

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* JOHN B. LETTS

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Appeal 2007-1392<sup>1</sup>  
Application 10/640,895  
Technology Center 1700

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Decided: June 27, 2007

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Before PETER F. KRATZ, JEFFREY T. SMITH, and  
LINDA M. GAUDETTE, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the  
Primary Examiner's final rejection of claims 1, 3-7, and 9-16, which are the

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<sup>1</sup> An oral hearing was held on June 6, 2007.

only claims pending in this application.<sup>2</sup> We have jurisdiction pursuant to 35 U.S.C. § 6.

According to Appellant, the invention is directed to a method for producing polyisocyanurate insulation foams, the method comprising contacting an isocyanate-reactive compound with an isocyanate compound in the presence of a blowing agent. The blowing agent comprises isopentane and n-pentane in the substantial absence of cyclopentane (Br. 2).<sup>3</sup> Claim 7 is representative of the invention and is reproduced below:

7. A method for producing polyisocyanurate insulation foams, the method comprising:

contacting an isocyanate-reactive compound with an isocyanate compound in the presence of a blowing agent that includes both isopentane and n-pentane in the substantial absence of cyclopentane, where the isopentane is present in a weight fraction that is greater than the weight fraction of the n-pentane.

The Examiner has relied on the following prior art references as evidence of unpatentability:

Smits	US 5,387,618	Feb. 7, 1995
Imperial Chemical PCT	WO 97/121764	Jun. 19, 1997
Soukup	US 6,140,383	Oct. 31, 2000

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<sup>2</sup> We refer to the claims as presented in the Revised Appeal Brief. Appellant's representative indicated at the oral hearing that the claims presented in the Reply Brief are in error and have not been presented for review.

<sup>3</sup> We refer to and cite from Appellant's "Revised Appeal Brief" dated May 22, 2006 and the Reply Brief dated October 16, 2006.

### ISSUES ON APPEAL

Claims 1, 3-7, and 9-16 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Smits or Imperial Chemical in combination with Soukup. (Answer 3-5).

Appellant contends that a person of ordinary skill in the art with the knowledge of Smits and Imperial Chemical would not have chosen to combine a comparative example (which is ostensibly inferior) with another prior art reference. (Br. 5). Appellant further contends that the Examiner has failed to explain where the cited prior art teaches or suggests that the procedure should be performed at the conditions set forth in the claims (Br. 5).

Appellant contends that the prior art fails to provide a person of ordinary skill in the art with a reasonable expectation of success. Appellant maintains that the combination has been made by using impermissible hindsight (Br. 4).

Appellant contends Smits requires an acyclic alkane as part of the blowing agent mixture and provides evidence that polyurethane foam prepared according to Smits' invention are superior (Br. 4).

Appellant contends that Imperial Chemical requires a substantial excess of isopentane when mixtures of n-pentane and isopentane are employed as a blowing agent (Br. 4).

The Examiner contends that that Smits' comparative Examples 12, 16, and 19 describe the claimed invention (Answer 3).

The Examiner asserts that Imperial Chemical comparative Example 2 (Table 4) describes the claimed invention (Answer 3).

The Imperial Chemical reference discloses that “[t]he ‘A side’ of the system contained the polyisocyanate while the ‘B side’ of the systems contained all other ingredients. The B side components were prepared by mixing all of the [other] components together at room temperature in a high speed mixer” (Imperial Chemical 12).

Accordingly, the issues presented on the record in this appeal are as follows: (1) do Smits and Imperial Chemical each disclose, teach, or suggest methods for producing polyisocyanurate insulation foams?; (2) has the Examiner presented an explicit analysis of the reasons for manufacturing polyisocyanurate insulation foams wherein stream A comprises the isocyanate compound and stream B comprises a polyol and a blowing agent?; and (3) do the applied prior art references disclose, teach, or suggest a blowing agent that includes both isopentane and n-pentane in the substantial absence of cyclopentane?

We determine that the Examiner has established a *prima facie* case of obviousness in view of the reference evidence, which *prima facie* case has not been adequately rebutted by Appellant’s arguments. Therefore, we AFFIRM the rejection presented in this appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.<sup>4 5</sup>

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<sup>4</sup> Appellant’s opposition to the utilization of claim 7 for determination of the issues on appeal has been noted. (See Reply Br. 12). Pursuant to 37 C.F.R. § 41.31(c) Appellant had the right to select the claims under rejection to contest on appeal. Appellant, at the time of filing the appeal, elected to include claim 7 and the claims dependent thereon in the appeal from the Examiner’s Final Rejection. (See Br. 2). Appellant failed to exercise his authority pursuant to 37 C.F.R. § 41.37(c)(iii) to indicate that claim 7 and

## OPINION

We determine the following factual findings from the record in this appeal:

Smits' comparative Examples 12, 16, and 19 describe the manufacturing polyisocyanurate insulation foams wherein an isocyanate compound is mixed with a polyol compound combined with a blowing agent comprising both isopentane and n-pentane in the substantial absence of cyclopentane. The blowing agent in these examples comprises isopentane in a weight fraction that is greater than the weight fraction of the n-pentane.

