

REMARKS

Claims 1-10, 21-25, 27-31 and 32-37 are pending in the above application. Applicants note that while the Office Action indicates claims pending only up to claim 31, Applicants' Preliminary Amendment filed December 27, 2004 presented new claims 30-37.

Claims 21-25 and 27-29 stand rejected under 35 U.S.C. 102(b) as allegedly anticipated by Mahler (U.S. 5,053,155). Claims 1-10, 21-25 and 27-31 stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Egawa, et al. (U.S. 6,261,474).

1. The Present Claims

The claims submitted herein include independent claims 1, 6 and 21. All of the independent claims are directed to a refrigerant or a substitute refrigerant consisting of about 40% to about 45% by weight pentafluoroethane, about 55% to about 60% by weight tetrafluoroethane, which refrigerant is packaged with up to about 20% by weight with a specified lubricating oil.

2. Rejection Under Section 102(b)

The rejection under Section 102(b) is based solely on Mahler. Mahler, however, fails to disclose the particular combination of refrigerant gases recited in independent claims 1, 6 and 21 and further fails to teach or disclose the lubricating oil specified in these claims. The invention in Mahler relates to specific lubricants used with refrigerants. In particular, Mahler teaches substituting HFC-134a or HFC-134 (collectively tetrafluoroethane) for CFC-12 and further combining a specific lubricating oil with the tetrafluoroethane. More particularly, Mahler teaches at least about 10% by volume of HFC-134 (tetrafluoroethane), in a blend with HFC-134a or HFC-125 (pentafluoroethane). Mahler, however, fails to teach how much pentafluoroethane should be included other than, for example, mentioning "at least 10% by volume of at least one

of 1,1,1,2-tetrafluoroethane and pentafluoroethane. Additionally, Mahler teaches only a specific lubricating oil, namely, a particular polyalkylene glycol (PAG). Accordingly, Mahler fails to teach or suggest the particular ratio of pentafluoroethane to tetrafluoroethane recited in the claims and further fails to teach or suggest Applicants' specified lubricant.

3. Rejection Under Section 103(a)

This rejection is based solely on the patent to Egawa, et al. Egawa, et al. is directed to a particular lubricating oil for compression-type refrigerators using a refrigerant containing pentafluoroethane. While Egawa, et al. teaches hydrofluorocarbon refrigerant consisting of 20% to 80% by weight of pentafluoroethane, Egawa, et al. fails to teach or suggest using about 55% to about 60% by weight tetrafluoroethane with the pentafluoroethane. Egawa, et al. further fails to teach or suggest that the refrigerant consists of about 40% to about 45% by weight pentafluoroethane. Additionally, Egawa, et al. teaches only use of a specific polyvinyl ether compound as the lubricating oil. Accordingly, Egawa, et al. fails to teach or suggest the refrigerant recited in the claims and further fails to teach or suggest the lubricant also recited in the claims.

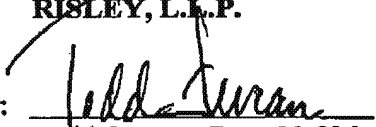
CONCLUSION

It is believed that the foregoing amendments and additions add no new matter to the present application.

Favorable action in regard to the application is earnestly solicited.

Respectfully submitted,

**THOMAS, KAYDEN, HORSTEMEYER &
RISLEY, L.L.P.**

By: 

Todd Deveau, Reg. 29,526

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Docket No. 821920-1030

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2003

Serial Number

10/437736

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	29	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	43 minus 20 =	23
INDEPENDENT CLAIMS	5 minus 3 =	2
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	43	Minus 20	
Independent	5	Minus 3	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			☐

SMALL ENTITY TYPE ☐

OR OTHER THAN SMALL ENTITY

RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
XS 9=	207	OR	XS18=	
X43=	84	OR	X86=	
+145=	150	OR	+290=	
TOTAL	640	OR	TOTAL	

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	23	Minus 43	
Independent	3	Minus 5	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			☐

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total		Minus	
Independent		Minus	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			☐

- * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
- ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
- *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/937,736	09/08/2004	Kenneth M. Ponder	821920-1030	1006

24504 7590 06/05/2006

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP
100 GALLERIA PARKWAY, NW
STE 1750
ATLANTA, GA 30339-5948

EXAMINER

HARDEE, JOHN R

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/937,736	Applicant(s) PONDER ET AL.	
	Examiner John R. Hardee	Art Unit 1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-10,21-25,27-31,34,35 and 37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10,21-25,27-31,34,35 and 37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) ☐ Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 21-25, 27-31, 34, 35 and 37 remain rejected under 35 U.S.C. 102(b) as being anticipated by Mahler, US 5,053,155. At col. 3, lines 13+, the reference discloses a refrigerant consisting of, most preferably, at least 50% of HFC-134 blended with HFC-125. Accordingly, the person of ordinary skill in the refrigeration art would "immediately envisage" a 50:50 composition of HFC-134 and HFC-125. This reads on applicant's recitations of "about 40-45%" of HFC-125 and "about 55-60%" of HFC-134 in combination with 0% of the recited lubricant. It is well settled that "up to" includes zero.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented 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 art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

Art Unit: 1751

3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 1-10, 21-25, 27-31, 34, 35 and 37 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al., US 6,261,474. The reference discloses lubricating oils for compression-type refrigerants comprising pentafluoroethane (abstract). Compositions consisting of 20-80% by weight of pentafluoroethane and 80-20% of 1,1,1,2-tetrafluoroethane are disclosed in claim 1. The compositions are disclosed as replacements for R-22 (cols. 2-3). Note that the recitation of "about 0%" of lubricant clearly reads on 0% (specification, p. 9, line 10). The method steps of claim 6 recite a conventional method of recharging refrigeration apparatus and lend little patentable weight. This reference differs from the claimed subject matter in that it does not disclose a composition which reads on applicant's claims with sufficient specificity to constitute anticipation.

