THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte HANG-CHANG B. CHEN and MARK E. LINDROSE

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Appeal 97-1458
Application 08/329,940[1]

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ON BRIEF

_____

Before: McKELVEY, Senior Administrative Patent Judge, and SCHAFER and LEE, Administrative Patent Judges.

McKELVEY, Senior Administrative Patent Judge.

Decision on appeal under 35 U.S.C. § 134

Application for patent filed October 27, 1994. The real party in interest is Occidental Chemical Corporation.

The appeal is from a decision of the Primary Examiner rejecting claims 1-20. We reverse-in-part and vacate and remand-in-part.

A. Findings of fact

The record supports the following findings by a preponderance of the evidence.

The examiner's rejections

1. The examiner has maintained the following rejections in the Examiner's Answer (Paper 13):

a. Claims 1-20, all the claims, have been rejected under the first paragraph of 35 U.S.C. § 112, as being based on a non-enabling disclosure (Examiner's Answer, page 4). According to the examiner, based on the specification, as filed, undue experimentation would be necessary to practice the invention.

b. Claims 1-20 have been rejected under the first paragraph of 35 U.S.C. § 112 on the ground that the enabling disclosure is not commensurate in scope with the breadth of the claims.

c. Claim 14 has been rejected under the second paragraph of 35 U.S.C. § 112 as being indefinite.

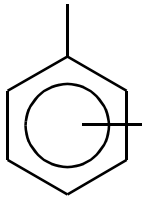
d. Claims 1, 2, 4-5, 13-15 and 19 have been rejected as being unpatentable under 35 U.S.C. § 103 over Geiger, U.S. Patent 4,038,276 (1977).[2]

The invention

2. The invention relates to a "single phase mixture" of (1) a mono- or dichlorobenzotrifluoride with (2) a perfluorinated liquid compound (specification, page 1, lines 7-13).

3. The mixtures are said to be effective for cleaning greases and soils from surfaces (specification, page 2 and page 5).

4. The mono- or dichlorobenzotrifluoride is a compound having the formula:



[2] Geiger is prior art under 35 U.S.C. § 102(b).

where "n" is 1 or 2 (specification, page 3).

5. The perfluorinated liquid compound can be (specification, page 4):

a. a perfluoro aliphatic alkane having 5 to 8 carbon atoms;

b. a perfluoro cycloaliphatic alkane having 5 to 8 carbon atoms;

c. a perfluoroalkylcycloalkane having 5 to 8 carbon atoms in the ring and 1 or 2 branches of 1 to 3 carbon atoms each;

d. "a perfluoronitroalkane from C_5 to C_7";

e. a perfluorocyclic ether having 4 to 7 carbon atoms; and

f. a perfluoro polyether having an average molecular weight of about 400 to about 500.

6. According to the specification (page 5):

The compositions of this invention comprise about 1 to about 99.9 wt% of the chlorinated benzotrifluoride compound and about 0.1 to about 99 wt% of the

perfluorinated liquid. The preferred compositions comprise about 80 to about 99.9 wt% of the chlorinated benzotrifluoride compound and about 0.1 to about 20 wt% of the perfluorinated liquid as those mixtures are less expensive. The most preferred compositions comprise about 95 to about 99.9 wt% chlorinated benzotrifluoride and about 0.1 to about 5 wt% of the perfluorinated liquid. An azeotropic mixture that boils between 98 and 104EC lies between about 1 to about 8 wt% parachlorobenzotrifluoride and about 92 to about 99 wt% C_8F_{18}. Compositions made with $C_5F_{11}NO$ are miscible in all proportions.

7. Further according to the specification (page 5):

The compositions are easily prepared by simply mixing together the chlorinated benzotrifluoride compound and the perfluorinated liquid in a miscible proportion.

8. In Example 1, applicants explain (specification, page 6):

Incremental amounts of various perfluorinated liquids were added to 20 grams PCBTF [p-chlorobenzotrifluoride] *** in a glass vial. After each addition, the mixtures were shaken and visually examined for miscibility. The additions were continued until a total of 20 grams of the perfluorinated liquid had been added to the PCBTF. The process was then reversed by

adding incremental amounts of PCBTF to 20 grams of various perfluorinated liquids.

