

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MAHLER A. BARRY, RALPH N. MILLER
and V.N. MALLIKARJUNA RAO

Appeal No. 96-2885
Application No. 08/146,862¹

ON BRIEF

Before KIMLIN, JOHN D. SMITH and PAK, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed November 1, 1993.

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This is an appeal from the final rejection of claims 4-10. Claims 1-3, the other claims remaining in the present application, stand withdrawn from consideration. Claim 4 is illustrative:

4. A composition consisting essentially of hydrogen fluoride in combination with an effective amount of a compound selected from the group consisting of CCl_3CF_3 and CCl_2FCF_3 to form an azeotrope or azeotrope-like composition with hydrogen fluoride, said composition containing from about 10 to 27 mole percent CCl_3CF_3 and from about 90 to 73 mole percent of HF or from about 35 to 56 mole percent CCl_2FCF_3 and from about 65 to 44 mole percent of HF; said composition (i) including a liquid phase and a vapor phase with a composition which is essentially that of said liquid phase, and (ii) having a boiling point which ranges from about -25°EC at 50 kPa when the composition consists essentially of about 65 mole percent HF and about 35 mole percent CCl_2FCF_3 to about 125°EC at 4020 kPa when the composition consists essentially of about 44 mole percent HF and about 56 mole percent CCl_2FCF_3 and a boiling point which ranges from about 20°EC at 140 kPa when the composition consists essentially of about 90 mole percent HF and about 10 mole percent CCl_3CF_3 to about 150°EC at 4750 kPa when the composition consists essentially of about 73 mole percent HF and about 27 mole percent CCl_3CF_3 .

In the rejection of the appealed claims, the examiner relies upon the following references:

Lantz et al. (Lantz)	5,055,624	Oct. 8, 1991
Lee et al. (Lee)	5,196,616	Mar. 23, 1993
		(filed Oct. 18, 1991)

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Appellants' claimed invention is directed to an azeotrope or azeotrope-like composition consisting essentially of hydrogen fluoride and either CCl_3CF_3 or CCl_2FCF_3 .

Appealed claims 4-7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Lee. Claims 4 and 8-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as being unpatentable over Lantz.

Upon careful consideration of the opposing arguments presented on appeal, we will sustain the examiner's rejection of claims 4-7 under § 103 over Lee. However, we will not sustain the examiner's rejection of claims 4 and 8-10 over Lantz.

We consider first the examiner's rejection of claims 4-7 under § 103 over Lee. Lee discloses a process of separating and recovering an organic phase containing fluorocarbons from an azeotrope or azeotrope-like composition comprising an admixture of a fluorocarbon and HF. Lee also teaches that fluorocarbons of particular interest in composition with HF include the presently claimed $\text{CF}_3\text{CCl}_2\text{F}$ (column 4, line 61). Accordingly, since Lee is directed to processing azeotrope or

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azeotrope-like compositions comprising HF and fluorocarbons like the presently claimed $\text{CF}_3\text{CCl}_2\text{F}$, we fully concur with the examiner that the claimed azeotrope or azeotrope-like composition consisting essentially of hydrogen fluoride and CCl_2FCF_3 would have been obvious to one of ordinary skill in the art.

Appellants contend that:

The feed stream [of Lee] can be any mixture of at least one fluorocarbon and hydrogen fluoride that results in a fluorocarbon/HF admixture that is difficult to separate by conventional distillation (see, Col. 4, lines 12-17); and does not have to be at an azeotrope or azeotrope-like concentration range, but merely capable of forming the difficult-to-separate composition during distillation (see, Col. 4, lines 27- 32).

See sentence bridging pages 6 and 7 of Brief. However, as noted above, Lee expressly teaches that "this invention provides a process for the separation of a difficult-to-separate azeotrope or azeotrope-like composition consisting essentially of hydrogen fluoride and a $\text{C}_1\text{-C}_3$ fluorocarbon composition" (sentence bridging columns 2 and 3).

Furthermore, we fail to perceive any meaningful distinction between a so-called "azeotrope-like composition" and a

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composition that is difficult to separate by conventional distillation.

While appellants maintain that Lee does not specifically disclose a two-component mixture of HF and CCl_2FCF_3 , we find that the reference teaching of $\text{CF}_3\text{CCl}_2\text{F}$ as a fluorocarbon of particular interest, as well as other two-component azeotropic mixtures of HF and a fluorocarbon, would have suggested the claimed azeotropic mixture to one of ordinary skill in the art. Moreover, we are satisfied that it would have taken no more than routine experimentation for one of ordinary skill in the art to determine that a mixture of HF and the disclosed $\text{CF}_3\text{CCl}_2\text{F}$ is an azeotrope at particular concentrations.

We now turn to the rejection of claims 4 and 8-10 under § 102/§ 103 over Lantz. Since appellants do not dispute that Lantz discloses mixtures of the claimed components at the claimed concentrations, we agree with the examiner that Lantz discloses azeotropic compositions of the claimed components, notwithstanding the fact that Lantz does not describe the compositions as such. We say this because an admixture of two compounds at the proper concentrations either exhibit the properties of an azeotropic mixture or do not. Hence, since

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there is no dispute that Lantz discloses the claimed composition consisting essentially of HF and CCl_3CF_3 at the claimed concentrations, it necessarily follows that the reference discloses an azeotropic composition of appellants' components. However, the appealed claims also require that the claimed composition include "a liquid phase and a vapor phase with a composition which is essentially that of said liquid phase." On the other hand, Lantz specifically teaches that "[t]he pressure can be between 10 and 80 bars absolute, but must be sufficient to maintain the reagents in the liquid state at the temperature chosen for the reaction" (column 3, lines 1-3). Consequently, Lantz provides a teaching away of the claim requirement of a liquid phase and a vapor phase. The examiner speculates that "at least a minute vapor phase will exist in equilibrium with the liquid phase of Lantz et al.," but the examiner fails to provide the requisite factual support for the inevitability of a vapor phase existing at the pressures required by Lantz. Also, there is no teaching or suggestion in Lantz "to mix the hydrogen fluoride and chlorofluorocarbon components at room temperature and pressure" (page 6 of Answer). The motivation provided by the

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examiner lacks factual support in the reference. Furthermore, any mixture at room temperature would require a mixture at the appropriate concentrations of the components which, again, is not suggested by the reference.

In conclusion, we affirm the examiner's rejection of claims

4-7 under § 103 over Lee. We reverse the examiner's rejection of claims 4 and 8-10 under § 102/§ 103 over Lantz.

Accordingly, the examiner's decision rejecting the appealed claims is affirmed-in-part.

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

AFFIRMED-IN-PART

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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JOHN D. SMITH)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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