It would have been obvious at the time the invention was made to make such a composition, because this reference teaches that all of the ingredients recited by applicants are suitable for inclusion in a replacement refrigerant composition for R-22. The person of ordinary skill in the refrigerant art would expect the recited compositions to have properties similar to those compositions which are exemplified, absent a showing to the contrary.

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed Cir. 1990). It is well settled that "up to" includes zero.

Response to Arguments

7. Applicant's arguments filed May 24, 2006 have been fully considered but they are not persuasive. Applicant argues that the 102 and 103 rejections of the previous office action are not valid, citing different passages from those cited by the examiner. This is not persuasive because the passages cited by the examiner disclose or provide motivation for making the compositions recited by applicant. Regarding the lack of teaching of the recited lubricants, this is not persuasive because applicant has recited amounts of refrigerant which include zero amounts of lubricant. While the reference teaches the use of different lubricants, a blend of refrigerants made prior to the addition of lubricant, notoriously common in the refrigeration art, meets applicant's "consisting" scope recitation.

Art Unit: 1751

8. The examiner appears to have omitted several of the claims from the previous rejection. Accordingly, this action is NOT FINAL, and the examiner apologizes for the oversight.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, Dr. John R. Hardee, whose telephone number is (571) 272-1318. The examiner can normally be reached on Monday through Friday from 8:00 until 4:30. In the event that the examiner is not available, his supervisor, Mr. Douglas McGinty, may be reached at (571) 272-1029.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John R. Hardee
Primary Examiner
June 1, 2006

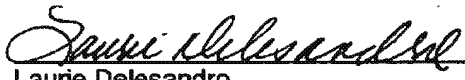
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UNDER 37 CFR §1.8**

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted on the date indicated below via facsimile to the United States Patent and Trademark Office, facsimile number (571)-273-8300.

Date: 11 October 2006


Laurie Delesandro

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: Ponder, K.

Art Unit: 1751

Serial No.: 10/937,736

Confirmation No.: 1006

Filed: September 8, 2004

Docket No. 821920-1030

Examiner: Hardee

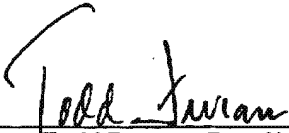
For: **REFRIGERANT WITH LUBRICATING OIL
FOR REPLACEMENT OF R-22 REFRIGERANT**

Response and Amendment

TOTAL PAGES (including cover sheet) **13**

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AMENDMENT TRANSMITTAL LETTER (SMALL)				Docket No. 821920-1030	
Applicant(s): Ponder, K., et al.					
Serial No. 10/937,736	Filing Date 09/08/2004	Examiner Hardoe, J.	Confirmation No. 1006	Group Art Unit 1751	
Invention: Refrigerant with Lubricating Oil for Replacement of R-22 Refrigerant					
Commissioner for Patents Mail Stop AMENDMENT P.O. Box 1450 Alexandria VA 22313-1450 Transmitted herewith is Response and Amendment in the above-identified application. The fee has been calculated and is transmitted as shown below					
CLAIMS AS AMENDED					
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST # PREV. PAID FOR	NUMBER EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	26 -	26 =		X \$50.00	\$
INDEP. CLAIMS	3 -	3 =		X \$200.00	\$
Multiple Dependent Claims (check if applicable) ☐				\$360.00	\$
EXTENSION FEE	1 ST MONTH ☐ \$60.00	2 ND MONTH ☒ \$225.00	3 RD MONTH ☐ \$510.00	4 TH MONTH ☐ \$795.00	\$225.00
Other Fees:					\$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT					\$225.00
☐ No additional fee is required. ☒ Please charge Deposit Account No. 20-0778 in the amount of 225.00. A duplicate copy of this page is enclosed. ☐ A check in the amount of _____ to cover the filing fee is enclosed. ☐ A Credit Card Payment Form PTO-2038 is attached in the amount of \$ _____ ☒ The Director is hereby authorized to charge any deficiencies of the above fees or credit any overpayment to Deposit Account No. 20-0778.					
 Todd Deveau, Reg. No. 29,526			11 Oct. 2006 Date		

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In Re Application of:

Docket No.: 821920-1030

PONDER, K., et al.,

Art Unit: 1751

Serial No.: 10/937,736

Examiner: John R. Hardee

Filing Date: September 8, 2004

Confirmation No.: 1006

For: Refrigerant with Lubricating Oil for Replacement of R-22 Refrigerant

RESPONSE AND AMENDMENTCommissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

The non-final Office Action, Paper No./Mail Date 20060601, from Examiner John R. Hardee of Art Unit 1751, mailed June 5, 2006, has been received and carefully reviewed. Applicants respectfully request reconsideration and withdrawal of the rejections presented in the Office Action in view of the following remarks and amendment. No new matter and, thus, no new issues are presented.

AUTHORIZATION TO DEBIT ACCOUNT

A Petition for Extension of time for two months is enclosed with this Response. It is not believed that any additional extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to deposit account no. 20-0778.

IN THE CLAIMS

Please amend the claims to read as follows wherein changes in a claim are shown by double brackets for deleted matter and underlining for added matter:

1. (Currently Amended) In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a substitute blend refrigerant containing a lubricant, said substitute refrigerant consisting essentially of:
about 40% to about 45% by weight pentafluoroethane;
about 55% to about 60% by weight tetrafluoroethane; and
said substitute refrigerant packaged with about 0.5% up to about 20% by weight of the refrigerant with a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane

wherein the lubricating oil is selected from the group consisting of napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.
2. (Original) The invention according to Claim 1, the lubricating oil having the following components:
65-88% hydrotreated light napthenic distillate, and
10-20% solvent refined light napthenic distillate petroleum.
3. (Original) The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight.

4. (Original) The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 42% by weight to said tetrafluoroethane present in an amount of about 58% by weight.

