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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* RYO NAGAZUMI,  
SUSUMU SAITO, and NAOTOSHI ORITA

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Appeal 2011-005034  
Application 11/451,699  
Technology Center 1700

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Before TERRY J. OWENS, PETER F. KRATZ, and LINDA M.  
GAUDETTE, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1, 2, 6, 10, 11, 19, and 20. We have jurisdiction pursuant to 35 U.S.C. § 6.

Appellants' claimed invention is directed to polyurethane foam and a method of making same. In Appellants' method and product, both a hydrate of an inorganic compound and at least one organic compound selected from benzothiazole compounds, dithiocarbamate compounds, and sulfenamide compounds are employed together with other foam forming materials,

including polyols, polyisocyanates, a free water blowing agent, and a catalyst.

Claims 1 and 20 are illustrative and reproduced below:

1. A polyurethane foam produced by reaction, foaming and curing, the polyurethane foam comprising:

a polyurethane foam raw material including polyols, polyisocyanates, a blowing agent comprising 3.5 to 9.0 parts by mass of water based on 100 parts by mass of the polyols and a catalyst, wherein the polyurethane foam raw materials are combined having an isocyanate index of 100 to 110;

wherein a hydrate of an inorganic compound having a decomposition temperature of 100 to 170° C and at least one organic compound selected from benzothiazole compounds, dithiocarbamate compounds and sulfenamide compounds are mixed with the polyurethane foam raw material; and

wherein the hydrate of an inorganic compound is a sulfate hydrate selected from calcium sulfate hydrate and magnesium sulfate hydrate;

the hydrate of an inorganic compound decomposes and generates water in the step where the foam reacts and foams;

the polyurethane foam comprising 3.0 to 30.0 parts by mass of the hydrate of an inorganic compound based on 100 parts by mass of the polyols and 0.1-3.0 parts by mass of the organic compound based on 100 parts by mass of the polyols;

the polyurethane foam having an apparent density defined by the International Standard ISO 845 of 15 to 25 kg/m<sup>3</sup>, and a tensile strength defined by ISO 1798 to 60 to 130 kPa;

the polyurethane foam is a flexible slab stock polyurethane foam; and

wherein said foaming is performed at room temperature under atmospheric pressure.

20. A method of producing a polyurethane foam, comprising:

mixing a hydrate of an inorganic compound and at least one organic compound selected from benzothiazole compounds, dithiocarbamate compounds and sulfenamide compounds with a polyurethane foam raw material including polyols, polyisocyanates, a blowing agent comprising 3.5 to 9.0 parts by mass of free water based on 100 parts by mass of the polyols and a catalyst, and

causing the polyurethane foam raw material to react, foam and cure;

wherein the hydrate of an inorganic compound decomposes and generates water in the step where the foam reacts and foams.

The Examiner relies on the following prior art references as evidence in rejecting the appealed claims:

Anorga	4,315,078	Feb. 9, 1982
Sandler et al. (Sandler)	4,356,274	Oct. 26, 1982

The Examiner maintains the following grounds of rejection:

Claims 1, 2, 6, 10, 11, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anorga in view of Sandler.

We affirm the stated rejection for substantially the reasons set forth by the Examiner in the Answer. We offer the following for emphasis.

It is well-settled that “the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *see also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). However, Appellants are reminded that “[t]he ‘*prima facie* case’ serves as a procedural mechanism that shifts the burden of going forward to the applicant, who must produce evidence and/or argument rebutting the case of

unpatentability” (internal citations omitted). *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

An appellant may attempt to overcome an examiner’s obviousness rejection on appeal to the Board by submitting arguments and/or evidence to show that the examiner made an error in either (1) an underlying finding of fact upon which the final conclusion of obviousness was based, or (2) the reasoning used to reach the legal conclusion of obviousness. Similarly, the applicant may submit evidence of secondary considerations of non-obviousness [(internal citation omitted)].

*Id.*

A claimed invention is not patentable if the subject matter of the claimed invention would have been obvious to a person having ordinary skill in the art. 35 U.S.C. § 103(a); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007); *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 13 (1966).

Here, Appellants’ argue the rejected claims together as a group (Br. 7-10). Accordingly, we select claim 20 as representative.

