from 0 to 40% by weight of a further additive and/or processing assistant, the sum of the % by weight of the components (A) to (E) not exceeding 100% by weight.

THE REJECTION

Claims 17–34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Weber et al. (hereinafter “Weber”)³ (Ans. 3–16; Final Act. 3–4).

DISCUSSION

The Appellants rely on the same arguments for all claims (Appeal Br. 4–9). Therefore, pursuant to 37 C.F.R. § 41.37(c)(1)(iv), we confine our discussion to claim 17, which we select as representative. Claims 18–34 stand or fall with claim 17.

The Examiner found that Weber describes every limitation of claim 17 except that the functionalized polyarylene ether comprising carboxyl groups included in the prior art thermoplastic molding material has a viscosity number of 15–80 ml/g (Ans. 3). The Examiner found that because Weber’s disclosed range (15–80 ml/g) completely encompasses the range (45–65 ml/g) recited in claim 17, “one skilled in the art would have been provided sufficient specificity to have selected [a functionalized polyarylene ether comprising carboxyl groups with] a viscosity number within the scope of [claim 17]” (*id.* at 11–12; *see also id.* at 3–4). Regarding secondary considerations of nonobviousness (i.e., unexpected results), the Examiner found that the proffered evidence was insufficient because: (i) it was not commensurate in scope with the claims; (ii) it did not include a sufficient number of experiments representative of both within (including at the low end of 45 ml/g) and outside the specified range; and (iii) the evidence did not establish persuasively that the difference in results reported

³ EP 0 903 376 A2, published March 24, 1999. We cite to the English language translation of record.

for the claimed invention relative to the prior art would have been considered unexpected by a person having ordinary skill in the art (*id.* at 12–13).

The Appellants contend that “Weber provided no motivation to the skilled artisan . . . to select polyarylene polymers comprising carboxyl groups and having a viscosity number . . . of 45 to 65 ml/g” (Appeal Br. 5). Specifically, the Appellants argue that although the prior art viscosity number range overlaps with the range recited in claim 17, “the Examples of Weber uniformly have viscosity numbers outside the claimed range, in particular 38.1 mL/g, 37.1 mL/g and 40.2 mL/g” (*id.*) (citing Weber 24–26, Components C1–C3). Additionally, the Appellants argue that the viscosity number range recited in claim 17 provides unexpected results in terms of tensile strength, especially high temperature tensile strength, as evidenced by the comparative experimental data included in the Specification at pages 18–19 (Examples 3–5 reported in Table 1) (Appeal Br. 7–9).

We discern no error in the Examiner’s well-supported factual findings, cogent analyses, and thorough rebuttal to the Appellants’ arguments (Ans. 3–4, 9–16). Therefore, we adopt them as our own. We add the following to highlight the main dispositive issues.

As the Examiner explained (Ans. 3–4), a “*prima facie* case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art.” *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003). Indeed, our reviewing court stated that “when, as here, the claimed ranges are completely encompassed by the prior art, the conclusion is even more compelling than in cases of mere overlap.” *Id.* at 1330.

Here, the range recited in claim 17 (45–65 ml/g) is completely subsumed by the range disclosed in the prior art (15–80 ml/g) (Weber at 3, ll. 9–11), thus creating at least a prima facie case of obviousness. *Peterson*, 315 F.3d at 1330.

That Weber’s examples (e.g., Weber 26 disclosing a viscosity number of 40.2 ml/g) describe values below the lower end (45 ml/g) of the range recited in claim 17 does not defeat the Examiner’s prima facie case of obviousness because it is well-settled that a prior art reference is not limited to its preferred embodiments. *Merck & Co. Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“[I]n a section 103 inquiry, ‘the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.’”) (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976)).