5. (Original) The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 45% by weight to said tetrafluoroethane present in an amount of about 55% by weight.

6. (Currently Amended) A method for refilling an apparatus designed for use with chlorodifluoromethane refrigerant, the method comprising:

(1) supplying a substitute refrigerant under pressure, in a cylinder can fitted with an outlet compatible with a chlorodifluoromethane recharging manifold of the apparatus; and

(2) adding to said apparatus via the manifold a substitute refrigerant for chlorodifluoromethane, said substitute refrigerant consisting essentially of:

about 40% to about 45% by weight pentafluoroethane;

about 55% to about 60% by weight tetrafluoroethane; and

said substitute refrigerant packaged with about 0.5% up to about 20% by weight of the refrigerant of a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane

wherein the lubricating oil is selected from the group consisting of naphthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.

7. (Previously presented) The method according to claim 6, the lubricating oil having the following components:

65-85% hydrotreated light naphthenic distillate, and

10-20% solvent refined light naphthenic distillate petroleum.

8. (Previously presented) The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight.

9. (Previously presented) The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 42% by weight to said tetrafluoroethane present in an amount of about 58% by weight.

10. (Previously presented) The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 45% by weight to said tetrafluoroethane present in an amount of about 55% by weight.

11. – 20. (Cancelled)

21. (Currently Amended) A refrigerant consisting essentially of:
about 40% to about 45% by weight pentafluoroethane;
about 55% to about 60% by weight tetrafluoroethane;
said refrigerant packaged with about 0.5% up to about 20% by weight of
the refrigerant of a lubricating oil that is soluble in chlorodifluoromethane,
pentafluoroethane and tetrafluoroethane

wherein the lubricating oil is selected from the group consisting of naphthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.

22. (Original) The invention according to claim 21, the lubricating oil having the following components:

65-85% hydrotreated light naphthenic distillate, and
10-20% solvent refined light naphthenic distillate petroleum.

23. (Original) A refrigerant according to claim 21 wherein said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight.

24. (Original) A refrigerant according to claim 21 wherein said pentafluoroethane is present in the ratio of about 45% by weight to said tetrafluoroethane present in an amount of about 55% by weight with a naphthenic lubricant.

25. (Original) A refrigerant according to claim 21 wherein said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight with a naphthenic lubricant.

26. (Cancelled)

27. (Previously presented) The refrigerant according to claim 21, wherein the lubricating oil further includes an acrylic polymer or a corrosion inhibitor or both.

28. (Cancelled)

29. (Previously presented) The refrigerant according to claim 21, wherein the lubricating oil is an alkylbenzene-based lubricating oil.

30. (Previously presented) The invention according to claim 1, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.

31. (Previously presented) The invention according to claim 1, wherein the lubricating oil includes an additive selected from the group consisting of acrylic polymer, a corrosion inhibitor and mixtures thereof.

32. (Cancelled)

33. (Previously presented) The invention according to claim 1, wherein the lubricating oil is an alkylbenzene-based lubricating oil.

34. (Previously presented) The method according to claim 6, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.

35. (Previously presented) The method according to claim 6, wherein the lubricating oil includes an additive selected from the group consisting of acrylic polymer, a corrosion inhibitor and mixtures thereof.

36. (Cancelled)

37. (Previously presented) The method according to claim 6, wherein the lubricating oil is an alkylbenzene-based lubricating oil.

38. (New) The invention according to claim 1, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

39. (New) The method of claim 6, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

40. (New) The invention of claim 21, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

REMARKS

Claims 1-10, 21-25, 27-31, 34, 35 and 37 are pending in the above application.

Claims 21-25, 27-31, 34, 35 and 37 stand rejected under 35 U.S.C. 102(b) as allegedly anticipated by Mahler (U.S. 5,053,155). Claims 1-10, 21-25, 27-31, 34, 35 and 37 stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Egawa, et al. (U.S. 6,261,474).

1. The Present Claims

The claims submitted herein include independent claims 1, 6 and 21. All of the independent claims are directed to a refrigerant or a substitute refrigerant consisting essentially of about 40% to about 45% by weight pentafluoroethane, about 55% to about 60% by weight tetrafluoroethane, which refrigerant is packaged with about 0.5% up to about 20% by weight with a specified lubricating oil.

2. Rejection Under Section 102(b)

The rejection under Section 102(b) is based solely on Mahler. Mahler, however, fails to disclose the particular combination of refrigerant gases recited in independent claims 1, 6 and 21 and further fails to teach or disclose the lubricating oil specified in these claims. The invention in Mahler relates to specific lubricants used with refrigerants. In particular, Mahler teaches substituting HFC-134a or HFC-134 (collectively tetrafluoroethane) for CFC-12 and further combining a specific lubricating oil with the tetrafluoroethane. More particularly, Mahler teaches at least about 10% by volume of HFC-134 (tetrafluoroethane), in a blend with HFC-134a or HFC-125 (pentafluoroethane). Mahler, however, fails to teach how much pentafluoroethane should be included other than, for example, mentioning "at least 10% by volume of at least one of 1,1,1,2-tetrafluoroethane and pentafluoroethane. Additionally, Mahler teaches only a specific lubricating oil, namely, a particular polyalkylene glycol (PAG). Accordingly, Mahler fails to teach or suggest the particular ratio of pentafluoroethane to tetrafluoroethane recited in the claims and further fails to teach or suggest Applicants' specified lubricant.

3. Rejection Under Section 103(a)

This rejection is based solely on the patent to Egawa, et al. Egawa, et al. is directed to a particular lubricating oil for compression-type refrigerators using a refrigerant containing pentafluoroethane. While Egawa, et al. teaches hydrofluorocarbon refrigerant consisting of 20% to 80% by weight of pentafluoroethane, Egawa, et al. fails to teach or suggest using about 55% to about 60% by weight tetrafluoroethane with the pentafluoroethane. Egawa, et al. further fails to teach or suggest that the refrigerant consists of about 40% to about 45% by weight pentafluoroethane.

