

1 MR. DEVEAU: Other than it suggests something is to be mixed, not
2 nothing.

3 JUDGE COLAIANNI: Right. And the Examiner's construction of that
4 phrase, as I understand from Page 5 of the Answer, is that no other alkyl
5 fluoride at all need be mixed meaning it can be the same alkyl fluoride that
6 is being blended.

7 MR. DEVEAU: If it is the same alkyl fluoride, why would you rewrite the
8 sentence though? Then you're writing a sentence that says there is no
9 restriction what can be mixed. We can mix more of the same.

10 JUDGE COLAIANNI: Correct.

11 MR. DEVEAU: But I would suggest that is not the way the sentence reads.

12 JUDGE COLAIANNI: Okay. Fair enough.

13 MR. DEVEAU: And even -- and all that does, though, is addresses only the
14 issue of the phrase consisting of pentafluoroethane and tetrafluoroethane and
15 has nothing to do with the selection of the specific ranges.

16 So the Examiner -- for the Examiner's rejection to be upheld, there has to be
17 a teaching or suggestion in Takigawa for both the phrase consisting of
18 pentafluoroethane and tetrafluoroethane to the exclusion of anything else.

19 And secondly, to the specific ranges.

20 And I go back, for example, on the specific ranges to the Examiner's
21 concession that one such blend does not render another such blend obvious.

22 That, I think, absolutely contradicts his statement about routine optimization.

23 We also have as to the rebuttal evidence on the issue of obviousness the

24 Declaration of Andy Gabor. Andy Gabor was on the ASHRAE committee

25 that selected or determined when a refrigerant composition received an

1 ASHRAE designation. That is spelled out in his Declaration. And if you
2 look at Exhibit C, he is listed as one of the committee members.
3 In his Declaration, he presents reasoning as to why the claimed composition
4 is not obvious in view of Takigawa. The Examiner I would suggest does not
5 address the details of Mr. Gabor's Declaration. He gives it a cursory review
6 and in particular ignores Mr. Gabor's reference to the ASHRAE reference.
7 Once faced with such rebuttal evidence, the Examiner may not rely on a
8 cursory statement or routine optimization, not only to what is faced with
9 Gabor's Declaration, but the ASHRAE evidence of Exhibit C, Mr. Ponder's
10 Declaration, the evidence concerning Applicant's '763 patent, the other
11 things we mentioned in rebuttal as showing that the Examiner's position of
12 routine optimization does not stand.
13 He can no longer simply rely on that cursory statement. As required by
14 KSR, he must present articulated reasoning in response to the rebuttal
15 evidence as to show why routine optimization would be applicable here and
16 he has not done so.
17 Basically what we have is a refrigerant gas -- the thermodynamic properties
18 of refrigerant gas change dramatically when you change their percentages.
19 And so once you start changing percentages over a few percentage points,
20 which is the reason why we have the narrow ranges claimed and I think
21 likely the reason why the Examiner concedes that one composition does not
22 render another composition obvious even when we're looking at only
23 pentafluoroethane and tetrafluoroethane, is an acknowledgment that the
24 thermodynamic properties greatly alter the properties -- are greatly changed
25 by altering the properties of the blend and it is not routine.

1 For these reasons and the reasons -- as I've pointed out, we do make other
2 arguments in our Brief. So not only for the reasons I've mentioned but also
3 the reasons in our Brief, we respectfully request that the rejection be
4 reversed.

5 The Examiner has not shown that Takigawa teaches both limitations of a
6 refrigerant gas consisting of pentafluoroethane and tetrafluoroethane to the
7 exclusion of others and also in the specific ranges particularly when you
8 consider the hundreds of thousands of possible combinations that are
9 possible under Takigawa and consider that Takigawa really has no interest in
10 what HFC you select because his only interest is in the lubricant to be
11 selected and he has identified a particular alkyl benzyl as a lubricant.

12 And that is all I have to present. If you have additional questions, I'm more
13 than happy to address them.

14 JUDGE COLAIANNI: Thank you Mr. Deveau.

15 MR. DEVEAU: Thank you.

16 Whereupon, the proceedings at 1:30 p.m. were concluded.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Docket No.: 821920-1030

PONDER, K., et al.,

Art Unit: 1796

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**

**REQUEST FOR REOPENING OF PROSECUTION, OR IN THE ALTERNATIVE FOR
REHEARING OF DECISION ON APPEAL**

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Appellants hereby request reopening of prosecution under 37 CFR 41.50(b)(1), or in the alternative, if reopening is denied, rehearing under 37 C.F.R. 41.52 of the Decision on Appeal mailed April 29, 2010. This request is timely submitted being submitted within the two month period provided for in Section 41.52(a)(1).

In support for the request of opening prosecution, Appellants respectfully submit that the Decision raises a number of new grounds of rejection, warranting a reopening of prosecution on the merits.

1) The Decision overlooks the fact that each of the findings that: a) "determining acceptable gas concentration ranges would have been a matter of routine experimentation" (Decision, page 6, lines 5-6); b) "Takigawa's alkane fluoride that is to be mixed with the HFC-134a and HFC-125 blend may be an additional amount of HFC-134a or HFC-125, rather than a different HFC" (Decision, page 5, lines 12-14); c) "Takigawa's Claim 1 recites that the refrigerant includes 'at least one of HFC-134a and HFC-125, which underscores that the simplest refrigerant composition mixture claimed by Takigawa includes the binary mixture of HFC-134a and HFC-125'" (Decision, page 5, lines 16-19); and d) "Takigawa's disclosure would have suggested that [sic] at least two of the end points of Appellant's claimed ranges (i.e., 40% HFC-134a and 60% HFC-125" (Decision, page 6, lines 1-3) constitutes a new ground of rejection,

warranting a reopening of prosecution on the merits if such grounds of rejection are to be properly presented in a manner allowing Appellants a full and fair opportunity to respond to these grounds.

In support of the request for reopening prosecution, Appellants submit herewith the Second Declaration of Kenneth M. Ponder addressing some of the new grounds of rejection.

In the alternative, if the request for reopening is denied, in support of this request for rehearing, Appellants respectfully submit that the following points have been misapprehended and/or overlooked by the Board in rendering the Decision.

2) The holding in the Decision that the pending claims are obvious, and, in particular, the finding that “determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation” on page 6, lines 5-6, upon which the holding of obviousness is based, overlooks and is contraverted by the Examiner’s concession that “different blends of pentafluoroethane and tetrafluoroethane will have very different properties and that one such composition would not render another such composition obvious” on page 7, lines 16-19 of the Examiner’s Answer and, thus, the composition of the pending claims is not rendered obvious. The issue of “routine experimentation” is not presented in the Final Office Action and instead is first raised in the Examiner’s Answer. The point that this concession is an admission that the claimed composition is nonobvious over the single cited reference Takigawa is set forth in the Reply Brief on page 12, lines 10-22.

3) The holding that the pending claims are obvious, and, in particular, the finding that “determining acceptable refrigerant concentration ranges would have been a matter of routine experimentation” (Decision, page 6, lines 5-6) upon which the holding of obviousness is based, overlooks that this finding is unsupported by articulated reasoning as required by KSR. The point that the rejection of the pending claims lacks the articulated reasoning required by KSR is presented in the Appeal Brief, pages 6-7, for example.

4) Further, the Decision states “while Declarants Ponder’s in Gbur’s views that the claimed invention would not have been obvious over Takigawa are not afforded any consideration as they are directed to the ultimate legal conclusion, the underlying analyses that lead to their conclusions in the declarations have been considered”, at page 7, line 21 – page 8, line 3. The Decision, however, completely overlooks the underlying analyses that lead to their

conclusions. There is no discussion whatsoever of the underlying analyses presented in their declarations. Furthermore, the statement in the Decision that “the Ponder declaration merely states that the Declarant found no teaching or suggestion in Takigawa to make a refrigerant composition consisting of tetrafluoroethane and pentafluoroethane as claimed” on page 8, lines 3-6, misapprehends the Ponder declaration. Additionally, the statement in the Decision at page 8, lines 9-11, that “the Gbur Declaration filed May 16, 2008, like the Ponder Declaration, rests its conclusion of non-obviousness on Takigawa’s failure to exemplify a blend of only HFC-134a and HFC-125” is a misapprehension and misstatement of the Gbur Declaration.

5) The Decision further completely overlooks the ASHRAE evidence presented by Appellants as Exhibit C to the Appeal Brief, for example, at pages 12-14, discussed in the Declarations of Ponder and Gbur, and also discussed in the Reply Brief, pages 7-10, which evidence shows that “determining acceptable refrigerant concentration ranges” would not have been a matter of “routine experimentation”.

6) The holding in the Decision affirming the Examiner’s rejection of the pending claims over Takigawa further overlooks the genus-species argument in the Appeal Brief, presented, for example, at pages 9-10.

