

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte DONALD H. CAMPBELL and DAVID R. HAY

Appeal No. 2006-2817
Application No. 10/734,979

ON BRIEF

Before ADAMS, LINCK, and LEBOVITZ, Administrative Patent Judges.

LEBOVITZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to methods of coating substrates with a thermosetting composition containing isocyanate reactive material. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 134. We affirm.

Background

The application relates to thermoset compositions which contain isocyanate crosslinkers which are based on melamine triisocyanate. Specification, ¶¶ 1 and 4. The crosslinkers are used as curing agents to produce polymeric films. Id., ¶¶ 16 and 25. They are particularly useful for automobiles and other industrial products as a clear coat applied over a pigmented basecoat. Id., ¶¶ 2, 21, and 26. Because they form

durable urethane bonds, they are resistant to degradation and other environmental factors. Id. Typically, the compositions are applied to substrates, such as automobile parts, by spraying. Id., ¶ 23. Waste from the process, including unreacted triisocyanates, is discharged into the sewage system which “then finds its way into natural waterways.” Id., ¶ 3.

According to the specification, the commercially available triisocyanate is not used industrially because it is toxic to aquatic life and cannot be safely released into the sewage system. Id., ¶ 3. For this reason, its use has been restricted by the U.S. Environmental Protection Agency (EPA) and has not been used in the automobile industry in the United States. Id. The application described describes melamine triisocyanates which “have both an increased removal rate by sewage treatment and a reduced aquatic toxicity,” and thus can be expelled into sewers without the risk of harming aquatic life. Id., ¶ 5.

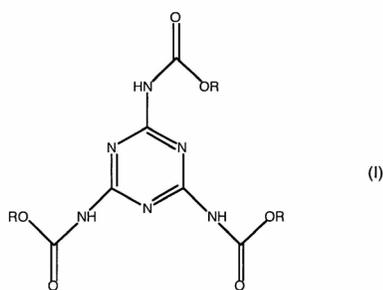
Discussion

Claim construction

Claims 1-14 are on appeal. Claim 4 has been separately argued, and thus does not stand or fall together with claims 1-3 and 5-14. We select claim 1 as representative.

Claims 1 and 4 read as follows:

1. A method of coating a substrate to maximize capture of a compound of Formula I from wastewater, comprising steps of:
- (a) providing a thermosetting composition comprising a compound of Formula I



an oligomer thereof, or both, wherein each R is independently selected from the group consisting of alkyl, cycloalkyl, aryl, and akylaryl groups and the R groups have, on average, five or more carbon atoms, with the proviso that the compound is a solid when the R groups have, on average, fewer than six carbon atoms;

(b) spraying the thermosetting composition onto the substrate in a spray booth where overspray of the composition containing the compound of Formula I or the oligomer thereof or both results from the spraying,

(c) capturing the overspray with a spray booth water wash,

(d) removing spray booth water wash as waster [sic] water and

(e) removing the compound of Formula I or the oligomer thereof or both from the waste water.

4. The method of claim 1, wherein at least one R comprises an oxygen atom.

Claim 1 has five steps: (a) providing a thermosetting composition that contains a triisocyanate of Formula I; (b) spraying the composition on a substrate (e.g., an automobile part) in a spray booth; (c) capturing the overspray with a water wash; (d) removing the water wash from the spray booth; and (e) removing the Formula I compound from it.

The Formula I compound has an R group which has “on average, five or more carbon atoms, with the proviso that the compound is a solid when the R groups have, on average, fewer than six carbon atoms.” The phrase “on average” is not expressly

defined in the specification. Accordingly, we give it its broadest reasonable interpretation consistent with the specification. See e.g., Exxon Res. Eng'g. Co. v. United States, 265 F.3d 1371, 1379-80, 60 USPQ2d 1272, 1280 (Fed. Cir. 2001). Formula I is a triisocyanate triazine with the three R substituents. The claim refers to it as “a compound” which “on average” has R groups with a specific carbon atom content. Thus, we interpret “on average” to refer to the average of the number of R group carbon atoms contained in a single molecule. This is consistent with the specification which has an example of a di-hexyl (6 carbons), mono-butyl (4 carbons) compound which would have, on average $((6+6+4)/3=5.33)$ more than five carbon atoms. Specification, page 15, Compound 1.