Additionally, Egawa, et al. teach only use of a specific polyvinyl ether compound as the lubricating oil. More particularly, Egawa et al. teach away from Applicants' recited lubricants. Egawa et al. state:

"As the lubricant having a good compatibility with these mixed hydrofluorocarbon refrigerants, polyalkylene glycol lubricants, polyol ester lubricants, and carbonate lubricants have been known. The polyalkylene glycol lubricant has a low volume intrinsic resistance, and the polyol ester lubricants and the carbonate lubricants are easily hydrolyzed to cause a problem in the stability."

See, Column 3, lines 51-57. Accordingly, Egawa, et al. fails to teach or suggest the refrigerant recited in the claims and further fails to teach or suggest the lubricant also recited in the claims.

CONCLUSION

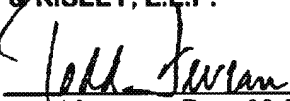
It is believed that the foregoing amendments and additions add no new matter to the present application.

Favorable action in regard to the application is earnestly solicited.

Respectfully submitted,

**THOMAS, KAYDEN, HORSTEMEYER
& RISLEY, L.L.P.**

By:


Todd Deveau, Reg. 29,526

100 Galleria Parkway
Suite 1750
Atlanta, Georgia 30339-5948
(770) 933-9500

Docket No. 821920-1030

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

10/437736

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	29	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	43 minus 20 =	23
INDEPENDENT CLAIMS	5 minus 3 =	2
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	43	20	
Independent	5	3	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	23	43	
Independent	3	5	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	26	43	
Independent	3	5	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

SMALL ENTITY TYPE ☐		OTHER THAN SMALL ENTITY	
RATE	FEE	RATE	FEE
BASIC FEE	385.00	BASIC FEE	770.00
XS 9=	207	XS 18=	
X43=	87	X86=	
+145=	150	+290=	
TOTAL	540	TOTAL	

SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
XS 9=		XS 18=	
X43=		X86=	
+145=		+290=	
TOTAL ADDIT. FEE		TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
XS 9=		XS 18=	
X43=		X86=	
+145=		+290=	
TOTAL ADDIT. FEE		TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
XS 9=		XS 18=	
X43=		X86=	
+145=		+290=	
TOTAL ADDIT. FEE		TOTAL ADDIT. FEE	

- * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 - * If the "Highest Number Previously Paid For" in THIS SPACE is less than 20, enter "20."
 - * If the "Highest Number Previously Paid For" in THIS SPACE is less than 3, enter "3."
- The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/937,736	09/08/2004	Kenneth M. Ponder	821920-1030	1006
24504	7590	12/11/2006		
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948				
			EXAMINER HARDEE, JOHN R	
			ART UNIT 1751	PAPER NUMBER

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/937,736	PONDER ET AL.	
	Examiner	Art Unit	
	John R. Hardee	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 21-25, 27, 29-31, 33-35 and 37-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 21-25, 27, 29-31, 33-35 and 37-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____ | 6) ☐ Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-10, 21-25, 27, 29-31, 33-35 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts, US 6,428,720. The reference discloses refrigerant compositions for use as replacement refrigerants in equipment which was designed for R12 or R22 (col. 1, lines 6+). Preferred compositions comprise 40-55% by weight of R125 and 35-60% by weight of R134a (col. 3, lines 13-24). Small amounts of butane refrigerant are also present, but its presence is not ruled out by applicant's use of "consisting essentially" scope. Suitable lubricants include mineral oil and alkylbenzenes, including naphthenic and paraffinic oils, as well as polyol esters (col. 4, lines 1+). While amounts of these lubricants are not disclosed, determination of the lubrication-effective amount of a disclosed lubricant amounts to ordinary experimentation. Suitable additives, including corrosion inhibitors, are disclosed at col. 4, lines 10+.

This reference differs from the claimed subject matter in that it does not disclose a composition which reads on applicant's claims with sufficient specificity to constitute anticipation. It would have been obvious at the time the invention was made to make such a composition, because this reference teaches that all of the ingredients recited by applicants are suitable for inclusion in a surfactant composition. The person of ordinary

Art Unit: 1751

skill in the surfactant art would expect the recited compositions to have properties similar to those compositions which are exemplified, absent a showing to the contrary.

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed Cir. 1990).

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, Dr. John R. Hardee, whose telephone number is (571) 272-1318. The examiner can normally be reached on Monday through Friday from 8:00 until 4:30. In the event that the examiner is not available, his

Art Unit: 1751

supervisor, Mr. Douglas McGinty, may be reached at (571) 272-1029.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John R. Hardee
Primary Examiner
December 5, 2006

Notice of References Cited	Application/Control No. 10/937,736		Applicant(s)/Patent Under Reexamination PONDER ET AL.	
	Examiner John R. Hardee		Art Unit 1751	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2001/0038088	11-2001	Schnur, Nicholas E.	252/68
*	B	US-6,428,720 B1	08-2002	Roberts, Neil A.	252/67
*	C	US-6,207,071 B1	03-2001	Takigawa et al.	252/68
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

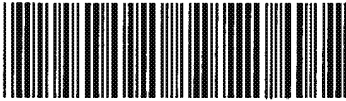
FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes

Application/Control No.

10/937,736

Examiner

John R. Hardee

Applicant(s)/Patent under
Reexamination

PONDER ET AL.

Art Unit

1751

SEARCHED

Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST text and image	12/7/2006	JRH

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Docket No.: 821920-1030

PONDER, K., et al.,

Art Unit: 1751

Serial No.: 10/937,736

Examiner: John R. Hardee

Filing Date: September 8, 2004

Confirmation No.: 1006

For: **Refrigerant with Lubricating Oil for Replacement of R-22 Refrigerant**

RESPONSE AND REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

The Final Office Action, Paper No./Mail Date 20061207, from Examiner John R. Hardee of Art Unit 1751, mailed December 11, 2006, has been received and carefully reviewed. Applicants respectfully request reconsideration and withdrawal of the rejections presented in the Office Action in view of the following remarks and amendment. No new matter and, thus, no new issues are presented.

