

The opinion in support of the decision being entered today is  
*not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GUENTER HENKE, KAMIL KALUS,  
and ANNABELLE GUILLEUX

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Appeal 2007-1692  
Application 10/415,009  
Technology Center 1700

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Decided: July 31, 2007

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Before CHARLES F. WARREN, THOMAS A. WALTZ, and  
CATHERINE Q. TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 19, 20, 22-26, and 28-38. According to Appellants, claims 1-18 and 21 have been canceled (Br. 3). The Examiner has withdrawn the rejection of claim 27 (Answer 2). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

## I. BACKGROUND

The invention relates to a reactive adhesive with a low content of polyisocyanate monomer. Claim 19 is illustrative of the subject matter on appeal:

19. A solventless or solvent-containing, low-monomer, reactive adhesive, curing in several stages which comprises:

at least one polyurethane prepolymer (A) with a low content of monomeric polyisocyanate (a) and at least one free functional group capable of reacting with a compound containing at least one acidic hydrogen atom, and

at least one compound (B) containing a functional group polymerizable by irradiation, wherein, the reactive adhesive contains less than 0.1% by weight of monomeric polyisocyanate.

The Examiner relies on the following prior art references to show unpatentability:

Schnabel	US 4,385,171	May 24, 1983
Bolte	US 6,482,869 B1	Nov. 19, 2002

The Examiner maintains a rejection of claims 19, 20, 22-26, and 28-38 under 35 U.S.C. § 103(a) as unpatentable over Bolte in view of Schnabel.<sup>1</sup>

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<sup>1</sup> The Examiner has withdrawn the rejections of claims 19, 20, 22-31, 35, and 36 under 35 U.S.C. § 102(b) and under 35 U.S.C. § 103(a) over Bolte, and also withdrawn the rejection of claim 27 under 35 U.S.C. § 103(a) over Bolte in view of Schnabel.

## II. DISCUSSION

### A. Issue

In reviewing the rejections, we consider the dispositive issues arising from the contentions advanced in the Brief filed December 12, 2005, the Answer filed January 20, 2006, and the Reply Brief filed March 20, 2006.

The dispositive issue arising from the contentions of Appellants and the Examiner is: Have Appellants overcome the rejection (1) by showing insufficient evidence of *prima facie* obviousness on the basis that there is no reason to combine the teachings of the references or (2) by rebutting the *prima facie* case with sufficient evidence of unexpected results? *See In re Kahn*, 441 F.3d 977, 985-86, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (“On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.” (emphasis omitted)).

### B. Facts

The following Findings of Fact (FF) are supported by a preponderance of the evidence:

1. Bolte describes a multistage-curing reactive adhesive. The adhesive includes two components A and B (col. 1, ll. 6-9). Component A, a polyurethane prepolymer, is prepared by reacting a base polymer (col. 4, ll. 9-14) with a suitable polyfunctional polyisocyanate (col. 7, ll. 6-49). The list of suitable polyisocyanates includes diisocyanates (*id.*). Example

2 illustrates a component A formulation containing TDI and MDI diisocyanates (col. 17, l. 62).

2. Bolte is silent with respect to the presence of polyisocyanate monomers in the polyurethane prepolymer.
3. Schnabel describes a process of removing unreacted diisocyanate monomer from polyurethane prepolymers (Title) by co-distilling (col. 3, ll. 26-49). The resulting prepolymer may be used to form adhesives (col. 3, ll. 49-53).
4. According to Schnabel, unreacted diisocyanate in the prepolymer reaction product is undesirable because they create vapors and diisocyanate vapors are believed to be toxic to humans (col. 1, ll. 14-21)

### C. Principles of Law

A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the pertinent art. 35 U.S.C. § 103(a)(2000); *Graham v. John Deere Co.*, 383 U.S. 1, 13-14, 148 USPQ 459, 465 (1966). Factors to consider in determining obviousness include ““the scope and content of the prior art,”” ““the differences between the prior art and the claims at issue,”” and ““the level of ordinary skill in the pertinent art.”” *Dann v. Johnston*, 425 U.S. 219, 226, 189 USPQ 257, 260 (1976) (*quoting Graham*, 383 U.S. at 17, 148 USPQ at 466). In making the determination of obviousness, evidence related to secondary indicia of non-obviousness like “commercial success,

long felt but unresolved needs, failure of others, etc.” is also relevant.

*Graham*, 383 U.S. at 17-18, 148 USPQ at 467.

