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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* HIROSHI OKUSHITA, KOUICHIRO KURACHI, MASATO  
SHIMOKAWA, and SHOUICHI TANAKA

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Appeal 2015-002689  
Application 12/518,433  
Technology Center 1700

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Before MARK NAGUMO, N. WHITNEY WILSON, and  
LILAN REN, *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from the Examiner's February 26, 2014 decision finally rejecting claims 1, 3–5, 10–13, 15–17, and 20–25 (“Final Act”)<sup>2</sup>. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> Appellants identify the Real Party in Interest as Ube Industries, Ltd. (Appeal Br. 1).

<sup>2</sup> The Final Action does not explicitly set out the grounds of rejection, but instead references the details recited in an Official Action mailed September 11, 2013 (“Off. Act.”) (Final Act. 2).

### CLAIMED SUBJECT MATTER

Appellants' invention is directed to a polyamide resin which has a broad moldable temperature range or width estimated from the difference between its melting point and its thermal decomposition temperature (Abstract). It is said that the claimed resin exhibits excellent melt moldability and has excellent chemical resistance and hydrolysis resistance compared to conventional aliphatic polyamide resins without impairing the low water absorption property of an aliphatic linear polyoxamide resin (*id.*). The inventive resin consists of oxalic acid and a diamine component composed of 1,9-nonanediamine (NMDA) and 2-methyl-1,8-octanediamine (MODA).

Details of the claimed invention are set forth in representative claim 1, which is reproduced below from the Claims Appendix of the Appeal Brief:

1. A polyamide resin which consists of a dicarboxylic acid component and a diamine component, wherein said dicarboxylic acid component consists of oxalic acid and said diamine component comprises 1,9-nonanediamine and 2-methyl-1,8-octanediamine, and a molar ratio between 1,9-nonanediamine and 2-methyl-1,8-octanediamine is from 6:94 to 99:1.

### REJECTIONS

I. Claims 1, 3–5, 10–13, 15–17, and 20–25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Patton<sup>3</sup> in view of Oka.<sup>4</sup>

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<sup>3</sup> Patton et al., U.S. Patent No. 5,093,466, issued March 3, 1992.

<sup>4</sup> Oka et al., U.S. Patent No. 5,670,608, issued September 23, 1997.

II. Claims 3–5, 15–17, 22, 23, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Patton in view of Oka, and further in view of Otaki.<sup>5</sup>

## DISCUSSION

Appellants do not offer separate arguments in support of any of the claims, nor, as discussed *infra*, do they offer separate arguments with regards to Rejection II (Appeal Br. 8). Accordingly, we focus our discussion on the rejection of claim 1 over Patton in view of Oka.

The Examiner finds that Patton discloses a polyamide resin prepared from a dicarboxylic acid component and a diamine component, where the dicarboxylic acid component is oxalic acid (Off. Act.<sup>6</sup> 6, citing Patton 3:43, 4:24–28). The Examiner further finds that Patton teaches that a suitable diamine component is NMDA, and that the diamine component can comprise a mixture of diamines (*id.*, citing Patton 4:33, 43–55), but does not disclose the use of MODA.

Oka discloses a polyamide resin where the dicarboxylic acid is terephthalic acid (an aromatic dicarboxylic acid) and the diamine component can be a mixture of NMDA and MODA, wherein the molar ratio of NMDA to MODA is from 60:40–99:1 (Oka 2:45–46, 3:1–10). The Examiner finds that Oka discloses that the use of the NDMA/MODA mixture gives polyamides with a large melt moldable temperature range and excellent moldability, as well as excellent crystallinity and mechanical characteristics

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<sup>5</sup> Otaki, U.S. Patent Pub. 2004/0241468 A1, published December 2, 2004.

<sup>6</sup> Official Action mailed September 11, 2013. The Final Action refers to this Official Action for the substance of the rejections.

(Off. Act. 6–7, citing Oka, 2:51–58, 4:22–34).

The Examiner determines that a person of skill in the art would have been motivated to modify Patton’s polyamide by substituting Oka’s NDMA/MODA mixture for Patton’s NDMA to obtain the desirable characteristics achieved with that mixture by Oka, and that making that modification of Patton’s polyamide would yield the claimed invention (Off. Act. 7).

We have reviewed the evidence and arguments raised by Appellants in the Appeal Brief and the Reply Brief, and find them unpersuasive of reversible error essentially for the reasons well-expressed by the Examiner in the Answer. We add the following primarily for emphasis.

Appellants make several arguments seeking reversal of the rejection. First, Appellants argue that Patton does not by itself teach or suggest the use of a combination of NMDA and MODA (Appeal Br. 3). While this is true as a factual matter, the rejection on appeal is an obviousness rejection over Patton and Oka, not an anticipation rejection over Patton. Therefore, that Patton does not disclose the use of the claimed NDMA/MODA mixture is not indicative of reversible error in the rejection.

