

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte WILLIBRORD A. GROTEN

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Appeal No. 2005-0766  
Application No. 09/877,277

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ON BRIEF

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Before GARRIS, TIMM, and PAWLIKOWSKI, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 1 and 5-7. According to the appellant and the examiner, claims 2-4 and 8-12 are either allowable or allowed.

The subject matter on appeal relates to a process for the desulfurization of a full boiling range naphtha which contains thiophenes, diolefins, and mercaptans comprising feeding the naphtha and hydrogen to a first distillation column reactor and,

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concurrently in this reactor, contacting the thiophene in the presence of a hydrogenation catalyst in the lower section of the reactor to convert a portion of the thiophene to n-butyl mercaptan and contacting the diolefins and mercaptans in the presence of a Group VIII metal catalyst in the upper section of the reactor thereby reacting a portion of the mercaptans with a portion of the diolefins to form sulfide products and a distillate product. Further details of this appealed subject matter are set forth in representative independent claim 1 which reads as follows:

1. A process for the desulfurization of a full boiling range naphtha comprising the steps of:

(a) feeding (1) a full boiling range naphtha containing olefins, diolefins, organic sulfur compounds comprising mercaptans and thiophene and (2) hydrogen to a first distillation column reactor;

(b) concurrently in said first distillation column reactor:

(i) contacting the thiophene contained within said full boiling range naphtha in the presence of a hydrogenation catalyst in a first distillation reaction zone in the lower section of said first distillation column reactor to convert a portion of the thiophene to n-butyl mercaptan,

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(ii) contacting the diolefins and mercaptans in the presence of a Group VIII metal catalyst in a second distillation reaction zone in the upper section of said distillation column reactor thereby reacting a portion of said mercaptans with a portion of the diolefins to form sulfide products and a distillate product and

(iii) fractionating said full boiling range naphtha into a light naphtha and a heavier naphtha, said heavier naphtha containing said organic sulfur compounds and said sulfide products;

(c) removing said distillate product as a first overheads from said first distillation column reactor; and

(d) removing said heavier naphtha from said first distillation column reactor as bottoms.

The references set forth below are relied upon by the examiner in the Section 102 rejections before us:

Gildert et al. (Gildert)	6,083,378	Jul. 4, 2000
Podrebarac et al. (Podrebarac)	6,303,020	Oct. 16, 2001

All of the appealed claims are rejected under 35 U.S.C. § 102(e) as being anticipated by either Podrebarac or Gildert.<sup>1</sup>

We refer to the brief and to the answer for a thorough exposition of the opposing viewpoints expressed by the appellant and by the examiner concerning these rejections.

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<sup>1</sup>On page 4 of the brief, the appellant indicates that the appealed claims will stand or fall together. Accordingly, in assessing the merits of the above noted rejections, we will focus on claim 1, which is the sole independent claim before us.

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OPINION

For the reasons set forth in the answer and below, we will sustain each of the rejections advanced on this appeal.

With respect to each of the Section 102 rejections, it is the examiner's position that both Podrebarac and Gildert expressly teach all aspects of the here claimed process except for the specific reactions recited in appealed claim 1(b)(i) and (ii) wherein respectively thiophene is converted to n-butyl mercaptan and mercaptans are reacted with diolefins to form sulfide products. According to the examiner, these reactions would inherently occur in the processes of the applied references because the feed stock, catalyst and reaction conditions of these processes correspond to those of the appellant's claimed process.

The appellant contends that the examiner's above noted inherency position is not proper. In support of this view, the appellant presents the following argument on pages 9 and 10 of the brief:

[N]either of the reactions which are recited in present claim 1 are disclosed or suggested by either reference. There is a reason they do not occur. Why? The conditions used in the reaction to hydrodesulfurize, particularly the temperatures, are too harsh. In the present process the lower zone is between 270 and 450°F and the upper distillation zone between 130 to 270°F, whereas in '020 [i.e., Podrebarac] "The distillation column reactor is advantageously used to react the heavier or higher boiling

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sulfur compounds. The overhead pressure is maintained at about 0 to 250 psig with the corresponding temperature in the distillation reaction zone of between 400 to 700°F." col. 5, lines 23-27. In the figure relied on by the examiner, the temperature is 550-600°F" (col. 6, 44); and in '378 [i.e., Gildert] "Typical conditions in a reaction distillation zone of a naphtha hydrodesulfurization distillation column reactor are: Temperature 450-700 °F . . ." col. 5, lines 59-65.