9. A table (specification, page 6) shows the extent to which p-chlorobenzotrifluoride (PCBTF) is miscible with certain perfluorinated liquid compounds:

PERFLUORINATED LIQUID	WT% PERFLUORINATED LIQUID IN MISCIBLE MIXTURES WITH PCBTF
$C_5F_{11}NO$ (sold by 3M as PF-5052)	0-100
C_6F_{14} (sold by 3M as PF-5060)	0-33 and 83-100
C_7F_{16} (sold by 3M as PF-5070)	0-29 and 82-100
C_8F_{18} (sold by 3M as PF-5080)	0-25 and 87-100

Perfluorinated polyether (sold by Ausimont as Perfluorosolv™ PFS-1)	0-11 and 91-100

10. In Example 2, applicants report efforts to find azeotropes of PCBTF and the various 3M PF compounds listed in the table. According to applicants, "[t]he only azeotrope found was between 1 and 8 wt% PCBTF and 92 and 99 wt% C_8F_{18}; it had an azeotropic temperature between 98E and 104EC" (specification, page 7).

Other findings

11. Other findings, as necessary, appear in the Discussion portion of this opinion.

B. Discussion

1. The examiner's first lack of enablement rejection

The examiner's first lack of enablement rejection seems to be bottomed on two principal grounds.

a.

One ground is that the specification fails to provide "adequate guidance as to the proportions at which the component solvents are miscible" (Examiner's Answer, page 4). The examiner apparently reasons that undue experimentation would be necessary to determine the proportions of mono- or dichlorobenzotrifluoride which would be miscible with the perfluorinated liquid compound. No cogent analysis has been presented by the examiner. Nor has the examiner addressed the well-established factors which go into an analysis of whether undue experimentation would be necessary to practice an invention described in a specification. See, e.g., In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), citing with approval, Ex parte Forman, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986) (discussion of factors to be considered in determining whether undue experimentation would be necessary to justify broad claim).

The specification reveals how one goes about determining whether a mono- or dichlorobenzotrifluoride and a

perfluorinated liquid compound are miscible. Clearly some experimentation is necessary, but the specification provides the guidance on how that experimentation is to be conducted. The mere fact that some experimentation may be necessary does not mean that the experimentation is per se undue. The examiner has not sustained the necessary burden of proving that any experimentation which might be necessary would be "undue" experimentation.

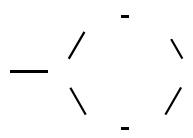
To the extent the examiner's rejection is bottomed on undue experimentation, it is reversed.

b.

The examiner also bottoms the rejection on applicants' use of the formula $C_5F_{11}NO$ to define one of the perfluorinated liquid compounds which are said to be suitable for making a single phase liquid within the scope of the invention. The examiner determined that a person having ordinary skill in the art would not have known the structural formula of $C_5F_{11}NO$. The examiner also indicates that referring to $C_5F_{11}NO$ as a "perfluoronitroalkane" does not help. We note that not only do applicants set out the formula, but they also indicate that the compound represented by the formula is sold by 3M under

the designation PF-5052 (specification, page 6). So the question becomes, would a person having ordinary skill in the art, as of applicants' filing date, have known what perfluorinated liquid is identified by the designation $C_5F_{11}NO$ sold as PF-5052 by 3M?

The present state of the record does not permit us to answer the question--at least not cogently. Applicants' counsel tells us that the formula of $C_5F_{11}NO$ is (Appeal Brief, page 6):



An argument of counsel, however, cannot take the place of evidence. In re Pearson, 494 F.2d 1399, 1405, 181 USPQ 641, 646 (CCPA 1974) (argument of counsel cannot take place of evidence in the record). Applicants' counsel also refers us to Webster's Ninth New Collegiate Dictionary (without, we note, supplying a copy of the page relied upon) for a definition of "nitro" (Appeal

Brief, page 7). According to counsel, "nitro" means "any of various nitrated products" and "nitrated" as treated or combined with nitric acid or a nitrate. Counsel goes on say that:

> although the compound lacks an NO_2 group, it could have been formed by reaction with nitric acid or a nitrate. The term "nitroalkane" therefore would not be inappropriate.

A first reaction is that again counsel is making argument without evidence--and, the argument somewhat is based on speculation (i.e., "could have been formed ***"). At the time the appeal reached the board, there was no evidence of how $C_5F_{11}NO$ sold as PF-5052 by 3M is, or was, made. A second reaction is that use of a dictionary to define a technical term is curious at best. Compare Anderson v. International Engineering and Manufacturing Inc., ___ F.3d ___, ___, 48 USPQ2d 1631, 1634 (Fed. Cir. 1998) (definitions in dictionaries all reflect common usages of "away," and reinforce the observation that dictionary definitions of ordinary words are rarely dispositive of their meaning in a technological context. A word describing patented technology

takes its definition from the context in which it was used by the inventor).

