dew point limitations of the broad claims? There is nothing of record that says they do not. In addition, determination of which compositions within the relatively narrow range of 40-60% of each of tetrafluoroethane and pentafluoroethane are suitable for any given application amounts to ordinary experimentation. Is there *evidence on record* that the three examples mentioned in this paragraph were found unsuitable as R22 replacements? Why were they unsuitable? Is the recited 42:58 composition really that different from the unsuitable 40:60 composition?

7. **THIS ACTION IS MADE FINAL.** 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 mailing date of this final action.

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. Harold Pyon, may be reached at (571) 272-1498.

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 Status information for unpublished applications is available through Private PAIR only.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
August 28, 2013

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	13/493,491	Filing Date	2012-06-11	Docket Number (if applicable)	821920-1032	Art Unit	1761
First Named Inventor	Kenneth M. Ponder			Examiner Name	Hardee, John R.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other
Petition for 3-months EOT

MISCELLANEOUS

☒ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months 3
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 200778

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Todd Deveau/	Date (YYYY-MM-DD)	2014-03-10
Name	Todd Deveau	Registration Number	29526

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/22 (03-13)
Approved for use through 3/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 821920-1032

Application Number: 13/493,491

Filed: June 11, 2012

For: REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT

Art Unit: 1761

Examiner: Hardee, John R.

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☐	Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$
☑	Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$ 700
☐	Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐	Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☑ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 20-0778.

☑ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 29,526.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Todd Deveau/ — Signature

March 10, 2014 — Date

Todd Deveau — Typed or printed name

770-933-9500 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	13493491
Filing Date:	11-Jun-2012
Title of Invention:	REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT
First Named Inventor/Applicant Name:	Kenneth M. Ponder
Filer:	Todd Deveau./Amy Kwon
Attorney Docket Number:	821920-1032

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	700	700

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
		Total in USD ($)		**1300**

Electronic Acknowledgement Receipt

EFS ID:	18415504
Application Number:	13493491
International Application Number:	
Confirmation Number:	1039
Title of Invention:	REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT
First Named Inventor/Applicant Name:	Kenneth M. Ponder
Customer Number:	24504
Filer:	Todd Deveau./Amy Kwon
Filer Authorized By:	Todd Deveau.
Attorney Docket Number:	821920-1032
Receipt Date:	10-MAR-2014
Filing Date:	11-JUN-2012
Time Stamp:	12:28:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1300
RAM confirmation Number	12209
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Request for Continued Examination (RCE)	01985856.PDF	697830 be43d397faa6db8fddd0c0fb066d51d135b e618d	no	3
Warnings:					
Information:					
2	Extension of Time	01985858.PDF	151540 2dd4737bba387daf0db2ed0032112337fce 9a830	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32312 61851c50d72cad1c77eb97a5c6f19bba7dd 16133	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	881682		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

24504 e 2014-03-13

THOMAS | HORSTEMEYER, LLP
400 INTERSTATE NORTH PARKWAY SE
SUITE 1500
ATLANTA, GA 30339

Paper No.

Application No.:	**13/493,491**	**Date Mailed:**	**2014-03-13**
First Named Inventor:	Ponder, Kenneth, M.	Examiner:	HARDEE, JOHN R
Attorney Docket No.:	821920-1032	Art Unit:	1761
Confirmation No.:	1039	Filing Date:	2012-06-11

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

Commissioner for Patents

PTO-90c (Rev.08-06)

NOTICE OF IMPROPER REQUEST FOR CONTINUED EXAMINATION (RCE)	Application No. 13/493,491	Applicant(s) PONDER ET AL.	
		Art Unit 1700	Date Mailed:

The request for continued examination (RCE) under 37 CFR 1.114 filed on 10 March, 2014 is improper for reason(s) indicated below:

1. ☐ Continued examination under 37 CFR 1.114 does not apply to an application for a design patent. Applicant may wish to consider filing a continuing application under 37 CFR 1.53(b) or a CPA under 37 CFR 1.53(d). An RCE cannot be treated as a CPA.

2. ☐ Continued examination under 37 CFR 1.114 does not apply to an application that was filed before June 8, 1995. Applicant may wish to consider filing a continuing application under 37 CFR 1.53(b).

3. ☐ Continued examination under 37 CFR 1.114 does not apply to an application unless prosecution in the application is closed. If the RCE was accompanied by a reply to a non-final Office action, the reply will be entered and considered under 37 CFR 1.111. If the RCE was not accompanied by a reply, the time period set forth in the last Office action continues to run from the mailing date of that action.

4. ☐ The request was not filed before payment of the issue fee, and no petition under 37 CFR 1.313 was granted. If this application has not yet issued as a patent, applicant may wish to consider filing either a petition under 37 CFR 1.313 to withdraw this application from issue, or a continuing application under 37 CFR 1.53(b).

5. ☐ The request was not filed before abandonment of the application. The application was abandoned, or proceedings terminated on _____. Applicant may wish to consider filing a petition under 37 CFR 1.137 to revive this abandoned application.