7) The finding in the Decision that “Takigawa’s disclosure would have suggested that [sic] at least two of the end points of Appellants’ claimed ranges (i.e., 40% HRF-134a and 60% HFC-125)” on page 6, lines 1-3, which is not argued by the Examiner and which first appears in the Decision, overlooks and is contraverted by the Examiner’s concession that “the rejection was made under 103 rather than 102” on page 5, lines 13-14 of the Examiner’s Answer and further overlooks and is contraverted by the Examiner’s admission that “[t]his reference [Takigawa] 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” (emphasis added) (Office Action mailed December 17, 2007, page 3, lines 4-6, which is incorporated by reference in the Final Office Action mailed June 27, 2008 on page 2, paragraph 1.

In view of the foregoing, as further detailed below, Appellants respectfully request that:

a) in view of the new grounds of rejection, the Decision be vacated, the Final Office Action withdrawn and prosecution on the merits re-opened, with the file remanded to the Examiner for further action allowing Appellants full and fair opportunity to respond to the new grounds of

rejection; or b) in the alternative, if the request for reopening is denied, the matter be reheard, the Decision vacated and the rejection of the pending claims be reversed.

Background – The Decision

The Decision holds that the single cited reference in support of the rejection of the claims under 35 U.S.C 103(a), namely US Patent No. 6,207,071 to Takigawa, discloses a binary refrigerant composition including HFC-134a (tetrafluoroethane) in an amount of 40-60% by weight and HFC-125 (pentafluoroethane) in a an amount of 60-40% by weight. The Decision acknowledges, however, that such holding does not read on the cited claims at issue which recite about 40 to about 45% HFC-134(a) and about 55 to about 60% HFC-125. To conclude that Takigawa teaches the claimed ranges in the pending claims, the Decision inconsistently relies on the holding that “given the guidance provided by Takigawa, determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation” (see, Decision, page 6, lines 5-6) which holding is a new ground for rejection and further is contravened by the Examiner’s concession, among others, that the refrigerant gas composition recited in the pending claims would not be rendered obvious by another composition of the same refrigerant gases. This holding concerning “routine experimentation” lacks articulated reasoning as to how or why such would have been a matter of “routine experimentation”. Nor is any such explanation provided by the Examiner. In fact, there is no mention of or reliance whatsoever upon “routine experimentation” in the Final Office Action mailed June 27, 2008 to support the final rejection of the pending claims.

Further, to conclude that Takigawa teaches the claimed ranges in the pending claims, the Decision relies on the finding that “Takigawa’s disclosure would have suggested at least two of the end points of Appellants’ claimed ranges (i.e., 40% HFC-134a and 60% HFC-125)”, which is also a new ground for rejection being a new interpretation of Takigawa not previously argued by the Examiner, and which is further contravened by the Examiner’s concession that “[t]his reference [Takigawa] differs from the claimed subject matter [which includes claims 3, 8 and 23 that recite a refrigerant composition of about 40% HFC-134a and about 60% HFC-125] in that it does not disclose a composition which reads on applicant’s claims with sufficient specificity to constitute anticipation.” (Office Action mailed December 17, 2007, page 3, lines 4-6, and incorporated by reference in the Final Office Action, page 2, paragraph 1; emphasis added).

The Decision also construes for the first time that “Takigawa’s alkane fluoride that is to be mixed with the HFC-134a and HFC-125 blend may be an additional amount of HFC-134 or

HFC-125, rather than a different HFC (Decision, page 5, lines 12-14) and that “Takigawa’s claim 1 recites that the refrigerant includes at least one of HFC-134a and HFC-125, which underscores that the simplest refrigerant composition claimed by Takigawa includes that binary mixture of HFC-134a and HFC-125” (Decision, page 5, lines 16-19). Both of these statements are new to the proceedings, constituting a position or rationale new to the proceedings and a new inference drawn from an existing reference.

Argument

Appellants first address the request for reopening of prosecution, followed by their alternative request for rehearing in detail below.

A – Request for Reopening of Prosecution

1) The Decision introduces a number of new grounds of rejection. A new ground of rejection is any position or rationale new to the proceedings, including new evidence, citation to a new portion of existing evidence, a new inference drawn from an existing reference, a new legal theory, or a new application of law to facts. *In re DeBlauwe*, 736 F.2d 699, 706, 222 USPQ 191, 197 (Fed. Cir. 1984) (interpreting “new ground” in 37 CFR 1.196(b)); *In re Kronig*, 539 F.2d 1300, 1302-03, 190 USPQ 425, 426 (CCPA 1976); *In re Eynde*, 480 F.2d 1364, 1370-71, 178 USPQ 470, 474 (CCPA 1973) (“We do agree with appellants that where the board advances a position or rationale new to the proceedings... the appellant must be afforded an opportunity to respond to that position or rationale by the submission of contradicting evidence. This court so held in *In re Moore*, [444 F.2d 572, 170 USPQ 260 (CCPA 1971)], and we expressly reaffirm that view. The board’s refusal to consider evidence which responds to such a new rationale is error.”); *Ex parte Teeple*, Appeal No. 97-0943, 1997 WL 1883925 at *2-3, <http://www.uspto.gov/go/dcom/bpai/decisions/fd970943.pdf> at 7, 9 (BPAI Feb. 17, 1998) (new explanation for § 112 ¶ 2 rejection of same claim language is “new ground” of rejection); MPEP § 1207.03(III) (8th Ed. Rev. 3, August 2005) (deferring to the *Kronig* line of case law for the definition of the term “new ground”); MPEP § 1208.01 (7th Ed. and 8th Ed. Jul. 1998-May 2004) (likewise deferring to *Kronig*); Final Rule, 62 FR 53132, 53168 (Oct. 10, 1997) (likewise deferring to *Kronig*).

A “new ground of rejection” is a procedural, not a substantive, issue under 37 CFR 1.104(c)(2). Accordingly, while a reference may be good for all it contains, an action, whether it be an Office Action or a Board decision, may not rely on the fact that the same reference was relied upon in a previous action in order to make a rejection final. Further, a new ground of rejection is

presented even in circumstances where the Examiner changes position in response to Applicants arguments. *In re Kumar*, 418 F.3d 1361, 1367, 76 USPQ2d 1048, 1051-1052 (Fed. Cir. 2005); *In re DeBlauwe*, 736 F.2d 699, 705-706, 222 USPQ 191, 196-197 (Fed. Cir. 1984). Applicants must be given an opportunity to react to the substance of any new ground. *Kronig*, 539 F.2d at 1303, 190 USPQ at 426, regardless of the time in which the “new position or rationale” arises.

Here, the reliance on “routine experimentation” for the rejection of the pending claims is a new ground of rejection. No reference to or reliance upon “routine experimentation” is presented in the Final Office Action having a mailing date of June 27, 2008. Thus the Applicants have been denied full and fair opportunity to rebut this allegation.

Not only is the reference to and reliance upon “routine experimentation” a “new ground of rejection”, but so are the new characterizations of Takigawa presented in the Decision.¹ The Decision comments “in other words, Takigawa’s alkane fluoride that is to be mixed with the HFC-134a and HFC-125 blend may be an additional amount of HFC-134a or HFC-125, rather than a different HFC.” This sentence constitutes a new characterization of Takigawa. This argument had not been previously presented by the Examiner in either the Final Office Action or the Examiner’s Answer. Additionally, besides rendering the particular sentence nonsensical, this interpretation of Takigawa actually teaches away from the recited compositions of the claims. This newly presented interpretation in the Decision suggests that the particular sentence in effect states that there is no restriction as to the amount of HFC-134a that can be mixed with HFC-134a and likewise no restriction on the amount of HFC-125 that can be mixed with HFC-125. Additionally, the teaching that there is no restriction as to the amount of HFC-134a and HFC125 that can be added is contrary to the recitations in the claims. To the contrary, the claims recite a significant restriction to the amounts of HFC-125 and HFC-134a are quite limited. The claims recite that there is a distinct limit as to the amount of HFC-134a and HFC-125 that can be present. In the case of claims 3, 8 and 23, the recited amount of HFC-134a is about 40% and not more. The above interpretation described above and presented in the Decision teaches away from such recitation, that the amount of HFC-134a can be more,

¹ In this regard, Appellants note the statement in the Decision at page 5 that Appellants’ argument that “consisting of” excludes additional refrigerants overlooks the Examiner’s position that Takigawa’s unrestricted disclosure of HFCs that may be mixed with the refrigerant means that no additional HFC need be added to the HFC-134a and HFC-125 blend. The Examiner’s reliance on Takigawa is based on the citation at column 8, lines 20+ which includes at lines 29-31 the contradictory statement “there is no restriction as to the kind of HFC (hydrofluorocarbon) to be mixed with HFC-134a and/or HFC-125” (emphasis added). The word “may” does not appear in this sentence.

much more than 45% as recited in claim 21, let alone the about 40% recited in claims 3, 8 and 23.

Appellants also note the reference to Takigawa's claim 1 in the Decision on page 5 is new to the proceedings. It is a citation to a new portion of the existing reference Takigawa. No reliance is made by the Examiner, however, to Takigawa's claim 1 in neither the Final Office Action or the Examiner's Answer, suggesting again that the Decision is relying on a new interpretation of the cited reference Takigawa not previously presented or relied upon.