Second, Appellants argue that because Oka discloses the use of the NDMA/MODA mixture in combination with a terephthalic acid and it states that its object was “to provide a polyamide comprising an aromatic dicarboxylic acid component and an aliphatic acid component and having far better moldability as compared to conventional aromatic polyamides,” one of skill in the art would not have had a reasonable basis for expecting that Oka’s NDMA/MODA mixture would provide any beneficial properties when combined into a polyamide resin with Patton’s oxalic acid units

(Appeal Br. 4–5). Therefore, according to Appellants, there would have been no motivation to combine Patton with Oka in the way necessary to arrive at the claimed invention (Appeal Br. 5).

However, as found by the Examiner (Ans. 3), both Oka and Patton disclose polyamides formed from the polymerization of diamine monomers and dicarboxylic acid monomers. Further, Oka teaches that the improved polymer properties it reports are based on a change from an NDMA polyamide to an NDMA/MODA polyamide, even though the dicarboxylic acid component remains the same (*see, e.g.* Oka, Table 4). Therefore, the Examiner finds, one of skill in the art would have had reason to believe that the improved properties were the result of the use of the NDMA/MODA mixture rather than the NDMA alone (Ans. 3), which would have given a person of skill in art a reasonable basis to expect that making the NDMA/MODA for NDMA substitution in Patton’s system would result in improved properties. Appellants have not provided a persuasive explanation of why the change from Oka’s terephthalic acid to Patton’s oxalic acid would have changed that expectation.

Third, Appellants argue that the disclosure of one of Oka’s priority applications suggests that the NDAM/MODA diamine mixture disclosed in Oka is not necessary for the improved properties obtained by Oka, so that a person of skill in the art would have had no reason to combine Oka’s NDMA/MODA mixture with Patton’s oxalic acid (Appeal Br. 6). This argument is not persuasive. Regardless of what one of Oka’s priority documents may disclose, Appellants have not demonstrated reversible error in the Examiner’s finding that “Oka provides clear teaching and motivation to use NDMA in combination with MODA (col. 2, lines 51–56; col. 4, lines

30–34)” and that while Oka recognizes that polyamides without MODA have excellent properties, the additional use of MODA improves those properties (Ans. 4).

Fourth, Appellants contend that Oka would have suggested to a person of skill in the art that the improved effects resulted from the use of an appropriate terminal-blocking agent, and this would have led a person of skill in the art away from the claimed invention (Appeal Br. 6–7). However, as explained in detail by the Examiner (Ans. 5), Appellants have not adequately established that MODA only provides the desired effects on polyamide properties when terminal blockages are made.

Fifth, Appellants argue that the claimed invention provides an unexpected increase in the decomposition temperature (Td) of the polyamide (Appeal B. 7–8, Reply Br. 1–2). In particular, Appellants argue that there is a “remarkable increase in Td...observed in the examples provided in Appellants’ [S]pecification under the same conditions as those used by Oka” (Reply Br. 1). According to Appellants, the increase in Td taught by Oka is at most about 2.4%, while the increase in Td using the claimed NDMA/MODA mixture (as opposed to NDMA alone) with oxalic acid is up to 20%.

The burden of showing unexpected results rests on the person who asserts them, and can be carried by establishing that the difference between the claimed invention and the closest prior art was an unexpected difference. *See In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). Further, the showing of unexpected results must be commensurate in scope with the claims. *See In re Peterson*, 315 F.3d 1325, 1330–31 (Fed. Cir. 2003). In this instance, Appellants’ effort to overcome the prima facie case of unpatentability

established by the Examiner is not persuasive because the showing is not commensurate in scope with the claims. For example, claim 1 recites that the NDMA:MODA ratio ranges from 6:94 to 99:1. However, the data relied on by Appellants in trying to prove unexpected results shows a range of the NDMA:MODA ratio from 85:15 (about 6:1) to 80:20 (4:1). Thus, the tested range does not include the great majority of the claimed range; and Appellants have not explained why a person skilled in the art would have accepted the results of the very abbreviated range as representative of ratios an order of magnitude less and an order of magnitude more. We conclude that the data are unpersuasive in overcoming the prima facie case of obviousness.

Finally, Appellants raise a separate argument regarding claim 22 for the first time in the Reply Brief. We will not consider this new argument because it is not accompanied by a showing of good cause explaining why the argument could not have been presented in the Appeal Brief.

37 C.F.R. § 41.37(c)(1)(iv) (2012); *In re Hyatt*, 211 F.3d 1367, 1373, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000) (an argument not first raised in brief to the Board is waived on appeal).

CONCLUSION

We AFFIRM the rejection of claims 1, 3–5, 10–13, 15–17, and 20–25 under 35 U.S.C. § 103(a) as being unpatentable over Patton in view of Oka.

We AFFIRM the rejection of claims 3–5, 15–17, 22, 23, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Patton in view of Oka, and further in view of Otaki.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1) (iv).

AFFIRMED