The examiner, responding to counsel's arguments, states that "there are about 20 compounds with that empirical formula and there is no reason to suppose that 'perfluoronitroalkanes' as a class would include that formula" (Examiner's Answer, page 5). The examiner's argument, like counsel's argument, while interesting is not particularly persuasive. One cannot but wonder what the other 20 compounds might be. The examiner fails to identify the structure of any of those 20 compounds and, perhaps more important, fails to provide a reference showing that any of those 20 compounds were known as of applicants' filing date.

The examiner refers to Flynn, U.S. Patent 5,401,429 (Mar. 28, 1995), col. 2, line 66 through col. 3, line 21. It legitimately could be argued that the description in Flynn is more consistent with counsel's argument than the examiner's rationale. Unfortunately for applicants, the Flynn patent issued after applicants' filing date and cannot assist in determining whether applicants' disclosure is enabling. In re Glass, 492 F.2d 1228, 181 USPQ 31 (CCPA 1974); In re

Scarbrough, 500 F.2d 560, 182 USPQ 298 (CCPA 1974). In any event, there is no mention in Flynn of $C_5F_{11}NO$ sold as PF-5052 by 3M. So basically, Flynn supports neither the applicants' argument nor the examiner's rationale.

We have undertaken a brief search on the Automated Patent System of the Patent and Trademark Office by searching for $C_5F_{11}NO$. We found the following patents, which may or may not shed light on the matter:

(1) Rice, U.S. Patent 3,882,193 (1975), which at col. 6, lines 31-32 describes the compound "$C_5F_{11}NO$ (sold under the trademark FC-78)" but does not say who owns the trademark.

(2) Owens, U.S. Patent 5,162,384 (1992), which at col. 4, lines 4-17, describes compounds having the same formula set out in Flynn, supra. The compounds are referred to as perfluorinated N-aliphatic morpholines (not as perfluoronitroalkanes). Owens is mentioned in Flynn at col. 2, lines 39-41.

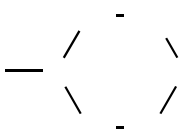
(3) Hinden, U.S. Patent 5,535,925 (1996; filed 1995), which at col. 4, lines 23-26 mentions $C_5F_{11}NO$ sold as PF-5052 by Minnesota Mining and Manufacturing Corporation, which we understand is now 3M.

(4) Lui, U.S. Patent 5,643,982 (1997; filed 1994), which at col. 6, line 43, mentions the compound $C_5F_{11}NO$, but otherwise does not identify a source or a precise formula of the compound.

(5) Minor, U.S. Patent 5,730,894 (1998; filed 1996), which in Fig. 26 describes a vapor/liquid equilibrium curve for a mixture of HFC-388pcc and $C_5F_{11}NO$ and at col. 5, lines 27-28, describes a perfluoro-n-methylmorpholine ($C_5F_{11}NO$, boiling point = 50.0EC.).

(6) Fisher, U.S. Patent 5,749,956 (1998; filed 1996), which at col. 8, line 4, mentions the compound $C_5F_{11}NO$, but otherwise does not provide any identifying data.

(7) Chen, U.S. Patent 5,756,002 (1998; filed 1996), which at col. 2, lines 5-10, identifies the structure of $C_5F_{11}NO$ as being:



(8) Mandal, U.S. Patent 5,840,998 (1998; filed 1998), which at col. 2, line 67 through col. 3, line 5, has a disclosure similar to Chen, supra.

In addition to the U.S. Patents made of record above, applicants may be able to place in the record sales brochures of 3M which were available as of the filing date.

We decline to resolve the issue involving the structural formula of $C_5F_{11}NO$ sold as PF-5052 by 3M and the issue of whether $C_5F_{11}NO$ sold as PF-5052 by 3M is properly characterized as a "perfluoronitroalkane." The patents cited above with issue dates prior to applicants' filing date, do not identify the structure of $C_5F_{11}NO$, and indicate that a compound having the same empirical formula was sold under a mark different from PF-5052. The patents cited above, which identify the formula, are based on applications filed after applicants' filing date. Hence, they cannot serve to show the state of the art under In re Glass, supra, or under a theory of establishing inherency as permitted by In re Wilson, 311 F.2d 266, 135 USPQ 442 (CCPA 1962) (non-prior art document may be relied upon to show a property inherent in a composition described in a prior art document).