Furthermore, the statement in the Decision on page 6, that "Takigawa's disclosure would have suggested that [sic] at least two of the end points of Appellants' claimed ranges (i.e., 40% HFC-134a and 60% HFC-125)" also is new to the proceedings. This also is a new characterization of Takigawa. This argument had not been previously presented by the Examiner in either the Final Office Action or the Examiner's Answer.

Each of the four above referenced statements individually introduces a new ground of rejection. Each is a position or rationale new to the proceedings. Additionally, the reference to "routine experimentation" is a reference to a new legal theory. The reference to claim 1 for further interpretation of Takigawa constitutes a citation to a new portion of the existing evidence. The remaining two points additionally constitute a new inference drawn from an existing reference. Each on its own, thus, constitutes a new ground of rejection permitting reopening of prosecution.

The Second Declaration of Kenneth M. Ponder submitted herewith shows that here would be nothing routine about the experimentation admittedly required experimentation to modify Takigawa in order to arrive at the claimed refrigerant composition. Takigawa is not a refrigerant designing a patent, meaning that Takigawa shows no interest in and presents no teaching as to how one would select from the large class of HFC refrigerants referenced in the patent any one or more particular refrigerant gases or any particular concentrations or ranges of the gases to design a refrigerant composition for use in a refrigeration system. Instead, Takigawa is a lubricant design patent, meaning that the purpose of Takigawa is to determine or design a lubricant for use with any and all refrigerants in the large class and range of HFC refrigerant gases, which covers hundreds if not thousands of potential refrigerant compositions.

Ponder also declares that there is a large number of properties that need to be evaluated when selecting and designing a refrigerant composition, including: 1) molar mass, 2) normal boiling point or bubble point, 3) blend dew point, 4) saturated liquid density, 5) saturated vapor density, 6) NBP latent heat of vaporization, 7) saturated vapor pressure at one

temperature, 8) saturated vapor pressure at another temperature, 9) critical point temperature, 10) critical point pressure, 11) ozone depletion potential (ODP), 12) global warming potential (GWP), 13) concentration limit, 14) capacity, 15) coefficient of performance (COP); and 16) fractionation quality. The large number of properties that need to be evaluated further shows that there is nothing routine about designing a refrigerant composition in view of Takigawa. None of these considerations are mentioned in Takigawa.

Further, attached to the Second Declaration of Kenneth M. Ponder is a report comparing Appellants' R-421A refrigerant gas composition that is the subject of the pending claims to the gas composition R-422B which is a combination of 55% pentafluoroethane (HFC-125), 42% tetrafluoroethane (HFC-134a) and 3% R-600A (isobutene). This R-422B gas composition, thus, is a refrigerant gas composition having both HFC-125a and HFC-134a within the range of 40-60%. The R-422B refrigerant gas composition, thus, is a refrigerant gas composition that falls within the purported teachings of Takigawa described in the Decision. The report shows, however, that R-421A of the presently pending claims is superior R-422B. Furthermore, Ponder's declaration shows that the refrigerant gas composition of the pending claims achieved unexpected results in the form of achieving the best fractionation quality in the industry, meaning that it fractionates less than any other known refrigerant and it is the best known substitute for R-22. It also shows R-421A better matches R-22 and has a better coefficient of performance than the others, including in particular R-422B that also has HFC-125 and HFC-134a in the ranges of 40%-60%.

This new evidence in the form of the Second Declaration of Kenneth M. Ponder shows that the rejection of the pending claims should with withdrawn and the pending claims allowed.

B- Alternative Request for Rehearing

In the alternative, should Appellants' request for reopening prosecution be denied, Appellants hereby request rehearing, as detailed below. In support of Appellant's alternative request for rehearing, Appellants show the following. It should be noted that if any of the arguments presented below is considered to be a new argument, that the new argument is presented as a result of the new grounds of rejection discussed above.

As shown below, the Decision overlooks and/or misapprehends a number of points which materially effect the holding of the Decision and show that the Decision should be vacated, the rejection of the claims withdrawn, and ultimately the claims allowed. The

discussion below also demonstrates that the rejection of pending claims in the Final Office Action is a matter of impermissible hindsight, not foresight.

2) The holding and reliance upon “routine experimentation” overlooks and is contravened by the Examiner’s admission “that different blends of pentafluoroethane and tetrafluoroethane will have very different properties and that one such composition would not render another such composition obvious”. (See, Examiner’s Answer, page 7, lines 16-19; emphasis added). How can something be a matter of “routine experimentation” when it is conceded that different blends of the two refrigerants in question, namely pentafluoroethane and tetrafluoroethane will have very different properties and that one such composition would not render another such composition obvious? This concession concedes the non-obviousness of the pending claims in view of Takigawa. This concession concedes that any composition not anticipated by Takigawa is not rendered obvious by Takigawa. And the Examiner conceded the rejection is not based on anticipation under Section 102 (see Examiner’s Answer, page 5, lines 13-14).

Furthermore, the Examiner concedes “the behavior profiles of various refrigeration mixtures made according to the reference will be vastly different.” *Id.* lines 3-4 (emphasis added). This, too, is overlooked. How can something be a matter of “routine experimentation” when it is conceded that the behavior profiles of various refrigeration mixtures made according to the reference will be vastly different?

These concessions by the Examiner contravene the holding that “determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation”. These concessions are addressed, for example, in the Reply Brief, page 12, lines 10-22. In view of these concessions, the purported experimentation required would be far from routine. These concessions acknowledge that there can be no reasonable expectation of success by such purported experimentation. Nor would the results from any such experimentation necessarily be sufficiently predictable to support the holding of “routine experimentation”.

These concessions by the Examiner were made in view of the evidence presented by the Appellants, which evidence included “ASHRAE evidence” and the Declarations of Ponder and Gbur (Exhibits A-C to Appellant’s Appeal Brief). This evidence shows that there would be nothing routine about such purported experimentation, as discussed in more detail below under Sections 3 and 4 below.

Appellants further respectfully submit that the Decision mischaracterizes Appellant's argument relying on Appellants' own US Patent No. 7,320,763, which patent is directed to a composition of about 85% HFC-125 (pentafluoroethane) and about 15% HFC-134a (tetrafluoroethane). If, as asserted in the Examiner's Answer and in the Decision that "determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation" rendering the claims obvious, then such would also apply to the 85/15 blend of pentafluoroethane to tetrafluoroethane in the '763 patent. The Office, however, has already concluded exactly the opposite. The Office Action has already found that the 85/15 blend of the '763 patent is not the subject of "routine experimentation" and is not obvious. The statement that "determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation" is not limited to any particular ranges as being a matter of routine experimentation, particularly in view of the lack of articulated reasoning concerning what constitutes routine experimentation and why, as shown below. It, thus, can not be distinguished from the contradictory conclusion that the 85/15 blend of Appellants' '783 patent is not obvious.

3) Both the Examiner's Answer and the Decision lack the "articulated reasoning with some rational underpinning" to support the holding of obviousness of the pending claims based on "routine experimentation" required by KSR. And, of course, the Final Office Action lacks such required articulated reasoning since it makes no reference whatsoever to "routine experimentation". This renders the reliance of "routine experimentation" a new ground of rejection, as demonstrated below. The issue of lack of articulated reasoning is presented, for example, in the Appeal Brief, pages 6-7.

As stated in KSR Int'l Co. v. Teleflex Inc., 119 Fed. Appx. 282 (2007):

Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*,

441 F. 3d 977, 988 (CA Fed. 2006) (“[R]ejections on the 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”).

The finding that “determining acceptance refrigerant gas concentration ranges would have been a matter of routine experimentation” is a mere conclusory statement, lacking the articulated reasoning required to support the finding. In particular, the Decision references “the guidance provided by Takigawa” to support the statement. The Decision, however, fails to identify what guidance is provided by Takigawa to suggest that the admittedly required experimentation would be “routine”. No other reasoning, let alone any articulated reasoning, is provided to support the statement that “determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation”.

The “guidance provided by Takigawa” is not at all directed to how one skilled in the art would select one or more refrigerant gases for a refrigerant composition from the multitudes of HFC gases identified, or once selected how one skilled in the art would select the desired concentration ranges or ratios of the selected gases. Instead, the problem to which Takigawa is directed is solving which lubricant should be included with any of a large number of HFC refrigerant gases and combination of gases. In this regard, contrary to the statement in the Examiner’s Answer and in the Decision, the problem to which Takigawa is directed is relevant in that it shows that Takigawa provides no guidance on how to determine acceptable refrigerant gas concentration ranges, let alone which gases to select among the large class of unrestricted HFCs “to be mixed”. Therefore, Takigawa provides no guidance for “determining acceptable refrigerant gas concentration ranges”.