6. ☐ The request was not accompanied by the fee set forth in 37 CFR 1.17(e) as required by 37 CFR 1.114. Since the application is not under appeal, the time period set forth in the final Office action or notice of allowance continues to run from the mailing date of that action or notice.

7. ☒ The request was not accompanied by a submission as required by 37 CFR 1.114. Since theapplication is not under appeal, the time period set forth in the final Office action or notice of allowance continues to run from the mailing date of that action or notice.

Note: A continued prosecution application (CPA) under 37 CFR 1.53(d) cannot be filed in a utility or plant application. A CPA filed in a utility or plant application that has a filing date **on or after June 8, 1995** will be treated as an RCE under 37 CFR 1.114. The request for a CPA in the instant application, however, has been treated as an improper RCE for the reason(s) indicated above.

A copy of this Notice MUST be returned with the reply.

Direct any questions concerning this notice to

/CRYSTAL QUEEN/, Technology Center 1700

Telephone Number: (571)272-1041

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/493,491	06/11/2012	Kenneth M. Ponder	821920-1032	1039

24504 7590 03/24/2014
THOMAS | HORSTEMEYER, LLP
400 INTERSTATE NORTH PARKWAY SE
SUITE 1500
ATLANTA, GA 30339

EXAMINER	
HARDEE, JOHN R	
ART UNIT	PAPER NUMBER
1761	

NOTIFICATION DATE	DELIVERY MODE
03/24/2014	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@tkhr.com
kristen.layton@tkhr.com
ozzie.liggins@tkhr.com

Notice of Abandonment	Application No.	Applicant(s)
	13/493,491	PONDER ET AL.
	Examiner	Art Unit
	JOHN HARDEE	1761

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

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on *09 September 2013*.
   (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☒ A proposed reply was received on *10 March 2013*, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection.
   (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
   (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
   (d) ☐ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $_____ is insufficient. A balance of $_____ is due.
   The issue fee required by 37 CFR 1.18 is $_____. The publication fee, if required by 37 CFR 1.18(d), is $_____.
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☐ The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33(b). See 37 CFR 1.138(b).

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.

6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☐ The reason(s) below:

Applicant's RCE request was improper for the reasons given in the letter of 3/13/14.

	/JOHN HARDEE/ Primary Examiner, Art Unit 1761

Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

Doc Code: PET.OP
Document Description: Petition for Review by the Office of Petitions

PTO/SB/64 (12-13)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(a)

Docket Number (Optional): 821920-1032

First named inventor: Kenneth M. Ponder

Application No.: 13/493,491 Art Unit: 1761

Filed: June 11, 2012 Examiner: Hardee, John R.

Title: REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT

Attention: Office of Petitions
Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
FAX (571) 273-8300

NOTE: If information or assistance is needed in completing this form, please contact the Office of Petitions at (571) 272-3282.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION.

NOTE: A grantable petition requires the following items:

(1) Petition fee;
(2) Reply and/or issue fee;
(3) Terminal disclaimer with disclaimer fee – required for all utility and plant applications filed before June 8, 1995, and for all design applications; and
(4) Statement that the entire delay was unintentional.

1. **Petition fee**

☑ Small entity fee $ 850 (37 CFR 1.17(m)). Applicant asserts small entity status. See 37 CFR 1.27.

☐ Undiscounted fee $ _____ (37.CFR.1.17(m)).

2. **Reply and/or fee**

A The reply and/or fee to the above-noted Office notice or action in the form of

Response to Final OA (identify the type of reply):

☐ has been filed previously on _____.

☑ is enclosed herewith.

B The issue fee and publication fee (if applicable) of $ _____

☐ has been paid previously on _____.

☐ is enclosed herewith.

This collection of information is required by 37 CFR 1.137(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 1 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PET.OP
Document Description: Petition for Review by the Office of Petitions

PTO/SB/64 (12-13)
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PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(a)

3. **Terminal disclaimer with disclaimer fee**

☑ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

☐ A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of $ _____) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. **STATEMENT:** The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(a) was unintentional. [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(a) was unintentional (MPEP 711.03(c), subsections (III)(C) and (D)).]

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

/Todd Deveau/ — Signature

March 24, 2016 — Date

Todd Deveau — Typed or Printed Name

29,526 — Registration Number, if applicable

Address

770-933-9500 — Telephone Number

Address

Enclosures:

☐ Fee Payment

☑ Reply

☐ Terminal Disclaimer Form

☐ Additional sheet(s) containing statements establishing unintentional delay

☐ Other: _____

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

☐ Deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

☑ Transmitted by EFS-Web or facsimile on the date shown below to the United States Patent and Trademark Office at (571) 273-8300.