AUTHORIZATION TO DEBIT ACCOUNT

It is not believed that any extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to deposit account no. 20-0778.

IN THE CLAIMS

Please amend the claims to read as follows wherein changes in a claim are shown by double brackets for deleted matter and underlining for added matter:

1. (Previously presented) In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a substitute blend refrigerant containing a lubricant, said substitute refrigerant consisting essentially of:
about 40% to about 45% by weight pentafluoroethane;
about 55% to about 60% by weight tetrafluoroethane; and
said substitute refrigerant packaged with about 0.5% up to about 20% by weight of the refrigerant with a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane

wherein the lubricating oil is selected from the group consisting of napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.

2. (Original) The invention according to Claim 1, the lubricating oil having the following components:

65-88% hydrotreated light napthenic distillate, and
10-20% solvent refined light napthenic distillate petroleum.

3. (Original) The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight.

4. (Original) The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 42% by weight to said tetrafluoroethane present in an amount of about 58% by weight.

5. (Original) The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 45% by weight to said tetrafluoroethane present in an amount of about 55% by weight.

6. (Previously presented) A method for refilling an apparatus designed for use with chlorodifluoromethane refrigerant, the method comprising:

(1) supplying a substitute refrigerant under pressure, in a cylinder can fitted with an outlet compatible with a chlorodifluoromethane recharging manifold of the apparatus; and

(2) adding to said apparatus via the manifold a substitute refrigerant for chlorodifluoromethane, said substitute refrigerant consisting essentially of:

about 40% to about 45% by weight pentafluoroethane;

about 55% to about 60% by weight tetrafluoroethane; and

said substitute refrigerant packaged with about 0.5% up to about 20% by weight of the refrigerant of a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane

wherein the lubricating oil is selected from the group consisting of napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.

7. (Previously presented) The method according to claim 6, the lubricating oil having the following components:

65-85% hydrotreated light napthenic distillate, and

10-20% solvent refined light napthenic distillate petroleum.

8. (Previously presented) The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight.

9. (Previously presented) The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 42% by weight to said tetrafluoroethane present in an amount of about 58% by weight.

10. (Previously presented) The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 45% by weight to said tetrafluoroethane present in an amount of about 55% by weight.

11. – 20. (Cancelled)

21. (Previously presented) A refrigerant consisting essentially of:
about 40% to about 45% by weight pentafluoroethane;
about 55% to about 60% by weight tetrafluoroethane;
said refrigerant packaged with about 0.5% up to about 20% by weight of the refrigerant of a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane
wherein the lubricating oil is selected from the group consisting of napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.

22. (Original) The invention according to claim 21, the lubricating oil having the following components:

65-85% hydrotreated light napthenic distillate, and
10-20% solvent refined light napthenic distillate petroleum.

23. (Original) A refrigerant according to claim 21 wherein said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight.

24. (Original) A refrigerant according to claim 21 wherein said pentafluoroethane is present in the ratio of about 45% by weight to said tetrafluoroethane present in an amount of about 55% by weight with a napthenic lubricant.

25. (Original) A refrigerant according to claim 21 wherein said pentafluoroethane is present in the ratio of about 40% by weight to said tetrafluoroethane present in an amount of about 60% by weight with a napthenic lubricant.

26. (Cancelled)
27. (Previously presented) The refrigerant according to claim 21, wherein the lubricating oil further includes an acrylic polymer or a corrosion inhibitor or both.
28. (Cancelled)
29. (Previously presented) The refrigerant according to claim 21, wherein the lubricating oil is an alkylbenzene-based lubricating oil.
30. (Previously presented) The invention according to claim 1, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.
31. (Previously presented) The invention according to claim 1, wherein the lubricating oil includes an additive selected from the group consisting of acrylic polymer, a corrosion inhibitor and mixtures thereof.
32. (Cancelled)
33. (Previously presented) The invention according to claim 1, wherein the lubricating oil is an alkylbenzene-based lubricating oil.
34. (Previously presented) The method according to claim 6, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.
35. (Previously presented) The method according to claim 6, wherein the lubricating oil includes an additive selected from the group consisting of acrylic polymer, a corrosion inhibitor and mixtures thereof.
36. (Cancelled)

37. (Previously presented) The method according to claim 6, wherein the lubricating oil is an alkylbenzene-based lubricating oil.

38. (Previously presented) The invention according to claim 1, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

39. (Previously presented) The method of claim 6, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

40. (Previously presented) The invention of claim 21, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

REMARKS

Claims 1-10, 21-25, 27, 29-31, 33-35 and 37-40 are pending in the above application.

The claims stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Roberts (US 6,428,720).

1. The Present Claims

The claims submitted herein include independent claims 1, 6 and 21. All of the independent claims are directed to a refrigerant or a substitute refrigerant consisting essentially of about 40% to about 45% by weight pentafluoroethane, about 55% to about 60% by weight tetrafluoroethane, which refrigerant is packaged with about 0.5% up to about 20% by weight with a specified lubricating oil.

2. Rejection Under Section 103(a)

The rejection under Section 103(a) is based solely on Roberts. Roberts, however, fails to disclose the particular combination or blend of refrigerant gases recited in independent claims 1, 6 and 21 and further fails to teach or disclose the packaging of the lubricating oil specified in these claims with the recited combination of refrigerant gases for subsequent use in equipment, such as cooling or air conditioning equipment.