Here, we find it significant that the range recited in claim 17 (45–65 ml/g) constitutes a significant portion (over 30%) of what is already in the public domain (15–80 ml/g) and, therefore, the prima facie case of obviousness is even more compelling than instances of slight overlap or general subsumption of a species by a considerably broad genus. *Cf. In re Schaumann*, 572 F.2d 312, 315, 316 (CCPA 1978) (small prior art genus describes a species within the genus); *see also ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340, 1344 (Fed. Cir. 2012) (prior art disclosure of clarifying water with an alkalinity of 150 ppm or less was sufficiently specific with respect to a claimed process of clarifying water with “a raw alkalinity less than or equal to 50 ppm” where unexpected criticality was not demonstrated across the range).

“When the PTO shows prima facie obviousness, the burden then shifts to the applicant to rebut.” *In re Mayne*, 104 F.3d 1339, 1342 (Fed. Cir. 1997).

We see no basis to overturn the Examiner’s assessment of the weight to be given to the proffered evidence of unexpected results. As pointed out by the Examiner, the Appellants’ evidence is not sufficiently comprehensive to establish that the improved tensile strength results would be achieved across the range specified in claim 17. Although the composition described in Example 5 (invention) included a functionalized polyarylene ether having a viscosity number of 46.9 ml/g (Component C1) and that composition was compared against a composition described in Example C4 (control) with a polyarylene ether having a viscosity number of 44.4 (Component C3), the evidence lacks basis to presume that a viscosity number of 45 ml/g would provide the same or similar results as 46.9 ml/g. *In re Inland Steel Co.*, 265 F.3d 1354, 1365–66 (Fed. Cir. 2001) (holding that Inland failed to overcome a prima facie case of obviousness where “the examiner expressed concern that insufficient data had been presented to prove the unexpectedly favorable results in the . . . claimed antimony ranges, because Inland offered only a few data points from one experiment comparing antimony within and below its claimed ranges.”); *In re Harris*, 409 F.3d 1339, 1344 (Fed. Cir. 2005) (“Even assuming that the results were unexpected, Harris needed to show results covering the scope of the claimed range. Alternatively Harris needed to narrow the claims.”).

As stated by the Examiner (Ans. 13), “a composition . . . comprising component C having a viscosity number of 45 ml/g . . . [would be expected to] have the same or very similar properties as Example C4 comprising

Component C3 having a viscosity of 44.4 ml/g.” *Peterson*, 315 F.3d at 1329 (“We have also held that a *prima facie* case of obviousness exists when the claimed range and the prior art range do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties.”).

Furthermore, we agree with the Examiner (Ans. 12) that the proffered showing of unexpected results is not commensurate in scope with claim 17 for a different reason. The Appellants’ Component C1 (Example 5) is described as a specific functionalized polyether sulfone prepared from a specific set of reactants under specified reaction conditions (Spec. 17, ll. 19–34). That functionalized polyether sulfone was then combined with other specific components at an amount of 5 parts by weight. By contrast, claim 17 is considerably broader in scope, reading on “from 1 to 15% by weight” of any functionalized polyarylene ether comprising carboxyl groups and having a viscosity number within 45–65 ml/g. *In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978) (“Establishing that one (or a small number of) species gives unexpected results is inadequate proof, for ‘it is the view of this court that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.’”) (quoting *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)).

Finally, we also agree with the Examiner that the Appellants failed to demonstrate that the results would have been considered unexpected by a person having ordinary skill in the art. Here, the composition of Example 5 (invention) had a tensile strength of 162 MPa, whereas the compositions of Examples C4 and C3 (controls) had somewhat lower tensile strengths of 152 and 148, respectively (Spec. 19, Table 1). For high temperature testing, the

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results were 151 MPa versus 120 and 121 (*id.*). But the Appellants do not direct us to persuasive evidence, such as a declaration from a disinterested third party expert, establishing that the submitted data would have been considered unexpected by a person having ordinary skill in the art. *In re Geisler*, 116 F.3d 1465, 1471 (Fed. Cir. 1997) (holding that “Geisler’s brush test report show[ing] 26 percent greater wear resistance at a thickness of 50 Angstroms than at a thickness of 100 Angstroms” was inadequate).

For these reasons, we uphold the Examiner’s rejection.

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