The Examiner has found that Anorga discloses preparing polyurethane foam by reacting polyisocyanates, polyols, and a blowing agent while using a catalyst and sulfate hydrates, and that Sandler teaches the inclusion of at least one organic compound corresponding to the requirements of representative claim 20 but for the purpose of imparting a smoke suppression capability to a polyurethane foam product (Ans. 4). Based on the combined teachings of the applied references, the Examiner maintains that “it would have been obvious for one having ordinary skill in the art to have employed the organic compounds disclosed by Sandler et al. in the

foam preparations of Anorga for the purpose of imparting their smoke suppressing effects” to the foam product made by Anorga (Ans. 4).

Appellants’ conclusory assertion that Angora and Sandler do not teach a urethane foam composition including both the claimed inorganic hydrate and a at least one of the specified organic compounds as set forth in the appealed claims does not serve to specifically contest the Examiner’s factual findings as to the teachings of each of the applied references and/or articulate any cognizable argument explaining why the Examiner’s reasoning for combining the teachings of the applied references may be in error (Br. 7). As such, the arguments presented do not persuasively refute the Examiner’s rejection on the basis of any asserted failure by the Examiner to present a prima facie showing of obviousness based on the combined teachings of Angora and Sadler as set forth in the Final Rejection and as restated in the Answer by the Examiner.

Rather, Appellants’ arguments are more specifically directed to an assertion that the claimed subject matter is attended by unexpected and synergistic results as evinced by examples and test results furnished in the subject Specification that allegedly serve to establish the non-obviousness of the claimed subject matter (Br. 7-10).

However and for substantially the reasons set forth by the Examiner, Appellants have failed to carry the burden to establish that this proffered evidence is sufficient to outweigh the evidence of obviousness supplied by the Examiner (Ans. 10-15). In this regard, the burden of production rests with Appellants to establish that the reported tests provide results that are unexpected, that the comparisons are with the closest prior art, and that the

showing is commensurate in scope with the claimed subject matter. *See In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972).

As explained by the Examiner, Appellants have not established that the evidence supplied in the Specification furnishes results for the claimed invention that are truly unexpected over a range of process and foam make-up compositions and parameters when compared with the closest prior art to establish unexpected results which are commensurate in scope with the claimed subject matter (Ans. 10-14). For example, Appellants assert an improvement in tensile strength, elongation, and/or tear strength for any of Examples 1-3 of the subject Specification when compared to the Comparative Examples 1-4 that is said to be unexpected and to represent synergistic results achieved by providing for polyurethane foam that is made with both the claimed inorganic hydrate compound and at least one of the claimed organic compounds selected from benzothiazole compounds, dithiocarbamate compounds, and sulfenamide compounds (Br. 8-10; Spec. 17-22, Tables 1 and 2).

The relied upon tested examples are limited to foam prepared by using a particularly specified polyether polyol available from Sanyo Chemical Industries, Ltd. (Polyol GP-3050) reacted with a particularly specified polyisocyanate mixture available from Nippon Polyurethane Co., Ltd. (Polyisocyanate T-80), using a particularly specified amine catalyst available from KAO Corporation (Amine Catalyst KL No. 3) and a specified metal catalyst from Johoku Chemical Co., Ltd. (MHR-110), and a particularly specified amount of each of a particular hydrate and one of several specified organic compounds together with other identified ingredients (Spec. 17-22, Tables 1 and 2).

The appealed claims on the other hand are not so limited. Representative claim 20, for example, is not limited to any particular polyol or polyisocyanate reactants, does not require the catalysts employed in the Specification Examples 1-3, and is not limited to employing any particular hydrate of an inorganic compound and any particular amounts of either the hydrate or at least one organic compound selected from benzothiazole compounds, dithiocarbamate compounds, and sulfenamide compounds.

Consistent with the Examiner's determination, Appellants have not proffered any persuasive scientific explanation articulating why the reported results for the limited examples presented would have been logically expected to accrue over the extensive scope of the representative claim 20 subject matter so as to discharge Appellants' burden of establishing unexpected results that are reasonably commensurate in scope with the claimed subject matter (Ans. 12-14; see generally Br.). *See In re Dill*, 604 F.2d 1356, 1361 (CCPA 1979). Moreover, Appellants have not established that the comparison examples are truly representative of the closest prior art and that the reported results are truly unexpected to one of ordinary skill in the art. In this regard, attorney argument does not take the place of evidence.

Based on the totality of the record, including due consideration of Appellants' evidence and arguments, we determine that the preponderance of evidence weighs most heavily in favor of an obviousness determination for the claimed subject matter. Accordingly, we affirm the stated grounds of rejection maintained by the Examiner for the reasons stated in the Answer and above.

Appeal 2011-005034  
Application 11/451,699

ORDER

The Examiner's decision to reject the appealed claims 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).

AFFIRMED

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