In light of the record, we vacate the examiner's rejections to the extent they are based on the unknown formula of $C_5F_{11}NO$ sold as PF-5052 by 3M and whether $C_5F_{11}NO$ sold as PF-5052 by 3M can properly be characterized as a "perfluoronitroalkane" and remand. On remand the examiner should make appropriate findings and place in the record evidence to support those findings so that the issues of (1) whether the description of the material $C_5F_{11}NO$ sold as PF-5052 by 3M is enabling and (2) whether $C_5F_{11}NO$ sold as PF-5052 by 3M can properly be characterized as a "perfluoronitroalkane"[3] can be developed to the point where appellate review is possible.

2. The examiner's second lack of enablement rejection

The second lack of enablement rejection appears to be bottomed on a rationale that the enabling disclosure in the specification is not commensurate in scope with the breadth of the claims.

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[3] On the record before us, a more apt description might be perfluoro-N-aliphatic morpholines or perfluorinated N-aliphatic cyclic aminoethers. We voice no opinion on what precise term might be used to replace "perfluoronitroalkanes," a term we think may well be indefinite because $C_5F_{11}NO$ does not have a nitro (NO_2) group.

We essentially disagree with the examiner's rationale and reverse, with the exception of the examiner's discussion about the formula of $C_5F_{11}NO$--a matter, which as noted earlier, we are not in position to resolve on this record. As to this matter, we vacate and remand essentially for reasons already given.

3. The examiner's indefiniteness rejection

The examiner feels that the claim 14 is somehow indefinite. An initial criticism seems to have been applicants use of "comprising." Applicants now recite "consisting essentially." Hence, at least the "comprising" rationale has gone by the boards. The examiner also seems to believe that a boiling point needs to be recited in the claim. We disagree.

The indefiniteness rejection is reversed.

4. The prior art rejection

The examiner's rejection under 35 U.S.C. § 103 over Geiger, U.S. Patent 4,038,276 (1977) is reversed. Geiger describes the use of a solvent. In a light most favorable to the examiner, the solvent may be m-chlorotrifluorotoluene,

perfluorooctane, p-chlorotrifluorotoluene or "their mixtures" (col. 2, line 56). Applicants maintain that there is no teaching to use a mixture. They are wrong--Geiger expressly describes mixtures. Applicants maintain that there is no teaching as to what proportions of the solvents would be used in a mixture. They are wrong--Geiger expressly describes the conditions for making mixtures, i.e., all solvents in a mixture should boil either above or below cyanuric chloride (col. 3, lines 3-5). But, applicants are clearly correct when they argue that there is no teaching, suggestion, motivation or reason to mix the solvents in proportions which result in a single phase mixture. Because there is no teaching, suggestion, motivation or reason to mix the solvents in proportions which result in a single phase mixture, the examiner's rejection cannot be sustained.

C. Decision

1. The examiner's first rejection of claims 1-20 under the first paragraph of 35 U.S.C. § 112 is reversed as to claims 5-8, 10-11, 14, and 17-20 and is vacated and remanded as to claims 1-4, 9, 12-13 and 15-16 to the extent the rejection raises the issues of whether:

a. $C_5F_{11}NO$ sold as PF-5052 by 3M constitutes an enabling disclosure and

b. whether $C_5F_{11}NO$ sold as PF-5052 by 3M can properly be characterized as a "perfluoronitroalkane."[4]

As to these two issues, the remand is for further proceedings consisting with the views expressed in this opinion.

2. The examiner's second rejection of claims 1-20 under the first paragraph of 35 U.S.C. § 112 is reversed as to claims 5-8, 10-11, 14, and 17-20 and is vacated and remanded as to claims 1-4, 9, 12-13 and 15-16 to the extent the rejection raises the issues of whether:

a. $C_5F_{11}NO$ sold as PF-5052 by 3M constitutes an enabling disclosure and

b. whether $C_5F_{11}NO$ sold as PF-5052 by 3M can properly be characterized as a "perfluoronitroalkane."

As to these two issues, the remand is for further proceedings consisting with the views expressed in this opinion.

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[4] There may be an element of whether certain claims are definite within the meaning of the second paragraph of 35 U.S.C. § 112 insofar as this issue is concerned.

3. The examiner's rejection of claim 14 under the second paragraph of 35 U.S.C. § 112 as being indefinite is reversed.

4. The examiner's rejection of claims 1, 2, 4-5, 13-15 and 19 as being unpatentable under 35 U.S.C. § 103 over Geiger, U.S. Patent 4,038,276 (1977) is reversed.

D. Time for taking action

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

REVERSED-IN-PART; VACATED and REMANDED-IN-PART

FRED E. McKELVEY, Senior Administrative Patent Judge	)
RICHARD E. SCHAFER Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
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