In fact, Takigawa teaches exactly the opposite, namely that there is no need to determine acceptable refrigerant gas concentration ranges. As conceded by the Examiner in the Answer at page 3, lines 11-12, Takigawa discloses that there is “no restriction as to the kind of HFC to be mixed with” the disclosed refrigerants. (See also Takigawa, col. 8, lines 28-31; emphasis added). This teaches, and the Examiner concedes, that there is no limit to the acceptable amount of refrigerant gas to be mixed. Nor is there any limit whatsoever to the kind

of HFC gas to be mixed.² In the event that the statement in the Decision that “Takigawa’s alkane fluoride that is to be mixed with the HFC-143a and HFC-125 blend may be an additional amount of HFC-134a or HFC-125, rather than a different HFC” (Decision, page 5, lines 12-14) is accepted then Takigawa teaches, and the Examiner concedes, that there is no restriction to the amount of HFC-134a and/or HFC-125 to be added. This is the complete opposite of the recitation in the pending claims. The pending claims recite a very specific and narrow range for HFC-134a and HFC-125. The pending claims recite exactly the opposite – that there is a definite restriction as to the kind and amount of HFC to be mixed.

A review of claims 3, 8 and 23 further shows that Takigawa fails to support a finding that “determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation”. Claims 3, 8 and 23 recite a refrigerant composition having about 40% HFC-134 and about 60% HFC-125. The Examiner argues that Takigawa teaches refrigerants including “alkane fluorides containing 40% or more of R134a” (see Examiner’s Answer, page 3, line 9). The interpretation in the Decision that Takigawa teaches that the HFC “to be mixed” can include an additional amount of HFC-134a, considering Takigawa’s admitted teaching that there is no restriction as to the amount to be added, then teaches away from a composition having only about 40% HFC-134a and no more HFC-134a than about 40%. The same applies to claims 4, 9 and 25 that recite about 42% HFC-134a to about 58% HFC-125, and claims 5, 10 and 24 that recite about 45% HFC-134a to about 55% HFC-125.

The Decision comments that Appellants’ argument that Takigawa is directed to solving a different problem is unpersuasive “because the Examiner’s reason for modifying the prior art to arrive at the claimed invention need not be the same as Appellant’s reason for making the claimed invention.” This statement, however, overlooks that no reason is provided by the Examiner for modifying Takigawa to arrive at the ranges for HFC-134a and HFC-125 recited in the pending claims – other than hindsight application of Appellants’ teachings. This again violates KSR’s requirement that the rejection on obviousness be based on “articulated reasoning”.

If the “guidance” for “determining acceptable refrigerant gas concentration ranges” would have been a matter of routine experimentation” is to be found outside Takigawa, again the

² In this regard, Appellants still maintain that Takigawa fails to teach a refrigerant composition “consisting of” pentafluoroethane and tetrafluoroethane to the exclusion of any other refrigerant gases. Takigawa teaches “there is no restriction as to the kind of HFC (hydrofluorocarbon) to be mixed.” (Column 8, lines 29-30). The plain and ordinary meaning of the phrase “no restriction as to the kind of HFC to be mixed” contradicts the interpretation of Takigawa provided in the Decision that Takigawa teaches the exclusion of any and all HFCs other than HFC-134a (tetrafluoroethane) and HFC-125b (pentafluoroethane).

Examiner's Answer and the Decision fail to identify or cite to any such "guidance". No citation is provided at all as to where such guidance can be found outside Takigawa. The Decision cites to the Examiner's Answer "3, 5-6". There is, however, no citation to any such "guidance" at any of those pages of the Examiner's Answer.

The Decision goes on to comment that "Takigawa would have suggested the claimed refrigerant composition such that there is a reasonable expectation of successfully achieving the claimed refrigerant composition, which would necessarily have the same properties as Appellant's claim composition" (Decision, page 6, line 24 – page 7, line 2). This statement overlooks and is contravened by the Examiner's concessions identified above. In particular, as conceded, a composition of 40% HFC-134a and 60% HFC-125 would have a vastly different behavior profile and very different properties than the reverse composition of 60% HFC-134a and 40% HFC-125. And as shown by the ASHRAE evidence and the Declarations of Ponder and Gbur, a 40/60 ratio of HFC-134a to HFC-125 could not be reasonably expected to be used in place of or as a suitable replacement for 60% HFC-134a and 40% HFC-125.

The Decision further overlooks that there is no recognition in Takigawa that different ratios of pentafluoroethane to tetrafluoroethane can result in refrigerant gas compositions for different temperature applications, where one composition has vastly different properties to another such composition. Thus, there is no teaching or suggestion in Takigawa showing how one would apply "routine experimentation" to combine pentafluoroethane to tetrafluoroethane, as recited in the pending claims, to create a refrigerant gas composition having a temperature/pressure profile the provides superior properties for use in high and medium temperature applications for replacement of R-22, as argued in the Appeal Brief at pages 10, 12-14.

As stated in In re Dow Chemical Company, 837 F.2d 469, 476 (Fed. Cir. 1988), both the suggestion and expectation of success must be founded in the prior art, not in Applicant's disclosure. Stated another way, obviousness, particularly in the form of "routine experimentation", is determined as a matter of foresight, not hindsight. In the present case, the record shows that neither the suggestion for creating a refrigerant gas composition having a temperature/pressure profile that provides superior properties for use in high and medium temperature applications, nor the expectation of success of developing such a refrigerant gas composition, is founded in the prior art, particularly in Takigawa.

The reference, therefore, to "routine experimentation" amounts to no more than a conclusory statement in violation of KSR. There is simply no explanation or articulated

reasoning in either the Decision or the Examiner's Answer as to how the purported experimentation would be "routine" in view of the Examiner's concessions that 1) "different blends of pentafluoroethane and tetrafluoroethane will have very different properties and that one such composition would not render another such composition obvious"; and 2) that "the behavior profiles of various refrigeration mixtures made according to the reference will be vastly different" (emphasis added).

In view of the failure to provide articulated reasoning as to why "determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation". This statement amounts to nothing more than the equivalent of "official notice". The Manual of Patent Examining Procedure (MPEP) defines the standard for taking official notice. As provided in MPEP § 2144.03:

Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424, F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)).

As provided in MPEP § 2144.03 (emphasis added):

If applicant adequately traverses the examiner's assertion of official notice, *the examiner must provide documentary evidence in the next Office action* if the rejection is to be maintained. See 37 CFR 1.104(c)(2).

In the instant case, Appellants respectfully submit that, as shown by the record on this appeal, determining acceptable refrigerant gas concentration ranges is not a matter of routine experimentation and is not known so as to be capable of instant and unquestionable demonstration. Accordingly, Appellants respectfully submit that they have traversed the reliance upon "routine experimentation", requiring that continued reliance on "routine experimentation" requires presentation of documentary evidence, or in the alternative an

affidavit under 37 USC 1.104, both of which are lacking in the record. Since they are lacking the "official notice" of "routine experimentation" should be withdrawn.

Lastly, a holding of obviousness requires an evaluation of the Graham v. John Deere factors, in particular, the level of skill in the art. There is no evaluation in either the Decision or the Examiner's Answer as to the level of skill in the art or how any purported level of skill in the art would apply to a determination of whether or not "determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation" in the present case. This further demonstrates the lack of articulated reasoning required by KSR to support the holding. See, for example, Ex parte Whalen II, Appeal No. 2007-4423, (BPAI July 23, 2008.) (Examiner's statement "it would have been obvious to optimize the viscosity range of [the known] compositions by routine experimentation" insufficient to support the rejection).

4) The Decision also misapprehends the declarations of Ponder and Gbur, which declarations show that there would be nothing routine about the purported experimentation admittedly required of Takigawa to render the pending claims obvious. The Decision fails to address the underlying analysis and facts presented in their declarations and thus overlooks their declarations.

For example, the Ponder Declaration, page 1, paragraph 3 (Exhibit A to Appeal Brief), shows that the refrigerant of the present application, referred to as R-421A is marketed toward different applications to meet different customer needs than Appellants refrigerant composition referred to as R-421B having 85% pentafluoroethane and 15% tetrafluoroethane. The Ponder Declaration further states that: "The industry has not yet found a single refrigerant composition that could replace R-22 for use over the entire array of temperatures over which R-22 is used. As a result, the industry has had to come up with multiple refrigerant compositions covering different ranges of temperatures." Id. at paragraph 5. The Ponder Declaration further states that Appellants' R-421A and R-421B refrigerants were developed to address different uses in the marketplace, in particular, to address different temperature applications. Id. at paragraph 6. The Ponder Declaration further states that the refrigerant of the present application, R-421A, is superior to R-421B in high and medium temperature applications. Id. at paragraph 7. The Ponder Declaration ends with the statement:

I have read U.S. Patent No. 6,207,071 (Takigawa et al.) and do not find any mention or suggestion in Takigawa of combining pentafluoroethane with tetrafluoroethane to create a composition including refrigerant gases consisting

of pentafluoroethane and tetrafluoroethane to the exclusion of other refrigerant gases except for impurities ordinarily associated with those two gases having a temperature-pressure profile that provides superior properties for use in high and medium temperature applications, as described above. (emphasis added).