Roberts discloses a three component refrigerant composition which comprises (a) pentafluoroethane, octafluoropropane, trifluoromethoxydifluoromethane or hexafluorocyclopropane, or a mixture of two or more thereof, in an amount of at least about 35% based on the weight of the composition; (b) 1,1,1,2- or 1,1,2,2-tetrafluoroethane, 1,1-difluoroethane, tribluoromethoxypentafluoroethane, 1,1,1,2,3,3-heptafluoropropane, or a mixture of two or more thereof, in an amount of at least about 30% by weight based on the weight of the composition and (c) n-butane, in an amount from about 2.3 to about 4% by weight based on the weight of the composition. See Abstract; Col. 3, lines 1-12.

Further, Roberts teaches: "Generally the performance of the composition deteriorates as the concentration of butane is decreased down to 2.3% by weight. Similarly, for a given butane content, the performance characteristics of the composition deteriorate as the concentration of R125 is increased." (Emphasis added). See Col. 3, lines 28-33. Roberts, thus, teaches away from eliminating or removing butane as the third component of the refrigerant composition.

Moreover, Roberts does not teach packaging or including a lubricant with the refrigerant composition prior to use or installation in the equipment. Instead, Roberts merely discloses that the three component refrigerant composition is compatible with certain lubricants conventionally used with CFC refrigerants. "Accordingly the compositions of the present invention [taught by Roberts] can be used with mineral oil and alkylbenzene lubricants." See Col. 3, line 52-Col. 4,

line 2. Thus, Roberts teaches no more than its three component refrigerant composition can be used in, for example, cooling or air conditioning equipment having such lubricants prior to the installation of the refrigerant in the equipment. This does not teach that the refrigerant composition is packaged with or includes lubricant prior to installation in the equipment.

Responding to the Office Action at page 2, paragraph 2, Applicant respectfully disagrees with the statement that “small amounts of butane refrigerant are also present [in Roberts], but its presence is not ruled out by Applicant’s use of “consisting essentially” scope.” The phrase “consisting essentially of” has been construed by the Federal Circuit to mean that “the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention.” See *PPG Industries v. Guardian Industries Corp.*, 48 U.S.P.Q.2d, 1351, 1354 (Fed. Cir. 1998). According to the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE) the presence of a small amount of butane refrigerant is considered to materially effect the basic and novel properties of the refrigerant composition. For example, ASHRAE has given the designation R404A to the composition comprising 44% pentafluoroethane (R125), 52% trifluoroethane (R143a) and only 4% tetrafluoroethane (R134a). In contrast, a refrigerant composition eliminating the tetrafluoroethane (R134a) and comprising 50% pentafluoroethane (R125) and 50% trifluoroethane (R143a) has been given the designation R507A. See Addendum c to ANSI/ASHRAE Standard 34-2001 (2003), attached. With respect to Roberts, ASHRAE has granted the designation R417A to Roberts’ refrigerant composition comprised of 46.6% pentafluoroethane (R125), 50.0% tetrafluoroethane (R134a) and 3.4% n-butane (R600). See Addendum c, *id.* In contrast, ASHRAE has granted the designation R422D to a refrigerant blend of 65.1% pentafluoroethane (R125), 31.5% tetrafluoroethane (R134a) and 3.4% isobutane (R600a). See Addendum h to ANSI/ASHRAE Standard 34-2004 (2006), attached. ASHRAE, on the other hand, has granted the designation R421 to refrigerant compositions comprising pentafluoroethane and tetrafluoroethane without butane. These different ASHRAE designations show that the industry recognizes that the presence or absence of a small amount of refrigerant gas such as butane materially affects the basic and novel properties of the refrigerant composition.

Applicant notes that the statement in the Office Action that the presence of butane refrigerant is not ruled out by Applicant’s use of “consisting essentially of “ is provided without evidentiary support. If, in view of the above information, the Examiner considers that the presence of butane would not materially effect the basic and novel properties of Applicant’s

claimed refrigerant composition, Applicant respectfully requests that evidence be provided to support such position.

CONCLUSION

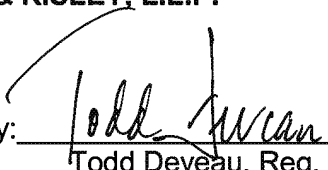
In view of the foregoing, favorable reconsideration and allowance of the present application and pending claims is hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at 770-933-9500.

The Commissioner is authorized to charge Deposit Account 20-0778 for any deficiencies or credit any over payments.

Respectfully Submitted,

**THOMAS, KAYDEN, HORSTEMEYER
& RISLEY, L.L.P.**

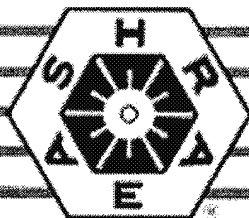
By: _____


Todd Deveau, Reg. No. 29,526

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Docket No. 821920-1030

ANSI/ASHRAE Addendum c to
ANSI/ASHRAE Standard 34-2001



ASHRAE STANDARD

Designation and Safety Classification of Refrigerants

Approved by the ASHRAE Standards Committee on January 29, 2003; by the ASHRAE Board of Directors on January 30, 2003; and by the American National Standards Institute on September 25, 2003.

This standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines are given at the back of this document and may be obtained in electronic form from ASHRAE's Internet Home Page, <http://www.ashrae.org>, or in paper form from the Manager of Standards. The latest edition of an ASHRAE Standard and printed copies of a public review draft may be purchased from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in U.S. and Canada).

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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

The Manager of Standards of ASHRAE should be contacted for:

- a. interpretation of the contents of this Standard,
- b. participation in the next review of the Standard,
- c. offering constructive criticism for improving the Standard,
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ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. However, ASHRAE does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with ASHRAE's Standards or Guidelines or that any tests conducted under its Standards or Guidelines will be nonhazardous or free from risk.

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In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.

(This foreword is not part of this addendum but is included for information only.)

FOREWORD

This addendum adds a designation of R-418A to the blend R-290/22/152a (1.5/96.0/2.5) with tolerances of ($\pm 0.5/\pm 1.0/\pm 0.5$) and a safety classification of A2. Revised Table 2 and Appendix B incorporate editorial changes identified in the February 7, 2002, Errata Sheet and additional changes from Addendum a and Addendum b to ANSI/ASHRAE Standard 34-2001.

