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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NORMEN SZESNI, ALFRED HAGEMEYER,
FRANK GROSSMANN, RICHARD FISCHER,
MICHAEL URBANCIC, CLAUS LUGMAIR,
MINGYONG SUN, HONGYI C. HOU, and
DAVID MICHAEL LOWE

Appeal 2018-004871
Application 13/276,403
Technology Center 1700

Before ROMULO H. DELMENDO, DONNA M. PRAISS, and
SHELDON M. MCGEE, *Administrative Patent Judges*.

PRAISS, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ In this decision, we refer to the Specification filed Oct. 19, 2011 (“Spec.”), the Final Office Action mailed Oct. 5, 2017 (“Final Act.”), the Appeal Brief filed Dec. 12, 2017 (“Appeal Br.”), the Examiner’s Answer mailed Feb. 7, 2018 (“Ans.”), and the Reply Brief filed Apr. 9, 2018 (“Reply Br.”).

STATEMENT OF THE CASE

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner's final decision to reject claims 1–13 and 20–24 as obvious under 35 U.S.C. § 103(a) over the combination of Bailey³ and Riisager.⁴ An oral hearing was held on September 19, 2019.⁵ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The subject matter on appeal relates to a catalyst composition for selective hydrogenations comprising a heterogeneous catalyst with a BET surface area of $\leq 9 \text{ m}^2/\text{g}$ and an ionic liquid applied to the surface of the same. Spec. 1. According to the Specification, the catalyst composition has improved selectivity in favor of the desired product and better thermal stability. *Id.* Independent claim 1 is illustrative (disputed matter italicized):

1. A catalyst comprising palladium supported on a substrate, said catalyst further comprising at least one ionic liquid, wherein said substrate has a BET surface area of less than $9 \text{ m}^2/\text{g}$ prior to the addition of said at least one ionic liquid, and said catalyst has *an ionic liquid loading of 0.01% to 5% by weight of the catalyst.*

Appeal Br. 10 (Claims Appendix).

² We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Clariant Corporation as the real party in interest. Appeal Br. 2.

³ US 2006/0217579 A1, published Sept. 28, 2006.

⁴ US 2011/0065950 A1, published Mar. 17, 2011.

⁵ A transcript of the oral hearing will be filed in due course.

OPINION

Appellant argues the rejection of claims 1–13 and 20–24 as a group. Appeal Br. 4–9. In accordance with 37 C.F.R. § 41.37(c)(1)(iv), claims 2–13 and 20–24 will stand or fall together with independent claim 1.

Appellant argues that the Examiner erred in rejecting claim 1 over Bailey and Riisager because “Riisager provides no teaching regarding a lower limit of ionic liquid loading” which, Appellant contends, means that “Riisager does not go down to zero.” Appeal Br. 5 (citing Riisager Abstract, ¶ 12). According to Appellant, Riisager’s silence regarding a lower limit of ionic liquid loading indicates that a large amount of ionic liquid should be used, specifically the upper bounds explicitly disclosed in Riisager. *Id.* at 6. Appellant also asserts that Riisager’s ranges are “so broad as to provide no guidance to one of ordinary skill in the art to use ionic liquid within the claimed range.” *Id.* at 8.

In addition, Appellant asserts that the rejection is rebutted by the Declaration of Dr. Normen Szesni (“Szesni Decl.”), one of the named inventors, because each of the nine publications attached to the declaration discloses an ionic liquid loading of 10% or more. *Id.* at 7. According to Appellant, the publications are consistent with the Specification’s disclosure that “the ‘accepted wisdom in the art’ included the use of ionic liquid well above the claimed range” of 0.01% to 5% by weight of the catalyst. *Id.* Appellant further notes that one of the publications included with the Szesni Declaration is another publication by Riisager. *Id.* at 8.