As seen from above, it is misstatement in the Decision to say “the Ponder Declaration merely states that the Declarant found no teaching or suggestion in Takigawa to make a refrigerant composition consisting of tetrafluoroethane and pentafluoroethane as claimed” (Decision, page 8, lines 3-6). To the contrary, the Ponder Declaration states that he does not find any mention or suggestion in Takigawa of a refrigerant composition consisting of pentafluoroethane with tetrafluoroethane, to the exclusion of other refrigerant gases except for impurities ordinarily associated with those two gases, having a temperature/pressure profile that provides superior properties for use in high and medium temperature applications, as described in his declaration.

The Ponder Declaration, therefore, contraverts the holding that “determining acceptable refrigerant gas concentration ranges would have been a matter of routine experimentation”. There is no recognition anywhere in Takigawa of what experimentation or how experimentation would be used to develop a refrigerant composition consisting of pentafluoroethane and tetrafluoroethane having a temperature/pressure profiles that provides superior properties for use in high and medium temperature applications. Further, there is no explanation as to how or why any such experimentation would have been routine.

“Where the prior art [gives] either no indication of which parameters [are] critical or no direction as to which of many possible choices is likely to be successful.” In re O’Farrell, 853 F.2d 894, 903 (Fed. Cir. 1988). In such cases, ‘courts should not succumb to hindsight claims of obviousness.’” Thus, Takigawa fails to render obvious the recitations of the pending claims. Additionally, an exception to obviousness is where the parameter optimized by the inventors is not recognized in the prior art as one that would affect the results. In re Antonie, 559 F.2d 618, 620 (CCPA 1977).

As shown from the foregoing, such is the case here. More particularly, there is no recognition in Takigawa of any need or desire to address the issue of a refrigerant composition having a temperature-pressure profile that provides superior properties for use in high and medium temperature applications for the replacement of R-22. Nor is there any indication in Takigawa of which parameters are critical, or any direction as to arrive at a refrigerant

composition having a temperature-pressure profile that provides superior properties for use in high and medium temperature applications for the replacement of R-22.

Similarly, the Decision misapprehends the Gbur Declaration filed May 16, 2008 (Exhibit B to Appeal Brief). The statement in the Decision that "the Gbur Declaration filed May 16, 2008, like the Ponder Declaration, rests its conclusion of non-obviousness on Takigawa's failure to exemplify a blend of HFC-134a and HFC-125 (Gbur Dec. 2)³", page 8, lines 9-11, is an incorrect statement that misapprehends the Gbur Declaration. In his statement, Mr. Gbur states that he served on the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. ("ASHRAE") Standard Project Committee 34 from 2002 to 2007 and the work of this committee included review and issuance of ASHRAE Standards. *Id.* at paragraph 5. He further states that his committee recognized that blends of refrigerant gases having this same components in different proportions can produce different blend compositions having different refrigerant properties, as typically reflected by differences in temperature/pressure profiles of the refrigerant blend compositions.

He further states that ASHRAE gives each different refrigerant blend a distinct designation number, or Refrigerant Number, and in the case of blends having the same components but differing only in the proportions of the components the differences are identified by designating each refrigerant blend with the same Refrigerant Number to show the blends have the same components but with a different uppercase letter to recognize that different blends result in different refrigerants. He gives an example that ASHRAE has granted different refrigerant designations numbers to refrigerant compositions consisting of difluoromethane (HFC-132), pentafluoroethane (HFC-125) and tetrafluoroethane (HFC-134a) where these three refrigerant components are present in different proportions as evidenced by designation numbers R-407A (a 20-40-40 proportion blend), R-407B (a 10-70-20 proportion blend), R-407C (a 23-25-52 proportion blend), R-407D (a 15-15-70 proportion blend), and R-407E (a 25-15-60 proportion blend) citing the ASHRAE Standard 34-2001 (2003) which is included as Exhibit C to the Appeal Brief. *Id.* paragraph 6.

In the closing paragraph of his Declaration, Mr. Gbur comments that he has reviewed the Takigawa reference. Mr. Gbur also states:

Further, in view of the different designations by ASHRAE of even the same refrigerant gas components provided in different proportions (such as R407A, R407B, etc.) in my opinion it would not be obvious to one skilled in the art of

³ It should be noted that no such statement appears in paragraph 2 of this Gbur Declaration.

refrigerant gas compositions to produce a refrigerant gas composition containing only about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane from the teachings in the Takigawa patent. Id. at paragraph 7.

Thus, it is seen that, contrary to the statement in the Decision, the Gbur Declaration does not merely rest its conclusion of non-obviousness on Takigawa's failure to exemplify a blend of only HFC-134a and HFC-125. His conclusion is also based on his background and experience on the ASHRAE Standards Committee that determines when a refrigerant composition is entitled to a new designation and ASHRAE's recognition that different designations of even the same refrigerant gas components provided in different proportions (such as R-407A, R-407B, etc.) shows that it would not be obvious to one skilled in the art of refrigerant gas compositions to produce a refrigerant gas composition containing only about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane from the teachings in the Takigawa reference.

As shown from the foregoing, the Decision, like the Examiner's Answer, does not address in any detail the actual bases and statements presented in the Ponder and Gbur Declarations. As noted in Ex parte Malone, Appeal 2009-003894 (BPAI August 27, 2009), this is improper. As stated by the Board in that case:

Whether the claimed invention would have been obvious can not be determined without considering evidence attempting to rebut the prima facie case. Manifestly, the Examiner's consideration and treatment of the Nikirk Declaration is improper, since the Examiner has not reweighed the entire merits of the matter. Rather, he has dismissed the evidence of non-obviousness in a cursory manner. Since the Examiner did not properly consider the submitted evidence, the rejection can not be sustained. (pages 4-5).

5) In addition to overlooking and misapprehending the declarations of Ponder and Gbur, the Decision completely overlooks the ASHRAE evidence submitted with and discussed in the Appeal Brief, Exhibit C. The issuance of different ASHRAE designations demonstrates that the industry recognizes that the presence or absence of even a small amount of refrigerant gas materially affects the basic properties of a given refrigerant composition. As demonstrated by the different ASHRAE designations for refrigerant blends "consisting of" the same refrigerant gas components but in different concentrations, such as those discussed above, discussed in

the Ponder and Gbur Declarations, and in the Appeal Brief, pages 12-14, and in the Reply Brief, pages 7-10, one skilled in the art would not expect the properties of one refrigerant composition with one set of proportions would be similar to the properties of another refrigerant composition, even when having the same gas components but in different proportions.

The Decision, therefore, overlooks this evidence, for example, the blend of 23%/25%/52% of HFC-132, HRF-125 and HFC-134a, respectively, is given the Refrigerant Number that is R-407C, while a blend of 25%/15%/60% of the same components is given the Refrigerant Number R-407E by ASHRAE recognizing that these two blends represent significantly different refrigerant compositions, even though there is only a 2% difference in HFC-132, a 10% difference in HFC-125, and an 8% difference in HFC-134a. Similarly, even Takigawa references at column 8, lines 51-53 a refrigerant R-410A, a 50/50 blend of HFC-32/HFC-125, and R-410B, a 45/55 blend of HFC-32/HFC-125, that have only a 5% difference but yet are recognized by ASHRAE to be significantly different to warrant each having its own Refrigerant Number.

6) The holding in the Decision affirming the Examiner's rejection of the pending claims over Takigawa further overlooks the genus-species argument in the Appeal Brief, presented, for example, at pages 9-10. Here, Takigawa discloses:

The refrigerants used for a refrigerating machine together with the refrigerating machine oil this invention, include an alkane fluoride having one to three carbon atoms, preferably one to two carbon atoms and containing 40% by weight or more of 1,1,1,2-tetrafluoroethane (HFC-134a) and/or an alkane fluoride having 1 to 3 carbon atoms, preferably 1 to 2 carbon atoms and containing 20% by weight or more, preferably 30% by weight or more, preferably 40% by weight or more pentafluoroethane (HFC-125).

There is no restriction as to the kind of HFC (hydrofluorocarbon) to be mixed with HFC-134a and/or HFC-125. See column 8, lines 20-31.

There is, therefore, no limit to either the type or amount of HFC (hydrofluorocarbons) to be mixed with HFC-134 and/or HFC-125. The possible combinations, thus disclosed by Takigawa, literally ranges in the hundreds, if not thousands, if not more. Since Takigawa is concerned with selecting a lubricant to be used with any of this large class of HFCs, there is no teaching in Takigawa to select a particular species within this large genus.

7) Additionally, the holding that “Takigawa’s disclosure would have suggested that [sic] at least two of the end points of Appellants’ claimed ranges (i.e., 40% HFC-134a and 60% HFC-125)” overlooks and is contravened by the Examiner’s concession that “the rejection was made under 103 rather than 102” (See, Examiner’s Answer, page 5, point 2). More particularly, the Examiner concedes that: “This reference [Takigawa] differs from the claimed subject matter in that it does not disclose a composition which reads on Applicant’s claimed with sufficient specificity to constitute anticipation” in the Office Action mailed December 17, 2007. The reasons of the December 17, 2007 Office Action are incorporated by reference in the Final Office Action, page 2, paragraph 1. At the time of the mailing of the December 17, 2007 Office Action, claims 3, 8 and 23 were already pending, corresponding to presently pending claims 3, 8 and 23, which recite “said pentafluoroethane [HFC-125] is present in the ratio of about 60% by weight to said tetrafluoroethane [HFC-134a] present in an amount of about 40% by weight”.