Regarding the mixing (preblending) of components. Smits states:

[i]n making a polyurethane foam, the polyol(s), polyisocyanate and other components are contacted, thoroughly mixed and permitted to expand and cure into a cellular polymer. The particular mixing apparatus is not critical, and various types of mixing head and spray apparatus are conveniently used. It is often convenient, but not necessary, to preblend certain of the raw materials prior to reacting the polyisocyanate and active hydrogen-containing components. For example, it is often useful to blend the

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the claims dependent thereon have been withdrawn. Appellant's offer to cancel claim 7 and the claims dependent thereon did not remove these claims from appeal.

<sup>5</sup> Appellant has not presented separate specific arguments for any claims on appeal (See Br. generally). Appellant's offer, Brief, page 2, to cancel claim 7 and the claims dependent therefrom does not withdraw these claims from appeal. The subject matter of claim 7 is the broadest embodiment on appeal. Therefore, we will limit our discussion to claim 7. Additionally, we note that Appellant argues the conditions under which the blowing agent is formed. However, this limitation does not occur in claim 7. Therefore, a discussion of the conditions for formation of the blowing agent is not necessary to our decision.

polyol(s), blowing agent, surfactants, catalysts and other components except for polyisocyanates, and then contact this mixture with the polyisocyanate. Alternatively, all components can be introduced individually to the mixing zone where the polyisocyanate and polyol(s) are contacted. It is also possible to prereact all or a portion of the polyol(s), in the absence of water, with the polyisocyanate to form a prepolymer, although such is not preferred. (Smits, col. 6, ll. 21-38).

The Examiner finds that the Imperial Chemical reference, Example 2 (Table 4), describes the claimed invention (Answer 3).

The Imperial Chemical reference discloses that “[t]he ‘A side’ of the system contained the polyisocyanate while the ‘B side’ of the systems contained all other ingredients. The B side components were prepared by mixing all of the [other] components together at room temperature in a high speed mixer” (Imperial Chemical 12).

The Imperial Chemical reference, Table 4, discloses the isopentane is present in a weight fraction that is greater than the weight fraction of the n-pentane.

The Examiner further relies on Soukup for describing that it was known to manufacture polyisocyanurate insulation foams wherein stream A comprises the isocyanate compound and stream B comprises a premixed polyol and a blowing agent blend (Answer 4; Soukup, cols. 9-10).

Appellant acknowledges that certain elements of the present claims read on the blowing agent mixtures in the comparative examples of both Smits and Imperial Chemical (Br. 5).

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). “[A]nalysis [of whether the subject matter of a claim is obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740-41, 82 USPQ2d 1385, 1396 (2007), quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336-37 (Fed. Cir. 2006). The analysis supporting obviousness, however, should be made explicit and should “identify a reason that would have prompted a person of ordinary skill in the art to combine the elements” in the manner claimed. *KSR*, 127 S.Ct. at 1731, 82 USPQ2d at 1389.

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the Examiner has established a *prima facie* case of obviousness, which case has not been adequately rebutted by Appellant’s arguments. As shown by the factual findings above, we determine that the Smits and Imperial Chemical references each clearly describe manufacturing polyisocyanurate insulation foams wherein an isocyanate compound is mixed with a polyol compound combined with blowing agent comprising both isopentane and n-pentane in the substantial absence of cyclopentane (Smits, Examples 12, 16, and 19; Imperial Chemical comparative example 2 (Table 4)). Further, Soukup describes that

it was known to persons of ordinary skill in the art to manufacture polyisocyanurate insulation foams wherein an isocyanate compound containing stream is combined with a stream comprising a polyol and a blowing agent preblend (*See Soukup, cols. 9-10*).

We determine that the Examiner has made explicit the analysis supporting obviousness (Answer 3-6). We determine that the references themselves present sufficient reasons for a person of ordinary skill in the art to perform the method of the claimed invention. Therefore, we determine that it would have been well within the ordinary skill in this art to perform the method of producing polyisocyanurate insulation foams comprising contacting an isocyanate compound containing stream with a stream comprising a polyol and a blowing agent.

We note that Appellant argues the conditions under which the polyol and blowing agent preblend is created (Br. 5, 7-8; Reply Br. 11). However, Appellant's arguments regarding the conditions for formation of the polyol and blowing agent preblend are not limited to the scope of claim 7. We further recognize that Appellant has not relied upon evidence of unexpected results in rebuttal to the Examiner's *prima facie* case of obviousness.

For the foregoing reasons and those stated in the Answer, we affirm all grounds of rejection presented in this appeal.

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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)(iv)(2006).

AFFIRMED

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