ADDENDUM C TO ANSI/ASHRAE STANDARD 34-2001

Add to Table 2 the following entries for R-418A:

TABLE 2
Data and Safety Classifications for Refrigerant Blends

Refrigerant Number	Composition (Mass %)	Composition Tolerances	Azeotropic Temperature		Molecular Mass ^a	Normal Boiling Point ^a		Safety Group
			(°C)	(°F)		(°C)	(°F)	
<u>418A</u>	<u>R-290/22/152a (1.5/96.0/2.5)</u>	<u>($\pm 0.5/\pm 1.0/\pm 0.5$)</u>						<u>A2</u>

Add to Table B1 the following entries for R-418A:

TABLE B-1
Comparison of Safety Group Classifications to Those Under ASHRAE Standard 34-1989

Refrigerant Number	Chemical Formula	Safety Group	
		1989	2001
<u>418A</u>	<u>R-290/22/152a (1.5/96.0/2.5)</u>	=	<u>A2</u>

TABLE 2
Data and Safety Classification for Refrigerant Blends

Refrigerant Number	Composition (Mass%)	Composition Tolerances	Azeotropic Temperature		Molecular Mass ^a	Normal Boiling Point ^a		Safety Group
			(°C)	(°F)		(°C)	(°F)	
Zeotropes								
400	R-12/114 (must be specified)		none	none				A1
401A	R-22/152a/124 (53/13/34)	(±2/+0.5,-1.5/±1)						A1
401B	R-22/152a/124 (61/11/28)	(±2/+0.5,-1.5/±1)						A1
401C	R-22/152a/124 (33/15/52)	(±2/+0.5,-1.5/±1)						A1
402A	R-125/290/22 (60.0/2.0/38.0)	(±2.0/+0.1,-1.0/±2.0)						A1
402B	R-125/290/22 (38.0/2.0/60.0)	(±2.0/+0.1,-1.0/±2.0)						A1
403A	R-290/22/218 (5/75/20)	(+0.2,-2/±2/±2)						A1
403B	R-290/22/218 (5/56/39)	(+0.2,-2/±2/±2)						A1
404A	R-125/143a/134a (44/52/4)	(±2/±1/±2)						A1
405A	R-22/152a/142b/C318 (45/7/5.5/42.5)	(±2/±1/±1/±2)						
406A	R-22/600a/142b (55/4/41)	(±2/±1/±1)						A2
407A	R-32/125/134a (20/40/40)	(±2/±2/±2)						A1
407B	R-32/125/134a (10/70/20)	(±2/±2/±2)						A1
407C	R-32/125/134a (23/25/52)	(±2/±2/±2)						A1
407D	R-32/125/134a (15/15/70)	(±2/±2/±2)						A1
407E	R-32/125/134a (25/15/60)	(±2/±2/±2)						A1
408A	R-125/143a/22 (7/46/47)	(±2/±1/±2)						A1
409A	R-22/124/142b (60/25/15)	(±2/±2/±1)						A1
409B	R-22/124/142b (65/25/10)	(±2/±2/±1)						A1
410A	R-32/125 (50/50)	(+0.5,-1.5/+1.5,-0.5)						A1
410B	R-32/125 (45/55)	(±1/±1)						A1
411A	R-1270/22/152a (1.5/87.5/11.0)	(+0,-1/+2,-0/+0,-1)						A2
411B	R-1270/22/152a (3/94/3)	(+0,-1/+2,-0/+0,-1)						A2
412A	R-22/218/142b (70/5/25)	(±2/±2/±1)						A2
413A	R-218/134a/600a (9/88/3)	(±1/±2/+0,-1)						A2
414A	R-22/124/600a/142b (51.0/28.5/4.0/16.5)	(±2.0/±2.0/±0.5/+0.5,-1.0)						A1
414B	R-22/124/600a/142b (50.0/39.0/1.5/9.5)	(±2.0/±2.0/±0.5/+0.5,-1.0)						A1
415A	R-22/152a (82.0/18.0)	(±1.0/±1.0)						A2
416A	R-134a/124/600 (59.0/39.5/1.5)	(+0.5,-1.0/+1.0,-0.5/+0.1,-0.2)						A1
417A	R-125/134a/600 (46.6/50.0/3.4)	(±1.0/±1.0/+0.1,-0.4)						A1
418A	<u>R-290/22/152a (1.5/96.0/2.5)</u>	<u>(±0.5/±1.0/±0.5)</u>						<u>A2</u>
Azeotropes ^b								
500	R-12/152a (73.8/26.2)		0	32	99.3	-33	-27	A1
501	R-22/12 (75.0/25.0) ^c		-41	-42	93.1	-41	-42	A1
502	R-22/115 (48.8/51.2)		19	66	112.0	-45	-49	A1

^a The molecular mass and normal boiling point are not part of this standard.

^b Azeotropic refrigerants exhibit some segregation of components at conditions of temperature and pressure other than those at which they were formulated. The extent of segregation depends on the particular azeotrope and hardware system configuration.

^c The exact composition of this azeotrope is in question, and additional experimental studies are needed.

^d R-507, R-508, and R-509 are allowed alternative designations for R-507A, R-508A, and R-509A due to a change in designations after assignment of R-500 through R-509. Corresponding changes were not made for R-500 through R-506.

TABLE 2 (Continued)
Data and Safety Classification for Refrigerant Blends

503	R-23/13 (40.1/59.9)	88	126	87.5	-88	-126	
504	R-32/115 (48.2/51.8)	17	63	79.2	-57	-71	
505	R-12/31 (78.0/22.0) ^c	115	239	103.5	-30	-22	
506	R-31/114 (55.1/44.9)	18	64	93.7	-12	10	
507A ^d	R-125/143a (50/50)	-40	-40	98.9	-46.7	-52.1	A1
508A ^d	R-23/116 (39/61)	-86	-122	100.1	-86	-122	A1
508B	R-23/116 (46/54)	-45.6	-50.1	95.4	-88.3	-126.9	A1
509A ^d	R-22/218 (44/56)	0	32	124.0	-47	-53	A1

^a The molecular mass and normal boiling point are not part of this standard.