The Examiner’s concession that Takigawa “does not disclose a composition which reads on Appellants’ claims with sufficient specificity to constitute anticipation” included claims 3, 8 and 23. The Examiner’s acknowledgement that Takigawa does not anticipate, therefore, claims 3, 8 and 23 constitutes a concession that Takigawa’s disclosure does not disclose a refrigerant composition having 40% HFC-134a and 60% HFC-125. The Examiner’s concession, thus, contravenes the holding that “Takigawa’s disclosure would have suggested that [sic] at least two of the end points of Appellant’s claimed ranges (i.e., 40% HFC-134a and 60% HFC-125)”.

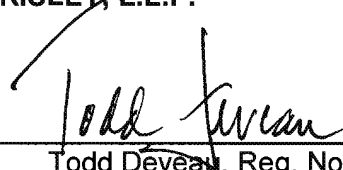
CONCLUSION

In view of the foregoing, Appellant's respectfully submit that reopening of prosecution is in order in view of the new grounds of rejection in the Decision and respectfully request reopening of prosecution to consider the new evidence considered herewith. In the alternative, should the Board deny Appellants' request for reopening of prosecution, Appellants respectfully submit that rehearing is in order in view of the points enumerated in detail above that are overlooked and/or misapprehended by the Decision, which points materially effect the holding of obviousness of the pending claims in view of Takigawa and the affirmance of the rejection of all of the pending claims. They show, for example, that the finding of "routine experimentation" is unsupported by the record. These points and the arguments presented herewith demonstrate that the holding of obviousness should be withdrawn and reversed and the pending claims allowed.

Respectfully Submitted,

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

By


Todd Deveau, Reg. No. 29,526

600 Galleria Parkway, Suite 1500
Atlanta, Georgia 30339
(770) 933-9500

Electronic Acknowledgement Receipt

EFS ID:	7921326
Application Number:	10937736
International Application Number:	
Confirmation Number:	1006
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./Virginia Keenan
Filer Authorized By:	Todd Deveau.
Attorney Docket Number:	821920-1030
Receipt Date:	29-JUN-2010
Filing Date:	08-SEP-2004
Time Stamp:	22:05:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Affidavit/Dec/Exhibit after Notice of Appeal	01180267.PDF	634835 547fd13a5e50abc7d4d16e3a6024e8d2b9b50ad3	no	19

Warnings:

Information:

2	Request for Rehearing of BPAI Decision	18Cpy.PDF	1205944 6fde7331c3cd325ed4a0911d64c5a7a0e8a74053	no	21
Warnings:					
Information:					
Total Files Size (in bytes):				1840779	
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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:

Docket No.: 821920-1030

PONDER, K., et al.,

Confirmation No.: 1006

Serial No.: 10/937,736

Group Art Unit: 1751

Filing Date: September 8, 2004

Examiner: John R. Hardee

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

SECOND DECLARATION OF KENNETH M. PONDER

I, Kenneth M. Ponder, hereby declare as follows:

1. I am the President of RMS of Georgia, LLC and am a co-inventor named on the above application.
2. RMS of Georgia, LLC sells and distributes refrigerants and reclaims most refrigerants.
3. As I previously stated, among the refrigerants that RMS of Georgia, LLC sells and distributes are refrigerants known under ASHRAE designations R-421A and R-421B and SNAP approved by the EPA for different uses. The refrigerant having the ASHRAE designation R-421A is a refrigerant composition that is a mixture of R-125(pentafluoroethane) and R-134a (1,1,1,2-tetrafluoroethane) blended with a lubricant in which R-125 is present in an amount of about 58% by weight and R-134a is present in an amount of about 42% by weight of the refrigerant gases. R-421B, on the other hand, is also a mixture of R-125(pentafluoroethane) and R-134a (1,1,1,2-tetrafluoroethane) blended with a lubricant. R-421B, however, includes pentafluoroethane in the amount of about 85% by weight and 1,1,1,2-tetrafluoroethane in the amount of about 15% by weight of the refrigerant gases.

4. As I previously stated, our R-421B refrigerant comprised of about 85% by weight pentafluoroethane and about 15% tetrafluoroethane by weight of the refrigerant gases is covered by U.S. Patent No. 7,320,763 on which I am named as a co-inventor.

5. As I previously stated, our R-421A refrigerant was developed as a replacement for R-22 refrigerant that consists of chlorodifluoromethane. R-22 refrigerant could cover a wide array of temperatures. The industry has not yet found a single refrigerant composition that could replace R-22 for use over the entire array of temperatures over which R-22 was used. As a result, the industry has had to come up with multiple refrigerant compositions covering different arrays of temperatures.

6. As I previously stated, our R-421A and our R-421B refrigerants were developed to address different uses in the marketplace. In particular, R-421A was developed to address a higher temperature or (medium temp) application in the industry. By high or medium temperature applications I mean approximately -5°F to +45 °F. In contrast, R-421B was developed as a long term option for low temperature applications in the industry. By low temperature applications, I mean applications below about 0°F and generally in the range of below about -5°F to about -40°F. Accordingly, R-421A and R-421B are marketed by us and used by our customers for different applications to meet different needs, depending upon whether a high and medium temperature application or a low temperature application is the specified use by our customer.

7. As previously stated, our refrigerant R-421A that includes 58% pentafluoroethane and 42% tetrafluoroethane, which would be covered by the presently pending claims in this application, is superior to R-421B that consists of 85% pentafluoroethane and 15% tetrafluoroethane in high and medium temperature applications because it has a different temperature-pressure profile than R-421B and because the temperature-pressure profile of R-421A is superior to that of R-421B for high and medium temperature applications.

8. I have read and reviewed US Patent No. 6,207,071 (Takigawa et al.). Takigawa is what I would refer to as a lubricant design patent, meaning that the purpose of Takigawa is to determine or design a lubricant for use with a large class and range of HFC refrigerant gases. Takigawa is not a refrigerant designing patent, meaning that Takigawa shows no interest in and presents no teaching as to how one would select among the large class of HFC refrigerants referenced in the patent to select any one or more particular refrigerant gases or any particular concentrations or ranges of the gases to design a refrigerant composition for use in a refrigeration system.

9. Takigawa teaches that there is no restriction as to the kind of HFC (hydrofluorocarbon) to be mixed in the refrigerant gas compositions that he is considering for use with his lubricant. See, column 8, lines 29-30. This covers hundreds if not thousands of potential refrigerant compositions.

10. Attached is a report entitled "Properties and Efficiencies of R-410A, R-421A, R-422B, and R-422D" dated July 30, 2008. The R-421A referenced in the paper is the combination of 58% pentafluoroethane (HFC-125) and 42% tetrafluoroethane (HFC-134a) claimed in my above-identified patent application. The R-422B is a refrigerant composition comprising 55% R-125, 42% R-134a and 4% R-600A (isobutane). The R-422B, thus, is a refrigerant composition having HFC-125 within the range of 40-60% and HFC-134a also within the range of 40-60%. The report shows that my R-421A is superior to R-422B.

11. The report also includes a list of properties that were evaluated, including: 1) molar mass, 2) normal boiling point or bubble point, 3) blend dew point, 4) saturated liquid density, 5) saturated vapor density, 6) NBP latent heat of vaporization, 7) saturated vapor pressure at one temperature, 8) saturated vapor pressure at another temperature, 9) critical point temperature, 10) critical point pressure, 11) ozone depletion potential (ODP), 12) global warming potential (GWP), and 13) concentration limit. Each

of these properties are significant in selecting and designing a refrigerant composition. Other considerations include: 14) capacity, meaning the ability of the refrigerant gas composition to absorb heat over the desired temperature performance range, 15) coefficient of performance (COP); and 16) fractionation quality.

12. The number of properties that are evaluated for a refrigerant composition shows that there is nothing routine about designing a refrigerant composition, and in particular that any experimentation based on Takigawa's teachings would not be routine. All of these properties generally need to be considered when selecting one or more refrigerant gases for a refrigerant composition, and further, in selecting the amount or concentration of refrigerant gases in a composition having two or more such gases.

13. One of the properties that is evaluated that needs to be considered in designing a refrigerant composition is "fractionation quality". This refers to the ability or likelihood of a multi-component refrigerant gas composition to separate or fractionate during operation. The refrigerant composition as claimed in my patent application, in particular, R-421A, has demonstrated the best fractionation quality in the industry, meaning that it fractionates less than any other known refrigerant. For example, my fractionation quality is better than that of R-422B. This is an unexpected result received with my particular refrigerant blend.

14. Referring back to the attached report, the purpose of the report is the compare the properties and efficiencies of R-410A, my R-421A, R-422B, and R-422D as substitutes for R-22. The report shows that my R-421A is the best substitute of the refrigerant gases compared in the report for R-22. The report also shows my R-421A matches more closely to R-22 than the other refrigerant compositions and that my R-421A has a better coefficient of performance than the other compositions. These are additional another unexpected results of my claimed refrigerant composition.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this patent.