Obviousness under § 103

Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as obvious over Sadvary¹ in view of admitted art described in Appellants' application.

Sadvary is cited by the Examiner for its teaching of a providing a thermosetting composition comprising a compound of Formula I as required by claim 1(a). Answer, page 4, ¶ 1. Sadvary describes curable film-forming compositions that contain an organic polysiloxane component. Sadvary, Abstract. The composition can be used as a transparent top coat to cover automobile paint finishes. Id., ¶¶ 3, 8, and 13. The polysiloxane is cured utilizing suitable curing agents which are reactive with the polysiloxane's functional groups. Id., ¶ 41. Examples of curing agents are described,

¹ Sadvary et al. (Sadvary), U.S. Pat. App. Pub. No. 2001/0039324 A1, published Nov. 8, 2001.

including tricarbamoyl triazines which are disclosed in the Jacobs² patent. Id., ¶¶ 41 and 48. The Examiner states that “Jacobs anticipates, in examples 4 and 5, compounds within the subgroup as claimed in claim 1.” Answer, page 7. The Examiner acknowledges that Sadvary does not teach the remaining steps of claim 1. Id., page 4.

The Examiner relies on the specification for its teaching that it is conventional in the art to apply coatings to automobiles by spraying the compositions, such as the composition described by Sadvary, on to the substrate surface in a spray booth, and then to discharge the overspray as wastewater “directly or indirectly” into the sewage system. Id., pages 4-5 (citing specification, ¶ 3 and 8). The Examiner concludes that “using a sewage treatment plant ... at least a portion of [the] compound of formula I [would be removed] from the wastewater.” Id., page 5. These steps correspond to steps (b)-(e) of claim 1.

Appellants state that the claimed Formula I compounds are advantageous because they can be removed from wastewater collected after the coating process, permitting them to be safely discharged into the sewage system.” Brief, page 2. They urge that Sadvary does not suggest the claimed invention because he does not provide direction on how to select those curing agents that would avoid aquatic toxicity, the problem associated with the only commercially available trisocyanate triazine. Brief, pages 4-5.

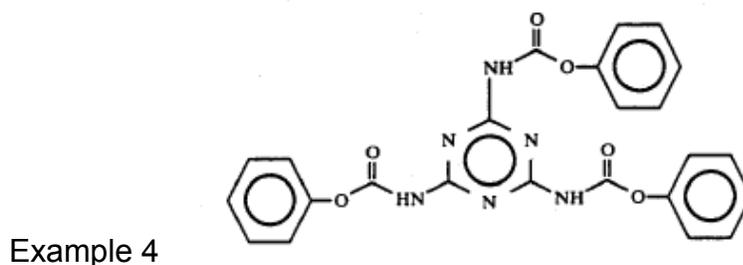
In addressing whether the claimed subject matter would be obvious, we focus our review on step (a) of claim 1, particularly the obviousness of utilizing the compounds

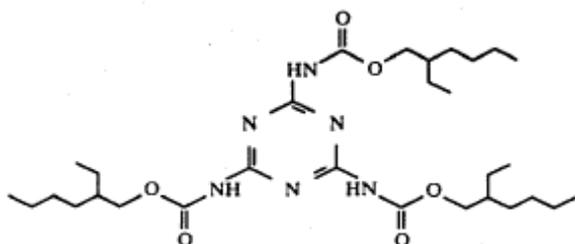
² Jacobs et al. (Jacobs), U.S. Pat. No. 5,084,541, issued Jan. 28, 1992, which is incorporated by reference. Specification, ¶ 48. The Examiner also referred to U.S. Pat. No. 4,939,213, which is a divisional of U.S. Pat. No. 5,084,541.

of Formula I in the process described by Sadvary. Appellants did not identify any deficiency in the Examiner's reasoning that the remaining steps in the claim would have been obvious and we find no error in that conclusion.

The Examiner cites Sadvary for its teaching of curing agents to crosslink polysiloxane monomers. Of the six specific curing agents identified in the Sadvary application ("aminoplasts, polyisoc[y]anates, triazines, polyepoxides, polyacids, and polyols"), Sadvary incorporates by reference the Jacobs patent for its disclosure of tricarbamoyl triazine compounds which correspond to the class which is recited in claim 1 of this appeal. Sadvary, ¶¶ 41 and 48. These compounds are derived from triisocyanato triazines by the modification of the isocyanate (-NCO) with a blocking group, X-R, in which X is preferably oxygen or carbon. Jacobs, column 2, line 45-column 3, line 12.