March 24, 2016 — Date

/Amy Kwon/ — Signature

Amy Kwon — Typed or printed name of person signing certificate

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	13493491
Filing Date:	11-Jun-2012
Title of Invention:	REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT
First Named Inventor/Applicant Name:	Kenneth M. Ponder
Filer:	Todd Deveau.
Attorney Docket Number:	821920-1032

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Pet. Revive Abandon App, Delay Pymt-Resp	2453	1	850	850
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**850**

Electronic Acknowledgement Receipt

EFS ID:	25291628
Application Number:	13493491
International Application Number:	
Confirmation Number:	1039
Title of Invention:	REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT
First Named Inventor/Applicant Name:	Kenneth M. Ponder
Customer Number:	24504
Filer:	Todd Deveau.
Filer Authorized By:	
Attorney Docket Number:	821920-1032
Receipt Date:	24-MAR-2016
Filing Date:	11-JUN-2012
Time Stamp:	10:35:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$850
RAM confirmation Number	24203
Deposit Account	200778
Authorized User	DEVEAU, TODD
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	8219201032_Response_to_FOA.pdf	224458 bd1a284f456812a4f4766e853505f93235771319	no	17
Warnings:					
Information:					
2	Petition for review by the Office of Petitions	Petition_for_Revival_of_an_Application_1.pdf	252548 719c1ba32613fe2ab9992877c89ec98899767fb3	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30622 5f7ae1537b7cbfc542b27bc236c805ada427652c	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	507628		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	Confirmation No.: 1039
Ponder et al.	Group Art Unit: 1761
Serial No.: 13/493,491	Examiner: Hardee, John R.
Filed: June 11, 2012	Docket No. 821920-1032

For: **REFRIGERANT WITH LUBRICATING OIL FOR REPLACEMENT OF R22 REFRIGERANT**

RESPONSE TO FINAL OFFICE ACTION

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

Sir:

The final Office Action from Examiner John R. Hardee mailed on September 9, 2013 (Paper No./Mail Date 20130829), has been received and reviewed. Applicant provides the following amendments and remarks in response.

AUTHORIZATION TO DEBIT ACCOUNT

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including, but not limited to, fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 20-0778.

IN THE CLAIMS:

Please amend the claims as indicated hereafter wherein the changes are shown by strikethrough or double brackets for deleted matter and underlining for added matter.

1 – 29. (Cancelled)

30. (Currently Amended) In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a refrigerant composition designed to achieve a phase change, the refrigerant composition comprising a combination of refrigerant gases, said refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, the ratio of the tetrafluoroethane to the pentafluoroethane being selected such that the blend exhibits a dew point at about -32°F or a bubble point at about -41.5°F at about one standard atmosphere of pressure,

wherein in the substitute refrigerant said pentafluoroethane is present in an amount less than 60% by weight and said tetrafluoroethane is present in an amount greater than 40% by weight of the combined weight of the pentafluoroethane tetrafluoroethane, and

wherein the refrigerant composition further comprises non-refrigerant gas components, said non-refrigerant gas components including a lubricating oil, wherein the lubricating oil is present up to about 20% by weight of the refrigerant gases and is soluble in chlorodifluoromethane, tetrafluoroethane and pentafluoroethanes wherein the lubricating oil is selected from the group consisting of mineral oil, synthetic alkyl aromatic lubricants, and mixtures thereof.

31. (Previously presented) In the apparatus of claim 30, wherein the blend exhibits a dew point at about -32°F and a bubble point at about -41.5°F at about one standard atmosphere of pressure.

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

(1) selecting a substitute refrigerant composition designed to achieve a phase change and comprising a combination of refrigerant gases, the refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, the ratio of the tetrafluoroethane to the pentafluoroethane being selected such that the blend exhibits a dew point at about -32°F or a bubble point at about -41.5°F at about one standard atmosphere of pressure, wherein in the substitute refrigerant said pentafluoroethane is present in an amount less than 60% by weight and said tetrafluoroethane is present in an amount greater than 40% by weight of the combined weight of the pentafluoroethane tetrafluoroethane,

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

(3) adding to said apparatus via the manifold the substitute refrigerant composition for chlorodifluoromethane, wherein the refrigerant composition further comprises non-refrigerant gas components, said non-refrigerant gas components including a lubricating oil, wherein the lubricating oil is present up to about 20% by weight of the refrigerant gases and is soluble in chlorodifluoromethane, tetrafluoroethane and pentafluoroethane, wherein the lubricating oil is selected from the group consisting of mineral oil, synthetic alkyl aromatic lubricants, and mixtures thereof.

33. (Previously presented) The method of claim 32, wherein the blend exhibits a dew point at about -32°F and a bubble point at about -41.5°F at about one standard atmosphere of pressure.

34. (Currently Amended) A refrigerant composition comprising a combination of refrigerant gases, the refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, the ratio of the tetrafluoroethane to the pentafluoroethane being selected such that the blend

exhibits a dew point at about -32°F or a bubble point at about -41.5°F at about one standard atmosphere of pressure,

wherein in the substitute refrigerant said pentafluoroethane is present in an amount less than 60% by weight and said tetrafluoroethane is present in an amount greater than 40% by weight of the combined weight of the pentafluoroethane tetrafluoroethane, and

wherein the refrigerant composition further comprises non-refrigerant gas components, said non-refrigerant gas components including a lubricating oil, wherein the lubricating oil is present up to about 20% by weight of the refrigerant gases and is soluble in chlorodifluoromethane, tetrafluoroethane and pentafluoroethane, wherein the lubricating oil is selected from the group consisting of mineral oil, synthetic alkyl aromatic lubricants, and mixtures thereof.