Respectfully submitted,

Date: 6/29/2010


Kenneth M. Ponder

**PROPERTIES AND EFFICIENCIES
OF R-410A, R-421A, R-422B, AND R-422D
COMPARED TO R-22**

2008.07.30

prepared by

**James M. Calm, P.E.
Engineering Consultant
10887 Woodleaf Lane
Great Falls, VA 22066-3003 USA**

for

**Refrigerant Management Services of Georgia (RMS of Georgia)
610 McFarland / 400 Drive
Alpharetta, GA 30004 USA**

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Please refer questions or comments on this document to:

James M. Calm, P.E.
Engineering Consultant
10887 Woodleaf Lane
Great Falls, VA 22066-3003 USA

phone/fax: +1 (703) 636-9500
e-mail: jmc@JamesMCalm.com

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PROPERTIES AND EFFICIENCIES OF R-410A, R-421A, R-422B, AND R-422D COMPARED TO R-22

prepared by

James M. Calm, P.E.
Engineering Consultant

SUMMARY

This report addresses selected properties for four refrigerant blends marketed as alternatives for R-22 for use in air-conditioning and in medium- and high-temperature residential, commercial, and industrial refrigeration applications. They include R-410A, R-421A, R-422B, and R-422D. The report compares representative properties, pressure-temperature (PT) relationships, and thermodynamic efficiency limits for the blends to those for R-22.

REFRIGERANTS EXAMINED

R-22, currently the most widely used refrigerant on a global basis, is a single-compound refrigerant with the chemical name chlorodifluoromethane, formula CHClF_2 , and Chemical Abstract Service (CAS) registry number 75-45-6. R-22 production (other than for use as a chemical intermediate) is pending phaseout as an ozone-depleting substance. R-22's molar mass is 86.4684464 g/mol (0.190630 lb/mol).¹ The substance has low acute toxicity; ASHRAE Standard 34-2007 classifies it as an "A1" refrigerant, signifying "lower toxicity" and "no flame propagation" for prescribed safety criteria.²

R-410A, marketed by a number of refrigerant vendors among them Honeywell as *Genetron AZ-20*[®], is a binary zeotrope formulated as 50.0+0.5,-1.5% R-32 and 50+1.5,-0.5% R-125 by mass – R-32/125 (50.0/50.0) (+0.5,-1.5/+1.5,-0.5). Its molar mass is 72.58481 g/mol (0.160022 lb/mol) and component mole fractions are 69.762 and 30.238 %, respectively. Both components are hydrofluorocarbons (HFCs). The blend has low acute toxicity; ASHRAE Standard 34-2007 classifies it as an "A1" refrigerant, signifying "lower toxicity" and "no flame propagation" for prescribed safety criteria.^{1,2}

R-421A, marketed by RMS of Georgia as *Choice Refrigerant R-421A*, is a binary zeotrope formulated as 58.0±1.0% R-125 and 42.0±1.0% R-134a by mass – R-125/134a (58.0/42.0) (±1.0/±1.0). Its molar mass is 111.74591 g/mol (0.246358 lb/mol) and component mole fractions are 54.001 and 45.999 %, respectively. Both components are HFCs. The blend has low acute toxicity; ASHRAE Standard 34-2007 classifies it as an "A1" refrigerant, signifying "lower toxicity" and "no flame propagation" for prescribed safety criteria.^{1,2}

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R-422B, marketed by ICOR International as *NU-22B™*, is a ternary zeotrope formulated as 55.0±1.0% R-125, 42.0±1.0% R-134a, and 3.0+0.1,-0.5% R-600a (isobutane) by mass – R-125/134a/600a (55.0/42.0/3.0) (±1.0/±1.0/+0.1,-0.5). Its molar mass is 108.51787 g/mol (0.239241 lb/mol) and component mole fractions are 49.729, 44.670, and 5.601 %, respectively. The first two components are HFCs while the third is a hydrocarbon (HC). The blend has low acute toxicity; ASHRAE Standard 34-2007 classifies it as an “A1” refrigerant, signifying “lower toxicity” and “no flame propagation” for prescribed safety criteria.^{1,2}

R-422D, marketed by DuPont Fluorochemicals as *Isceon® MO29*, is a variant of the same components in a different formulation. It is a ternary zeotrope formulated as 65.1+0.9,-1.1% R-125, 31.5±1.0% R-134a, and 3.4+0.1,-0.4% R-600a by mass – R-125/134a/600a (65.1/31.5/3.4) (+0.9,-1.1/±1.0/+0.1,-0.4). Its molar mass is 109.93470 g/mol (0.242365 lb/mol) and component mole fractions are 59.629, 33.940, and 6.431 %, respectively. The first two components are HFCs while the third is an HC. The blend has low acute toxicity; ASHRAE Standard 34-2007 classifies it as an “A1” refrigerant, signifying “lower toxicity” and “no flame propagation” for prescribed safety criteria.^{1,2}

Table 1 compares representative properties of the five refrigerants based on data calculations using NIST REFPROP 8.0 combined with additional physical, environmental, and safety data.¹⁻³

Table 1: Properties Comparison

properties	R-22	R-410A	R-421A	R-422B	R-422D
composition	chlorodifluoro- methane	R-32/125 (50.0/50.0)	R-125/134a (58.0/42.0)	R-125/134a/600a (55.0/42.0/3.0)	R-125/134a/600a (65.1/31.5/3.4)
molar mass					
g/mol	86.4684464	72.58481	111.74591	108.51787	109.93470
lb/mol	0.190630	0.160022	0.246358	0.239241	0.242365
normal boiling or bubble point					
°C	-40.8	-51.4	-40.7	-41.3	-43.2
°F	-41.5	-60.6	-41.2	-42.4	-45.8
blend dew point					
°C		-51.4	-35.4	-35.9	-38.3
°F		-60.5	-31.7	-32.6	-37.0
density, saturated liquid					
kg/m ³	1409	1350	1461	1398	1402
lb/cf	87.97	84.26	91.19	87.25	87.51
density, saturated vapor					
kg/m ³	4.70	4.17	5.98	5.82	5.96
lb/cf	0.294	0.261	0.373	0.363	0.372
NBP latent heat of vaporization					
kJ/kg	233.8	273.0	191.8	195.7	190.0
Btu/lb	100.5	117.4	82.4	84.1	81.7
kJ/m ³ vapor	1098.9	1138.4	1147.0	1139.0	1132.4
Btu/cf vapor	29.6	30.6	30.7	30.5	30.4
saturated vapor pressure					
at 20 °C in kPa	910.0	1443.0	820.7	831.9	903.7
at 68 °F in psia	131.99	556.1	119.03	120.65	131.07
saturated vapor pressure					
at 60 °C in kPa	2427	3834	2333	2346	2512
at 140 °F in psia	352.1	556.1	338.3	340.3	364.3
critical point temperature					
°C	96.1	71.4	82.8	83.2	79.6
°F	205.1	160.4	181.0	181.8	175.2
critical point pressure					
kPa	4990	4902	3919	3958	3905
psia	723.7	711.0	568.4	574.1	566.4
ozone depletion potential (ODP)					
model-derived to R 11	0.034	<0.000015	<0.000024	<0.000023	<0.000024
semi-empirical to R-11	0.050	0.000	0.000	0.000	0.000
regulatory	0.055	0	0	0	0
global warming potential (GWP)					
20 yr to CO ₂	5160	4300	5300		
120 yr to CO ₂	1810	2100	2600	2500	2700
500 yr to CO ₂	549	650	820		
ASHRAE 34 / ISO 817	A1	A1	A1	A1	A1
safety classification					
ASHRAE 34 Refrigerant					
Concentration Limit (RCL)					
ppm v/v	59,000	130,000	61,000	56,000	58,000
lb/Mcf	13	25	17	16	16

Table 2 compares the pressure-temperature (PT) relationships for coexisting vapor and liquid at saturated conditions (for liquid at the bubble-point for the blends) of the five refrigerants.