One of the ways in which a claim’s subject matter can be proved obvious is by establishing that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the claims. *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

#### D. Analysis

In the current case, Schnabel provides evidence that there was a known problem, i.e., the presence of toxic unreacted diisocyanate, in prepolymers formed from diisocyanates (FF 4). Schnabel describes a solution to this problem: A distillation method of removing the toxic diisocyanate monomers. This evidence of a known problem and its solution is sufficient to support a *prima facie* case of obviousness. *KSR*, 127 S. Ct. at 1742, 82 USPQ2d at 1397.

Appellants contend that there is no incentive to combine the teachings of Schnabel with the teachings of Bolte because the Schnabel patent issued years before the Bolte patent (Br. 7). According to Appellants one of ordinary skill in the art would have discussed the teachings of Schnabel in the Bolte application if it had been obvious (*id.*).

We are not persuaded by this argument because it assumes that a later application must necessarily include everything known to those of ordinary skill in the art. This is not the case. “[A] prior art reference must be ‘considered together with the knowledge of one of ordinary skill in the

pertinent art.”” *In re Paulsen*, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1675 (Fed. Cir. 1994).

Appellants’ argument also fails to take into account the interrelated teachings of the prior art references and the effects of the demands on those formulating polyurethane-based adhesives to reduce the toxic monomer concentration. In finding that there was a reason to combine, the Examiner properly took into account those interrelated teachings and the background knowledge possessed by those of ordinary skill in the art as evidenced by the references. *See KSR*, 127 S.Ct. 1727, 1740-41, 82 USPQ2d 1385, 1396 (2007) (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.”).

With respect to claims 22, 24, and 36, Appellants contend that the combination of Bolte and Schnabel do not contain a teaching or suggestion of what is claimed (Br. 7-8). However, Appellants do not address the actual rejection made by the Examiner. The contentions are not sufficiently specific to allow us to review the rejection of these claims.

In the Reply Brief and for the first time on appeal, Appellants attempt to rebut the rejection with an allegation of unexpected results. Appellants allege that the examples beginning at page 46 of the Specification clearly show the unexpected advantage of their adhesives over the prior art adhesives, i.e., adhesives containing substantial amounts of monomer.

According to Appellants, their adhesives are migration-free after only one day while the monomer-containing prior art adhesives, in most cases, took about 14 days to become migration free. Appellants allege that this effect on migration is advantageous and was unknown and unexpected at the time the invention was made. (Reply Br. 1).

Once a prima facie case of obviousness is established, the burden of coming forward with evidence and argument in rebuttal is shifted to the appellant. *See In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). “In order for a showing of ‘unexpected results’ to be probative evidence of non-obviousness, it falls upon the applicant to at least establish: (1) that there actually is a difference between the results obtained through the claimed invention and those of the prior art, … and (2) that the difference actually obtained would not have been expected by one skilled in the art at the time of invention.” *In re Freeman*, 474 F.2d 1318, 1324, 177 USPQ 139, 143 (CCPA 1973) (citations omitted).

Looking to the portion of the Specification cited by Appellants, we find no convincing evidence that the alleged difference in migration would have been unexpected to one of ordinary skill in the art. Appellants point to no statement in the Specification in which the results are referred to as unexpected. Nor do Appellants state how the data starting at page 46 of the Specification supports such a conclusion. Nor is it enough that Appellants allege the result is unexpected in the Reply Brief. “[I]t is well settled that unexpected results must be established by factual evidence.” *In re Geisler*, 116 F.3d 1465, 1470, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997); *see also In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972) (“mere

lawyers' arguments unsupported by factual evidence are insufficient to establish unexpected results").

Moreover, Appellants must adequately explain what facts or data support their showing of unexpected results. Appellants' vague and general statements as to what the examples show along with the assertion that the results are superior amount essentially to mere pleading. A mere pleading unsupported by proof or showing of facts is inadequate. *In re Borkowski*, 505 F.2d 713, 718, 184 USPQ 29, 33 (CCPA 1974).

We will not attempt to independently determine the comparisons on which Appellants rely upon or the significance thereof. Cf. *In re Baxter Travenol Labs.*, 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991) ("It is not the function of this court to examine the claims in greater detail than *argued* by an appellant, looking for nonobvious distinctions over the prior art.").

### III. CONCLUSION

We conclude that Appellants have not overcome the rejection either (1) by showing insufficient evidence of prima facie obviousness or (2) by rebutting the prima facie case with sufficient evidence of unexpected results.

### IV. DECISION

The decision of the Examiner rejecting claims 19, 20, 22-26, and 28-38 under 35 U.S.C. § 103(a) is affirmed.

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V. TIME PERIOD FOR RESPONSE

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

AFFIRMED

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