35. (Previously presented) The refrigerant composition of claim 34, wherein the blend exhibits a dew point at about -32°F and a bubble point at about -41.5°F at about one standard atmosphere of pressure.

36. (Previously presented) The refrigerant composition according to claim 34, wherein the lubricating oil includes an additive selected from the group consisting of further includes an acrylic polymer, a corrosion inhibitor, a surfactant, a foaming agent, and mixtures thereof.

37. (Previously presented) In the apparatus of claim 30, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.

38. (Previously presented) In the apparatus of claim 30, wherein the lubricating oil includes an additive selected from the group consisting of an acrylic polymer, a corrosion inhibitor, a surfactant, a foaming agent, and mixtures thereof.

39. (Previously presented) The method according to claim 32, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.

40. (Previously presented) The method according to claim 32, wherein the lubricating oil includes an additive selected from the group consisting of an acrylic polymer, a corrosion inhibit, a surfactant, a foaming agent, and mixtures thereof.

41. (Previously presented) In the apparatus of claim 30, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

42. (Previously presented) The method of claim 32, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

43. (Previously presented) The refrigerant composition of claim 34, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

44. (Previously presented) In the apparatus of claim 41, wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 58% by weight to said tetrafluoroethane present in an amount of about 42% by weight.

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

46. (Previously presented) The refrigerant composition according to claim 43, wherein said pentafluoroethane is present in the ratio of about 58% by weight to said tetrafluoroethane present in an amount of about 42% by weight.

47. (Previously presented) In the apparatus of claim 30, wherein the blend exhibits a glide at about 9.5°F.

48. (Previously presented) The method of claim 32, wherein the blend exhibits a glide at about 9.5°F.

49. (Previously presented) The refrigerant composition of claim 34, wherein the blend exhibits a glide at about 9.5°F.

REMARKS

The Office Action presents following single point, namely: claims 30-49 stand rejected under 35 USC 103(a) as obvious in view of US 6,207,071 (*Takigawa et al.*).

Claims 30-49 are pending. Claims 30, 32 and 34 are amended herein. Applicant respectfully requests reconsideration and withdrawal of the rejections based upon the amendment and remarks presented herein.

Legal Standard

"Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). "Where…the necessary reasoning is absent, we cannot simply assume that an ordinary artisan would be awakened to modify prior art in such a way as to lead to an obviousness rejection. It is in such circumstances, moreover, that it is especially important to guard against the dangers of hindsight bias." *Plantronics*, at 18 (citation and internal quotation marks omitted).

In re Kubin, 561 F.3d 1351 (Fed. Cir. 2009), clarifies when "obvious to try" is "obviousness," and when it is not.

> The Supreme Court's admonition against a formalistic approach to obviousness in this context actually resurrects this court's own wisdom in *In re O'Farrell*, which predates the *Deuel* decision by some seven years. This court in *O'Farrell* cautioned that "obvious to try" is an incantation whose meaning is often misunderstood:
>
> > It is true that this court and its predecessors have repeatedly emphasized that "obvious to try" is not the standard under *§ 103*. However, the meaning of this maxim is sometimes lost. Any invention that would in fact have been obvious under *§ 103* would also have been, in a sense, obvious to try. The question is: when is an invention that was obvious to try nevertheless nonobvious?

In re O'Farrell, 853 F.2d 894, 903 (Fed. Cir. 1988). To differentiate between proper and improper applications of "obvious to try," this court outlined two classes of situations where "obvious to try" is erroneously equated with obviousness under *§ 103*. In the first class of cases,

> what would have been "obvious to try" would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful.

Id. In such circumstances, where a defendant merely throws metaphorical darts at a board filled with combinatorial prior art possibilities, courts should not succumb to hindsight claims of obviousness. The inverse of this proposition is succinctly encapsulated by the Supreme Court's statement in *KSR* that where a skilled artisan merely pursues "known options" from a "finite number of identified, predictable solutions," obviousness under *§ 103* arises. *550 U.S. at 421*.

The second class of *O'Farrell*'s impermissible "obvious to try" situations occurs where

> what was "obvious to try" was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.

853 F.2d at 903. Again, *KSR* affirmed the logical inverse of this statement by stating that *§ 103* bars patentability unless "the improvement is more than the predictable use of prior art elements according to their established functions." *550 U.S. at 417*.

In re Kubin, 561 F.3d at 1359-60; *accord Leo Pharmaceutical Prod. v. Rea*, No. 2012-1520, slip op. at 17-18 (Fed. Cir. August 12, 2013); *Cyclobenzaprine*, 676 F.3d at 1070 (Fed. Cir. 2012) ("where the prior art, at best gives only general guidance as to the particular form of the claimed invention or how to achieve it, relying on an obvious-to-try theory to support an obviousness finding is impermissible").