We are not persuaded by Appellant’s arguments that the Examiner reversibly erred in rejecting claim 1 under 35 U.S.C. § 103(a) for the reasons stated in the Final Action and the Answer. The Examiner’s finding (Ans. 4)

that Riisager discloses ionic liquid loading up to 33% by weight, is supported by the cited record in this appeal. Riisager ¶ 95. Appellant does not dispute the Examiner's finding (Ans. 4) that "up to 33% by weight" is a range that encompasses the claimed range of 0.01% to 5% by weight. Instead, Appellant asserts that absent an explicit disclosure of a value for the lower end of the range, Riisager "would have directed one of ordinary skill in the art to use amounts of ionic liquid approaching the recited numbers." Appeal Br. 6. The difficulty with Appellant's argument, however, is that Riisager discloses a range rather than merely the value of 33%.

In the Reply Brief, Appellant asserts that Riisager's examples do not include ionic liquid loadings within the claimed range. Reply Br. 4. This argument also is not persuasive of error because "a reference is not limited to the disclosure of specific working examples." *In re Mills*, 470 F.2d 649, 651 (CCPA 1972) (citation omitted). Moreover, in a determination of obviousness, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. *Merck & Co. v. Biocraft Labs.*, 874 F.2d 804, 807 (Fed. Cir. 1989) ("That the [prior art] patent discloses a multitude of effective combinations does not render any particular formulation less obvious.").

Appellant's argument (Appeal Br. 7) that Riisager necessarily discloses a lower bound of 10% because it was common practice to use ionic liquid loading of 10% or more based on the Szesni Declaration and its supporting publications is also not persuasive of error. First, the Examiner's rejection is based on the combination of Bailey and Riisager, not Appellant's additional references. Second, neither Appellant nor the Szesni Declaration adequately explains why the additional publications would have been

expected to import limitations to the applied Riisager reference, particularly in view of the earlier publication dates of the appended publications to the Szesni Declaration. Therefore, we are not persuaded by Appellant that the Examiner erred in finding that Riisager discloses a range for ionic liquid loading that overlaps the range required by claim 1.

Regarding Appellant's argument (Appeal Br. 8; Reply Br. 5) that the breadth of Riisager's range (up to 33%) is too large to offer any guidance for carrying out the claimed range, we are not persuaded of error because Appellant has not established any criticality of the claimed range. *See In re Harris*, 409 F.3d 1339, 1341 (Fed. Cir. 2005) (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, 1330 (Fed. Cir. 2003) ("In general, an applicant may overcome a *prima facie* case of obviousness by establishing 'that the [claimed] range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.' That same standard applies when, as here, the applicant seeks to optimize certain variables by selecting narrow ranges from broader ranges disclosed in the prior art.").

Finally, Appellant asserts two additional arguments in the Reply Brief: (1) that the combination of Bailey and Riisager is improper because Bailey discloses a heterogeneous hydrogenation catalyst and Riisager discloses a homogeneous liquid phase system, which are "highly distinct branches of catalyst chemistry" and (2) the "inventive examples" on pages 12–19 of the Specification show "improved selectivity" sufficient to rebut *prima facie* obviousness. Reply Br. 3, 5–6. These arguments were not presented in the Appeal Brief, and Appellant has not proffered a showing of

good cause explaining why the arguments could not have been presented in the Appeal Brief. Therefore, we will not consider these new and untimely arguments in our assessment of the Examiner's § 103 rejections. 37 C.F.R. §§ 41.37, 41.41. In addition, we note that both Bailey and Riisager describe being suitable for supported catalyst systems. Bailey ¶¶ 13, 14; Riisager ¶ 11.

In sum, Appellant fails to show harmful error by the Examiner in rejecting claim 1 as obvious over the combination of Bailey and Riisager.

Accordingly, we find the preponderance of the evidence in this appeal record supports the Examiner's rejection of claims 1–13 and 20–24 over the combination of Bailey and Riisager.

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
1–13 and 20–24	§ 103(a) Bailey and Riisager	1–13 and 20–24	

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