Therefore, neither of these references disclose conditions, and particularly use conditions which would result in the process claimed in claim 1 and inherency is not truly, even a remote possibility.

This argument is unpersuasive for a number of reasons.

Initially, it is important to stress that the processes claimed by the appellant and disclosed by the applied references possess many commonalities. Not only do these processes exhibit common feedstocks (i.e., full boiling range naphtha and hydrogen), catalysts and reaction conditions as noted by the examiner, they also are disclosed as possessing common advantages (e.g., desulfurization without substantial loss of olefins) and as achieving common goals (e.g., yielding a light naphtha product in the first distillation column reactor). See, for example: the "SUMMARY OF THE INVENTION" (as well as the paragraph thereabove) in the respective specifications of the appellant, Podrebarac and Gildert; as well as the appellant's specification disclosure at line 2 on page 12 through line 5 on page 13 in comparison with

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Gildert's disclosure in lines 13-57 of column 6 and with Podrebarac's disclosure in lines 1-34 in column 6.

These many commonalities support the examiner's inherency position. This position is particularly supported by the fact that the feed and products, especially the light naphtha overhead product, of the first distillation column reactor in the here claimed and prior art processes are all the same. This is because the appellant does not explain and we do not independently perceive how the prior art processes can react the same feedstocks to yield the same products without involving the same reactions as the appellant's claimed process.

In this last mentioned regard, the appellant contends that the conditions of the Podrebarac and Gildert processes are too harsh to permit the reactions recited in appealed claim 1(b)(i) and (ii). In support of this argument, the appellant refers to the temperature ranges disclosed in his specification for the upper and lower distillation zones of the here claimed first distillation column reactor. However, this specification disclosure (i.e., see lines 6-11 on page 11) does not teach or even suggest that temperatures outside these ranges would prevent the reactions under consideration from occurring. Further, it is significant that the lower zone temperature range overlaps the

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prior art temperature ranges as revealed by comparing the temperature ranges cited by the appellant in his aforementioned argument in the paragraph bridging pages 9 and 10 of the brief. As for the upper zone temperature range, we point out that both Podrebarac (see lines 12-26 in column 6) and Gildert (see lines 24-39 in column 6), like the appellant (see lines 11-22 on specification page 12), teach that the upper zone of their distillation column reactors contain a lower boiling fraction which is subjected to lower temperatures in order to provide for greater selectivity. In the processes of the applied references, the lower boiling point fraction treated in the upper zone of the first distillation column reactor results in a light naphtha overhead product just as in the appellant's claimed and disclosed process. See lines 9-35 in column 7 of Podrebarac and the paragraph bridging columns 6 and 7 of Gildert in comparison with the paragraph bridging pages 13 and 14 of the subject specification.

The above discussed circumstances reflect that the upper zones in the first distillation column reactors of Podrebarac and Gildert involve temperature ranges which overlap the disclosed temperature range for the upper zone of the appellant's claimed first distillation column reactor. This supports the examiner's

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position that the here claimed reactions under consideration would inherently occur in the processes of the applied references. Even disregarding this temperature issue, the examiner's inherency position still would be well taken. This is because the light naphtha produced in this upper zone is the same in the prior art processes as in the here claimed process. In this regard, it is appropriate to reiterate that we can think of no mechanism and the appellant suggests none in which the same feedstock ingredients in this upper zone would yield the same light naphtha product without involving the same reactions in the processes of the appellant and the applied references.

For the reasons set forth above and in the answer, the examiner's inherency position is reasonably supported by facts and technical rationale. See Ex Parte Levy, 17 USPQ2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990). It is our determination, therefore, that the examiner has established a prima facie case of anticipation which the appellant has failed to successfully rebut with argument or evidence to the contrary. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). It follows that we hereby sustain the examiner's Section 102 rejections of claims 1 and 5-7 as being anticipated by either Podrebarac or Gildert.

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The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS	)	
Administrative Patent Judge	)	
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	)	
	)	
	)	BOARD OF PATENT
CATHERINE TIMM	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
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BEVERLY A. PAWLIKOWSKI	)	
Administrative Patent Judge	)	

BRG:hh

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KENNETH H. JOHNSON  
P.O. BOX 630708  
HOUSTON, TX 77263