Claims Rejection – 35 USC § 103(a)

Claims 30-49 stand rejected as being obvious under 35 USC §103(a) in view of *Takigawa et al.,* (US Patent No. 6,207,071).

First, it should be recognized that the pending claims, in particular claim 30, recite "the refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, the ratio of the tetrafluoroethane to the pentafluoroethane being selected such that the blend exhibits a dew point at about -32°F or a bubble point at about -41.5°F at about one standard atmosphere of pressure."

The Office Action comments in paragraph 5, page 3, "Applicant's arguments regarding dew points and bubble points are not persuasive because they recite characteristics of combinations of tetrafluoroethane and pentafluoroethane which are obvious over the reference", citing the PTO Board's decision in the grandfather case. This, however, cannot be true as none of the claims pending before the Board in the grandfather case recited these features. None of the claims pending before the Board recited either the present feature of a dew point or a bubble point. Thus the Board could not have – and did not- render any form of a ruling concerning these presently recited features.

Additionally, there is no discussion, let alone teaching, of any kind in Takigawa concerning a dew point or a bubble point in regards to a refrigerant or selecting a blend of refrigerants, let alone a blend consisting of pentafluoroethane and tetrafluoroethane in regards to a dew point or a bubble point. Noteably, the Office Action lacks any citation to anywhere in Takigawa where Takigawa presents any teaching or suggestion in regards to a dew point or a

bubble point for a refrigerant blend. Accordingly, the Office Action fails to present a *prima facie* case sufficient to support the rejection of the claims as obvious in view of Takigawa.

Moreover, there is no teaching or suggestion whatsoever in Takigawa that these features, namely the recited dew point and bubble point, are result-effective parameters. Nor does the Office stated why these are result-effective parameters. A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Only result-effective variables can be optimized. The Office has failed to describe why these features are result-effective variables as they are used in the claimed subject matter. Specifically, the Office has failed to state what the recognized result that is achieved. In addition, the Office does not provide any support for the assertion that these features are routinely optimized as is used in claim 30. Rather the Office makes a conclusory assertion that the amounts can be optimized without a reasonable argument to support its position. Thus, again the Office has not met its burden of providing a *prima facie* case of obviousness. Accordingly, the pending claims are novel and non-obvious over Takigawa.

Second, in response to the comment in paragraph 6, in particular the last sentence therein, questioning whether the 42:58 [sic] is really that different from the unsuitable 40:60 composition (note the claims that recite a ratio recite a ratio of 58% pentafluoroethane:42% tetrafluoroethane), the answer is yes.

One, the accepted guide for refrigerant designations is ASHRAE Standard 34. Based on assignment in prior editions and addenda thereto, Table 4-2 in ASHRAE 34 identifies two R-421-series blends (along with adopted safety data and classifications for them) as compositions of R-125 and R-134a with formulation and tolerances of:

a. R-421A: R-125/134a (58.0% / 42.0%) (±1.0/±1.0)

b. R-421B: R-125/134a (85.0% / 15.0%) (±1.0/±1.0)

As such, the composition of 60% R-125 / 40% 134a (60.0/40.0) is distinct from R-421A [58% R-125 / 42% 134a (58.0/42.0)] and does not fall within ASHRAE's formulation tolerances (±1.0/±1.0). Stated another way, the 60.0/40.0 (or "60/40") composition cannot be identified as within ASHRAE's designation and tolerances for the R-421A of 58% R125 / 42% R134a . Were one to seek a standard designation for 60% R-125 / 40% 134a (60.0/40.0), it would be eligible for a separate ASHRAE designation, in accordance with ASHRAE 34 §4.4 and §4.4.1.

ASHRAE, 2013. *Designation and Safety Classification of Refrigerants*. ANSI/ASHRAE Standard 34-2013, American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Atlanta, GA, USA

Two, the preceding point also is consistent with the applicable international standard, ISO Standard 817, which at this point is harmonized with regard to designations to ASHRAE 34 from which it is derived. The applicable ISO 817 sections are §3.4 and §3.4.1 (relocated to §4.4, §4.4.1, and §4.4.2 in a draft now pending balloting approval). While the current version of ISO 817 as approved lacks specific guidance on composition tolerances corresponding to ASHRAE 34 §4.4.2, the same stipulations are pending in §4.4.3 of a draft revision pending approval (balloting has completed but ISO has not yet published the outcome). Moreover, the blend tolerances included in ISO 817 Table 2 are consistent with those in ASHRAE 34 at corresponding publication dates.

ISO, 2005. *Refrigerants — Designation System*. ISO standard 817:2005(E), International Organization for Standardization (ISO), Geneva, Switzerland

ISO, 2008. *Refrigerants — Designation and Safety Classification*. ISO working document ISO/DIS 817:2008 (2008.02.01), International Organization for Standardization (ISO), Geneva, Switzerland.