^b Azeotropic refrigerants exhibit some segregation of components at conditions of temperature and pressure other than those at which they were formulated. The extent of segregation depends on the particular azeotrope and hardware system configuration.

^c The exact composition of this azeotrope is in question, and additional experimental studies are needed.

^d R-507, R-508, and R-509 are allowed alternative designations for R-507A, R-508A, and R-509A due to a change in designations after assignment of R-500 through R-509. Corresponding changes were not made for R-500 through R-506.

(This appendix is not part of this standard but is included for information only.)

APPENDIX B

Composition of Previous and Current Safety Classifications

A comparison of the current refrigerant classification system with its predecessor is summarized in Table B1.

TABLE B1
Comparison of Safety Group Classifications to Those Under ASHRAE Standard 34-1989

Refrigerant Number	Chemical Formula	Safety Group	
		1989	2001
10	CCl ₄	2	-
11	CCl ₃ F	1	A1
12	CCl ₂ F ₂	1	A1
13	CClF ₃	1	A1
13B1	CBrF ₃	1	A1
14	CF ₄	1	A1
21	CHCl ₂ F	2	B1
22	CHClF ₂	1	A1
23	CHF ₃	-	A1
30	CH ₂ Cl ₂	2	B2
32	CH ₂ F ₂	-	A2
40	CH ₃ Cl	2	B2
50	CH ₄	3a	A3
113	CCl ₂ FCClF ₂	1	A1
114	CClF ₂ CClF ₂	1	A1
115	CClF ₂ CF ₃	1	A1
116	CF ₃ CF ₃	-	A1
123	CHCl ₂ CF ₃	-	B1
124	CHClFCF ₃	-	A1
125	CHF ₂ CF ₃	-	A1
134a	CH ₂ FCF ₃	-	A1
142b	CH ₃ CClF ₂	3b	A2

- Not listed in standard.

NC Listed, but with no safety classification

TABLE B1 (Continued)
Comparison of Safety Group Classifications to Those Under ASHRAE Standard 34-1989

143a	CH ₃ CF ₃	-	A2
152a	CH ₃ CHF ₂	3b	A2
170	CH ₃ CH ₃	3a	A3
218	CF ₃ CF ₂ CF ₃	-	A1
245fa	CHF ₂ CH ₂ CF ₃	-	B1
290	CH ₃ CH ₂ CH ₃	3a	A3
C318	-(CF ₂) ₄ -	1	A1
400	R-12/114	1	A1
401A	R-22/152a/124	-	A1
401B	R-22/152a/124	-	A1
401C	R-22/152a/124	-	A1
402A	R-125/290/22	-	A1
402B	R-125/290/22	-	A1
403A	R-290/22/218	-	A1
403B	R-290/22/218	-	A1
404A	R-125/143a/134a	-	A1
405A	R-22/152a/142b/C318	-	NC
406A	R-22/600a/142b	-	A2
407A	R-32/125/134a	-	A1
407B	R-32/125/134a	-	A1
407C	R-32/125/134a	-	A1
407D	R-32/125/134a	-	A1
407E	R-32/125/134a	-	A1
408A	R125/143a/22	-	A1
409A	R-22/124/142b	-	A1
410A	R-32/125	-	A1
410B	R-32/125	-	A1
411A	R-1270/22/152a	-	A2
411B	R-1270/22/152a	-	A2
412A	R-22/218/142b	-	A2
413A	R-218/134a/600a	-	A2
414A	R-22/124/600a/142b	-	A1
414B	R-22/124/600a/142b	-	A1
415A	R-22/152a (82.0/18.0)	-	A2
416A	R-134a/124/600	-	A1
417A	R-125/134a/600	-	A1
418A	<u>R-290/22/152a</u>	=	A2
500	R-12/152a	1	A1
501	R-22/12	1	A1
502	R-22/115	1	A1
507A	R-125/143a	-	A1
508A	R-23/116	-	A1
508B	R-23/116	-	A1
509A	R-22/218	-	A1
600	CH ₃ CH ₂ CH ₂ CH ₃	3a	A3
600a	CH(CH ₃) ₂ CH ₃	3a	A3
611	CHOOCH ₃	2	B2

- Not listed in standard.

NC Listed, but with no safety classification

TABLE B1 (Continued)
Comparison of Safety Group Classifications to Those Under ASHRAE Standard 34-1989

702	H ₂	-	A3
704	He	-	A1
717	NH ₃	2	B2
718	H ₂ O	-	A1
720	Ne	-	A1
728	N ₂	-	A1
740	Ar	-	A1
744	CO ₂	1	A1
764	SO ₂	2	B1
1140	CH ₂ =CHCl	-	NC
1150	CH ₂ =CH ₂	3a	A3
1270	CH ₃ CH=CH ₂	3a	A3

- Not listed in standard.

NC Listed, but with no safety classification

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the standards and guidelines as established by itself and other responsible bodies.

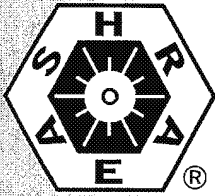
As an ongoing goal, ASHRAE will, through its Standards Committee and extensive technical committee structure, continue to generate up-to-date standards and guidelines where appropriate and adopt, recommend, and promote those new and revised standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating standards and guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.



ASHRAE STANDARD

Designation and Safety Classification of Refrigerants

Approved by the ASHRAE Standards Committee on June 24, 2006; by the ASHRAE Board of Directors on June 29, 2006; and by the American National Standards Institute on June 30, 2006.

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