In his examples, Jacobs discloses species of the Formula I genus recited in claim 1. Example 4 shows a triphenyl (C₆) carbamoyl (column 9, lines 30-40); Example 5 is of a triethylhexyl (C₈) carbamoyl (column 9, lines 50-60). These are reproduced below:





Example 5

Each of these compounds falls within the structure defined by Formula I and contains “on average, five or more carbon atoms,” satisfying the requirements of claim 1. Since each also contains more than six carbons on average, it is not necessary to consider whether the proviso in claim 1 is also met that the compounds must be solid.

According to Appellants, Sadvary “provides no direction at all on how to select those curing agents that will be acceptable in the present method from those that will not be useful because of toxicity to aquatic life.” Brief, page 4. See also Reply brief, page 2. Appellants appear to believe that it is necessary to choose the particular triphenyl (C₆) and triethylhexyl (C₈) compounds from the prior art disclosure. We do not agree. These compounds are expressly disclosed in Jacobs which is incorporated into Sadvary for its teaching of triazine carbamoyls. No selection step is needed because the compounds are pictured in the cited prior art, drawn out in black and white.

In Perricone v. Medicis Pharmaceutical Corp., 432 F.3d 1368, 1376, 77 USPQ2d 1321, 1326 (Fed. Cir. 2005), a species which was specifically disclosed in a prior art reference was found to be anticipatory even though it appeared “without special emphasis in a longer list.” Id. In response to arguments that this conclusion was inconsistent with In re Baird, 16 F.3d 380, 393, 29 USPQ2d 1550, 1552 (Fed. Cir.

1994), a case involving the obviousness of a single species in view of a generic disclosure in a single reference, the court explained that the “specific disclosure [of an anticipatory species], even in a list, makes this case different from cases involving disclosure of a broad genus without reference to the potentially anticipating species.”

Id. We think this rationale is applicable to the obvious determination at issue here, where there is a specific disclosure of a species within the claimed Formula I genus.

Having determined that the claimed method steps (b)-(e) would have been obvious, Jacobs’ description of at least two species within the genus recited in claim 1(a) is sufficient in this case to establish prima facie obviousness of the claimed method. Contrary to Appellants’ argument, it is not necessary that the entire claimed subgenus be suggested, when specific species of it are described in the prior art. Brief, page 5 (“[T]he Sadvary publication does not suggest the subgroup of Applicants’ invention.”). What Appellants have ignored is that the combination of prior art cited in the rejection is adequate to establish that two embodiments of the claimed method are obvious, i.e., methods of using the triphenyl and triethylhexyl compounds described by Jacobs, and incorporated by reference into Sadvary.

A method claim is unpatentable under § 103 if any scope of it would have been obvious to the person of ordinary skill in the art at the time the invention was made. In a case involving the obviousness of a claim in a design patent, the Federal Circuit held that where it had been determined that a single claim covered plural embodiments, a “§ 103 rejection is proper if the prior art demonstrates the obviousness of any one of them.” In re Klein, 987 F.2d 1569, 1570, 26 USPQ2d 1133, 1134 (Fed. Cir. 1993).

This same reasoning is reflected in those cases in which an applicant unsuccessfully tried to rebut prima facie obviousness by a showing of unexpected results. These cases hold that the unexpected results must be “commensurate in scope with the degree of protection sought by the claimed subject matter.” In re Harris, 409 F.3d 1339, 1344, 74 USPQ2d 1951, 1955 (Fed. Cir. 2005). For example, in In re Muchmore, 433 F.2d 824, 826, 167 USPQ 681, 683 (CCPA 1970), the applicant had shown “unexpectedly superior properties” for “some specific processes” covered by the claim, but “[m]any specific processes” within the claim yielded results “no better than” the prior art. The rejection was affirmed because the method claim still read “on obvious and unobvious subject matter.” Id. See also In re Costello, 480 F.2d 894, 895, 178 USPQ 290, 292 (CCPA 1973).

For the foregoing reasons, we conclude that there is adequate evidence of prima facie obviousness to affirm this rejection.