ISO, 2009. *Refrigerants — Designation and Safety Classification*. ISO working document ISO/DIS 817:2009 (2010.03.24), International Organization for Standardization (ISO), Geneva, Switzerland.

ISO, 2013. *Refrigerants — Designation and Safety Classification*. ISO working document ISO/FDIS 817:2013(E) (balloting 2014.01.01-2014.03.08, but results not yet formally announced), International Organization for Standardization (ISO), Geneva, Switzerland.

Nearly all safety standards for refrigeration systems and the pertinent provisions of model codes, national and regional counterparts outside the USA, and regulations inside and outside the USA reference the ASHRAE 34 and/or ISO 817 standards for refrigerant designations and safety classifications. Accordingly, the comments addressing R-421 series (R-125/134a blends) distinctions are applicable on nearly a worldwide basis.

For example, ASHRAE 34 and ISO 817 designate multiple blends with the same components and similar formulations, for example:

c. 410A: R-32/125 (50.0/50.0) (+0.5, –1.5 / +1.5, –0.5), and
410B: R-32/125 (45.0/55.0) (±1.0/±1.0)

d. 433A: R-1270/290 (30.0/70.0) (±1.0/±1.0), and
433C: R-1270/290 (25.0/75.0) (±1.0/±1.0)

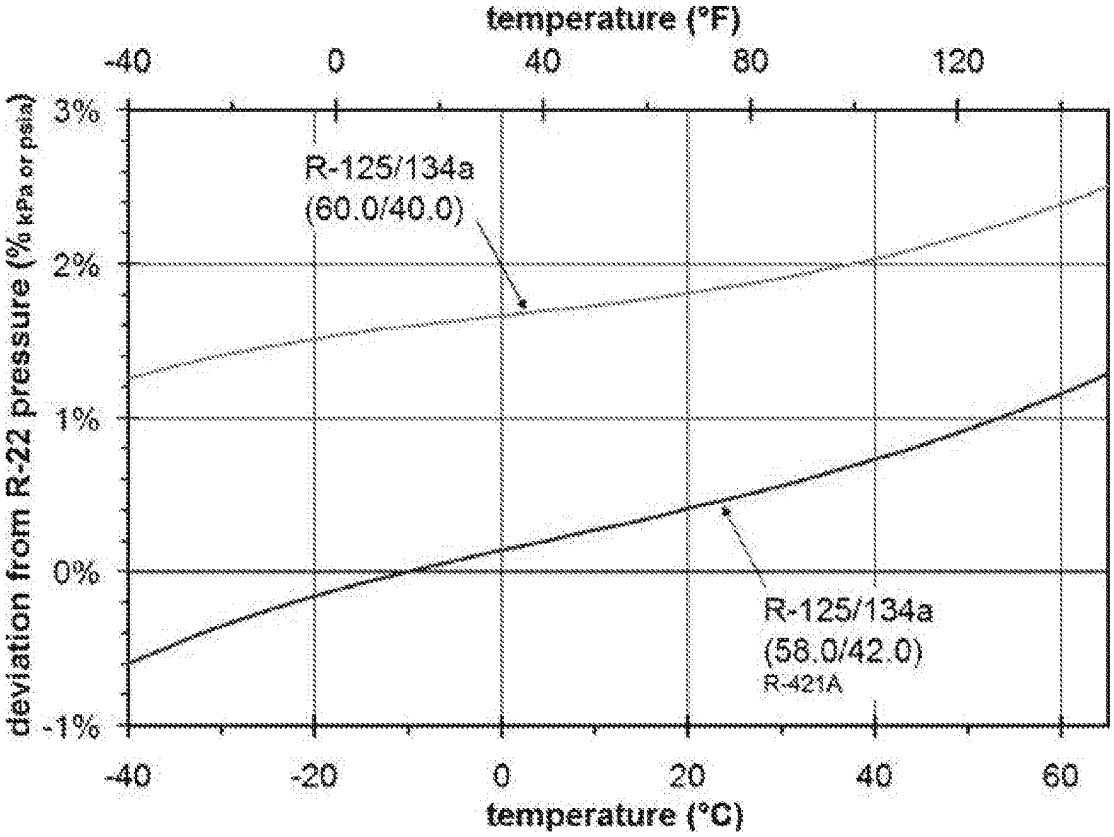
e. 436A: R-290/600a (56.0/44.0) (±1.0/±1.0), and
436B: R-290/600a (52.0/48.0) (±1.0/±1.0)

The composition differences reflect separate customization or optimization strategies for their use as refrigerant compositions.

Three, manufacturers frequently tweak formulations, by amounts as small as 0.1% by mass (for example the difference between 50.0/50.0 and 50.1/49.9) in the course of product development and testing before commercialization. There have been several cases of application submissions to the cognizant project committee for ASHRAE 34, Standing Standard Project Committee (SSPC) 34, and therefore also ISO 817 in which data are provided for a formulation slightly different from that sought based on last minute formulation revisions. An example occurred with an application dated 2013.12.12 by DuPont Fluoroproducts for which portions of the application actually addressed R-32/125/134a/1234yf (24.0/25.0/26.0/25.0) based on the developmental version, which had already changed several times in the course of several years of development. Although nontrivial to do so, the applicant prepared and replaced the complete electronic and printed submission of 118 pages just six days later on 2013.12.19

to reflect the final formulation of R-32/125/134a/1234yf (24.3/24.7/25.7/25.3). The difference illustrates the importance of a seemingly small difference of just 0.3% by mass for each component.

Four, the following figure shows the difference in deviations from R-22 (chlorodifluoro-methane), the most widely used refrigerant from the late 1950s until 2010 and that most commonly used in residential air conditioners among other applications. Many blends, including R-421A (58% R125 / 42% R134a), were developed for and are marketed as Freon – 22 (R-22) replacements with the phase-out of ozone-depleting substances, of which Freon – 22 (R-22) is one.

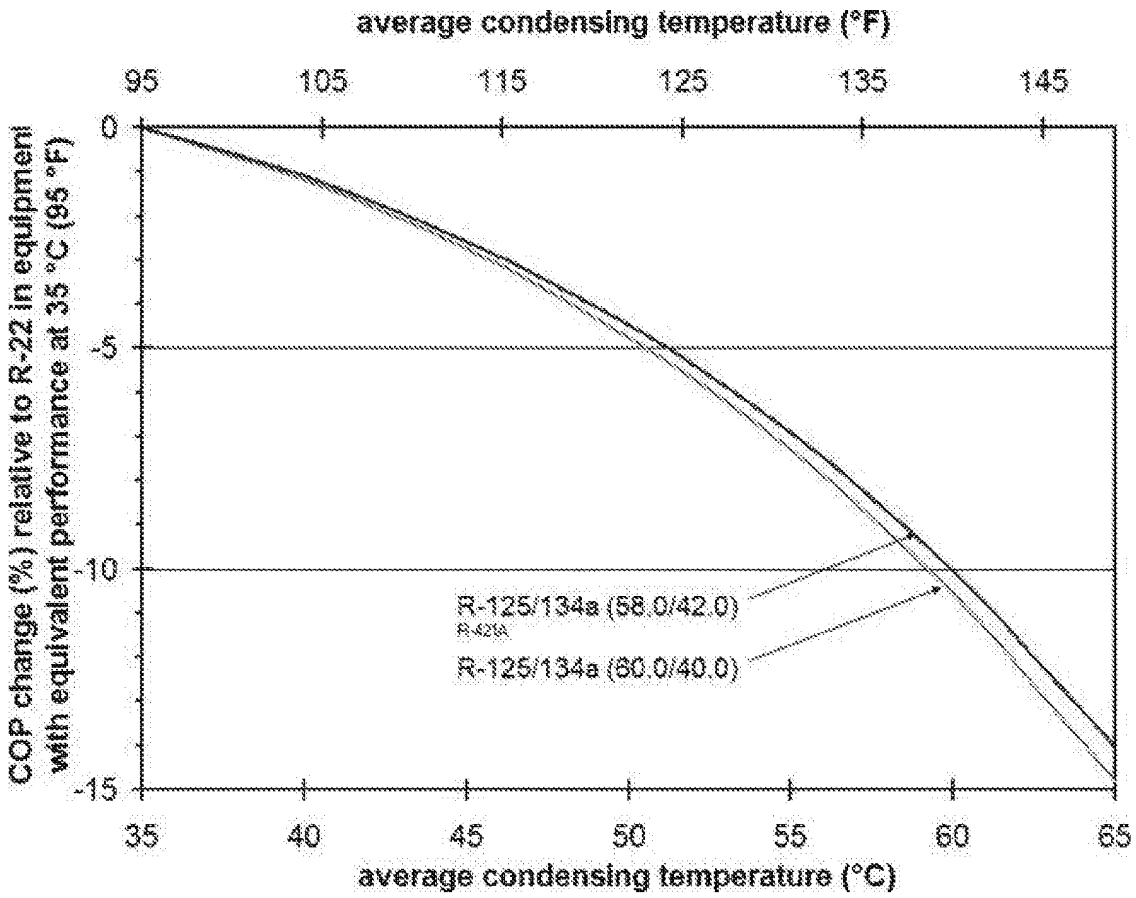


As shown in the above figure, R-421A [58% R-125 / 42%134a (58.0/42.0)] offers a **much closer approximation of the thermodynamic R-22 pressure-temperature (P-T) characteristics** than 60% R-125 / 42% R134a (60.0/40.0), an important consideration for replacement of Freon – 22 (R22) and for retrofit and specifically for thermostatic expansion

valve control of refrigerant flow metering in air conditioning and refrigeration machinery. Over the temperature range of -40 to +65 °C (-40 to +149 °F), the pressure deviation in (kPa or psia) for R-421A [58% R-125 / 42%134a (58.0/42.0)] compared to Freon -22 (R-22) deviates by -0.6 to +1.3% as contrasted to 1.3 to 2.5% for 60% R-125 / 42% R134a (60.0/40.0) with average deviations of 0.3% and 1.8%, respectively. Restated in terms of gauge pressure (psig), the corresponding ranges are -16.1 to 1.4% for and 33.9 to 2.6% with averages of -0.5 and 4.0%. In short, unexpectedly R-421A [58% R-125 / 42% R134a (58.0/42.0)] better approximates the pressure-temperature (P-T) characteristics of Freon (R-22) than 60% R-125 / 40% R134a (60.0/40.0).