An applicant may rebut a prima facie case of obviousness by providing a “showing of facts supporting the opposite conclusion.” Such a showing dissipates the prima facie holding and requires the examiner to “consider all of the evidence anew.” Piasecki, 745 F.2d at 1472; In re Rinehart, 531 F.2d 1048, 1052 [189 USPQ 143] (CCPA 1976). Rebuttal evidence may show, for example, that the claimed invention achieved unexpected results relative to the prior art, In re Geisler, 116 F.3d 1465, 1469-70 [43 USPQ2d 1362] (Fed. Cir. 1997); that the prior art teaches away from the claimed invention, id. at 1471; that objective evidence (e.g., commercial success) supports the conclusion that the invention would not have been obvious to a skilled artisan.

In re Kumar, 418 F.3d 1361, 1368, 76 USPQ2d 1048, 1052 (Fed. Cir. 2005).

Although Appellants state that the claimed subject matter has unexpected results (“unexpected advantage”) (see e.g., Response filed Nov. 16, 2005; Brief,

page 4), the Examiner did not give this aspect full consideration, apparently believing it was unnecessary since species within the claim scope were disclosed in Jacobs. See Answer, page 7; Reply brief, page 3. We do not concur with the Examiner's reasoning in this part of the Answer. Since the claims stand rejected under § 103, it is incumbent upon us to consider all evidence of nonobviousness when assessing patentability.

In re Soni, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995). Accordingly, we give due consideration below to the "unexpected advantages" argued by Appellants. Brief, page 4.

Appellants urge that Sadvary "does not suggest Applicants' invention because Applicants' invention provides an unexpected advantage over the expansive group of curing agents from which the Sadvary publication asks the skilled artisan to select." Id. Appellants explain that this unexpected advantage is that the compounds of Formula I can be removed from the waste water that results from the process of claim 1, avoiding unacceptable aquatic toxicity. Reply brief, page 3.

"[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art." In re Baxter Travenol Labs., 952 F.2d 388, 392, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991). Here, the closest prior art is Jacobs' triphenyl (Example 4, column 9, lines 32-40) and triethylhexyl carbamoyls (Example 5, column 9, lines 50-61), not the compounds used in Appellants' showing. Appellants based their showing on evidence that three compounds, each having "on average, five or more carbons" as required by claim 1, would not be expected to have aquatic toxicity as was predicted for compounds having on average less than five carbons. See specification, pages 15-16. The defect in this evidence is

that compounds meeting the claimed requirement of “five or more carbons” are disclosed in the prior art, and therefore should have served as the baseline for the comparison. Because the comparison was not with the closest prior art, we do not find these results adequate to rebut the prima facie case of obviousness.

The “unexpected advantage” relied upon by Appellants is the result of using the prior art triphenyl and triethylhexyl carbamoyl curing agents in the conventional automobile coating process for which they were taught. To rebut prima facie obviousness, the evidence must be of an unexpected difference in properties as compared to the prior art, not merely a showing of an unexpected property. In re Hoch, 428 F.2d 1341, 1343, 166 USPQ 406, 409 (CCPA, 1970). “Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention.” Baxter Travenol, 952 F.2d at 392, 21 USPQ2d at 1285.

In sum, after considering the totality of evidence in the record before us, we conclude that a case of prima facie obviousness has been established. The rejection of claim 1 is affirmed. Since claims 2, 3, and 5-14 were not separately argued, they fall together with claim 1.

Claim 4

Appellants separately argued claim 4, stating that there was no suggestion in the prior art to have utilized a compound of Formula I in which the R group contained an oxygen atom. Brief, page 5. We do not agree. As pointed out by the Examiner, Jacobs expressly describes R group substituents that contain oxygen. Answer, page 5; Jacobs, column 5, lines 11-20. Appellants did not identify a deficiency in this disclosure.

Accordingly, we concur with the Examiner that there is adequate evidence of prima facie obviousness. The rejection of claim 4 is affirmed.

Summary

Prima facie obviousness of the claimed subject matter has been established by the Examiner. Since Appellants did not provide adequate evidence to rebut it, the rejection of claims 1-14 over prior art is affirmed.

AFFIRMED

Donald E. Adams)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
Nancy J. Linck)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
Richard M. Lebovitz)	
Administrative Patent Judge)	

RL/dym

Appeal No. 2006-2817
Application No. 10/734,979

Page 13

BASF CORPORATION
1609 BIDDLE AVENUE
WYANDOTTE MI 48192