For the evaporating temperature span of primary interest as a replacement for Freon – 22 (R-22) in air conditioning and refrigeration, namely -20 to +10 C (-4 to +14), the average pressure deviation compared to Freon – 22 (R-22) on an absolute pressure basis for R-421A [58% R-125 / 42% R134a (58.0/42.0)] is approximately 5% that of 60% R-125 / 40% R134a (60.0/40.0).

Fifth, predicated on a representative average evaporating temperature of 10 °C (50 °F) without superheat, R-421A [58% R-125 / 42% R134a (58.0/42.0)] outperforms 60% R-125 / 40% R134a by 0.15 to1.04% for average condensing temperatures spanning 35-65 °C (95-149 °F) without sub-cooling. The calculations are based on theoretical-cycle calculations discounting compressor and motor efficiency, fan power and similar parasitic losses and also assuming ideal heat transfer and fluid flow; these simplifications actually give a very slight advantage to the less-efficient refrigerant option. The following doubly-normalized figure shows the comparative performance losses with increasing condenser temperatures (when cooling is most needed) for such idealized cycles predicated on equipment modification to yield the same nominal COP for Freon – 22 (R-22) and the two substituted blends at the common rating condition of 35 °C (95 °F) condensing:



As shown, R-421A [58% R-125 / 42% R134a (58.0/42.0)] unexpectedly outperforms the 60% R-125 / 42% R134a (60.0/40.0)] composition for the full range, but its advantage grows at higher temperatures, namely when air conditioning and refrigeration loads increase (when most needed). The higher temperatures also are when utility demand rates kick in when applicable (normally for commercial and industrial but not for residential rates). Stated another way, **unexpectedly the "58/42" [R-421A (58% R125 / 42% R134a)] composition benefits are greatest when most needed** as compared to the 60% R125 / 40% R134a composition.

Sixth, the lower fraction of R-125 (with five fluorine atoms per molecule compared to four in the R-134a component) for R-421A [58% R-125 / 42% R134a (58.0/42.0)] implies additional advantages compared to 60% R-125 / 40% R134a (60.0/40.0). First, the lower fluorination implies a slightly lower cost under rational pricing scenarios. Second, the Global Warming Potential (GWP), an indicator of potency as a greenhouse gas relative to carbon dioxide for 100

year integration (the value most often cited and used in treaties and regulations) for R-421A [58% R-125 / 42% R134a (58.0/42.0)] is 2380 compared to 2420 for 60% R-125 / 40% R134a (60.0/40.0); the 1.7% lower (more favorable) value is again due to the lower fraction of R-125 in R-421A [58% R125 / /42% R134a] as compared to 60% R125 / /40% R134a.

Thus, as shown above, the statement: "The person of ordinary skill in the refrigeration art would expect the recited compositions to have properties similar to those compositions which are exemplified" is not correct. As shown, the recited compositions do not have properties similar to those compositions which are exemplified in *Takigawa et al.*

Moreover, Applicant's recited refrigerant composition consisting of a blend of tetrafluoroethane and pentafluoroethane in a ratio exhibiting such dew point or bubble point does not cover everything which will perform the desired functions (namely, a refrigerant blend composition for use with or as a substitute or a replacement for R-22) regardless of its composition. To the contrary the recited composition of the pending claims having the stated ratio describes a very specific composition having a capacity and efficiency that most closely mimics R-22 refrigerant over a selected temperature range, whereas compositions exemplified by *Takigawa et al.* do not. And as previously presented, refrigerant compositions of 1) 40% R134a and 60% R125, and 2) 60% R134a and 40% R125 are considered unsuitable as substitutes or replacements for R-22 and do not have approval by EPA for use a substitutes or replacements for R-22 (see, Declaration of Kenneth M. Ponder, paragraph 12).

To further clarify these distinctions, particularly between the recited refrigerant compositions and a composition of 60% pentafluoroethane and 40% tetrafluoroethane, the claims have been amended to recite that pentafluoroethane is present in an amount less than 60% and tetrafluoroethane is present in an amount greater than 40% by weight of the combined weight of the pentafluoroethane and the tetrafluoroethane.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicant respectfully submits that all objections and/or rejections have been traversed and that all pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephone conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/493,491	Filing Date 06/11/2012	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/24/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L 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.

SLIE
/SHARONE MOORE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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