Table 2: Pressure-Temperature Data Comparisons

temperature (°C)	pressure (kPa)				
	R-22	R-410A	R-421A	R-422B	R-422D
-40	105	176	105	108	118
-35	132	219	131	135	147
-30	164	270	163	167	182
-25	201	331	201	205	223
-20	245	401	245	250	270
-15	296	482	296	301	326
-10	355	575	355	360	389
-5	422	681	422	428	461
0	498	801	499	505	543
5	584	936	585	592	636
10	681	1088	683	689	740
15	789	1258	792	799	856
20	910	1448	914	920	985
25	1044	1657	1049	1056	1128
30	1192	1889	1199	1205	1286
35	1355	2145	1364	1370	1460
40	1534	2426	1545	1550	1651
45	1729	2734	1744	1749	1860
50	1943	3071	1961	1965	2089
55	2175	3439	2198	2201	2338
60	2428	3842	2456	2458	2609
65	2701	4282	2736	2738	2904

temperature (°F)	pressure (psig)				
	R-22	R-410A	R-421A	R-422B	R-422D
-40	0.6	10.8	0.5	0.9	2.4
-30	4.9	17.8	4.8	5.4	7.1
-20	10.2	26.3	10.1	10.7	12.9
-10	16.5	36.5	16.5	17.1	19.8
0	24.0	48.4	24.0	24.7	27.9
10	32.8	62.4	32.8	33.6	37.5
20	43.1	78.7	43.1	43.9	48.5
30	55.0	97.4	55.0	55.9	61.3
40	68.6	118.8	68.7	69.6	75.9
50	84.1	143.2	84.3	85.3	92.6
60	101.6	170.7	102.0	103.0	111.4
70	121.4	201.8	122.0	123.0	132.6
80	143.6	236.5	144.4	145.4	156.3
90	168.4	275.4	169.5	170.4	182.8
100	195.9	318.6	197.4	198.2	212.2
110	226.4	366.4	228.3	229.0	244.7
120	260.0	419.4	262.4	263.1	280.7
130	296.9	477.9	300.1	300.6	320.2
140	337.4	542.5	341.5	341.8	363.7
150	381.7	613.9	386.9	387.1	411.4

Table 3 repeats the PT comparison for R-421A, shown in Table 2 to match R-22 most closely on a PT basis, with an added column quantifying the very small difference.

Table 3: Pressure-Temperature Data for R-22 and R-421A

temperature (°C)	pressure (kPa)		difference (%)
	R-22	R-421A	
-40	105	105	-0.60
-35	132	131	-0.47
-30	164	163	-0.35
-25	201	201	-0.25
-20	245	245	-0.16
-15	296	296	-0.08
-10	355	355	0.00
-5	422	422	0.07
0	498	499	0.14
5	584	585	0.21
10	681	683	0.27
15	789	792	0.34
20	910	914	0.41
25	1044	1049	0.49
30	1192	1199	0.55
35	1355	1364	0.64
40	1534	1545	0.73
45	1729	1744	0.83
50	1943	1961	0.93
55	2175	2198	1.03
60	2428	2456	1.16
65	2701	2736	1.29

temperature (°F)	pressure (psig)		difference (%)
	R-22	R-421A	
-30	4.9	4.8	-1.81%
-20	10.2	10.1	-0.81%
-10	16.5	16.5	-0.42%
0	24.0	24.0	-0.20%
10	32.8	32.8	-0.05%
20	43.1	43.1	0.06%
30	55.0	55.0	0.16%
40	68.6	68.7	0.24%
50	84.1	84.3	0.32%
60	101.6	102.0	0.39%
70	121.4	122.0	0.48%
80	143.6	144.4	0.56%
90	168.4	169.5	0.65%
100	195.9	197.4	0.75%
110	226.4	228.3	0.84%
120	260.0	262.4	0.95%
130	296.9	300.1	1.07%
140	337.4	341.5	1.21%
150	381.7	386.9	1.35%

The reason the difference values appear very slightly higher in the inch-pound (IP) portion of the table compared to the metric (SI) portion, for example at 60 °C and 140 °F that are the same, is the SI pressures indicated are absolute and the IP are gauge, consistent with common convention for the respective units. When converted to consistent absolute or gauge pressures, the difference values are the same. The important conclusion is that the saturation pressure-temperature dependence for R-421A is nearly identical to R-22 with less than 1% difference for most of the temperature range of interest.

Figure 1 plots the data from Table 2 for graphical comparison.

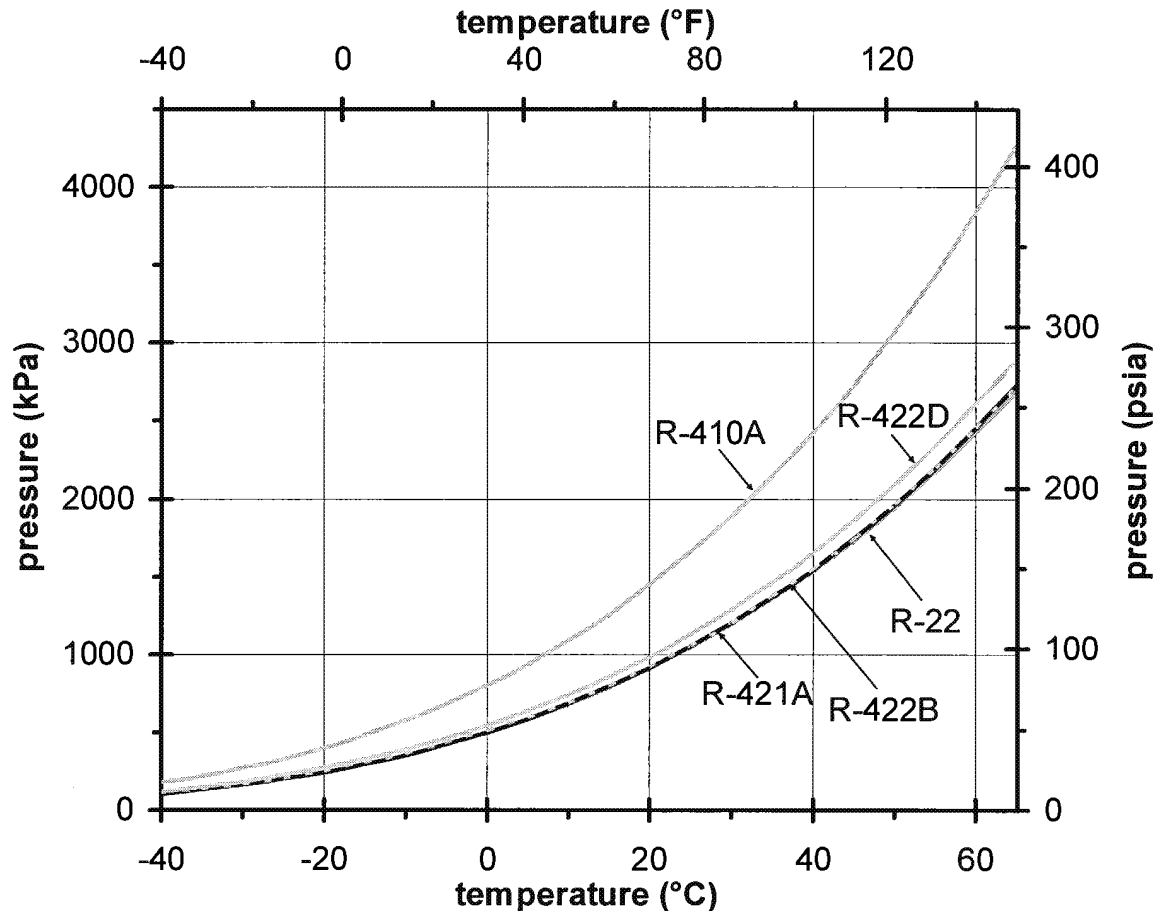


Figure 1: Pressure-Temperature Comparisons

PERFORMANCE

The following discussion addresses comparative performance relative to R-22 based on ideal cycle analyses using the NIST CYCLE_D program.⁴ Thermodynamic cycle analyses for theoretical conditions indicate the limits or comparative limits to attainable performance for simple cycles without regard to differences in equipment and component deviations from ideal, heat transfer, additional thermophysical properties, and lubricant differences. The results indicate

thermodynamic limits to what is attainable for different refrigerants in comparably optimized systems, but do not imply either that all systems will achieve such performance or that performance rankings of different refrigerants would not change in order of preference for systems not comparably optimized for the individual refrigerants.^{5,6} Although excluded from the analyses herein to focus on refrigerant influences, real-world equipment performance properties will be lower than theoretical limits not only for the reasons mentioned, but also because fan, control, and sometimes pump burdens as well as start-up transients also factor into standard equipment ratings.

Table 4 summarizes the cycle conditions, consistent with those used in prior studies by Calm and Domanski, used for the analyses addressed herein. Omission of the fan and control power burdens facilitates focus on the refrigerant influences on performance, and would not change relative rankings of the candidates considered if included.

Table 4: Conditions for Performance Comparison

parameter	theoretical cycle limit for air conditioning
<u>average evaporating temperature</u>	
input temperature	10 °C (50 °F)
superheat	0 °C (0 °F)
<u>average condensing temperature</u>	
input temperature	35-65 °C (95-149 °F)
superheat	0 °C (0 °F)
<u>compressor efficiencies</u>	
isentropic	100%
volumetric	100%
motor	100%
<u>pipng losses (drop)</u>	
suction line	none: 0 °C (0 °F)
discharge line	none: 0 °C (0 °F)
suction line / liquid line heat exchanger	none (0%)
<u>fans and control power burdens</u>	
indoor fan / chilled water pump	not included (0 W)
outdoor fan / condensing water pump	not included (0 W)
controls	not included (0 W)

The following figure compares the coefficient of performance (COP) for cooling (air conditioning) for a range of refrigerant condensing temperatures (necessarily higher than a corresponding range of ambient temperatures for air-cooled equipment). The plot spans a range of condensing temperatures of 35-65 °C (95-149 °F), corresponding to outside ambient air temperatures approximately 5-10 °C (9-18 °F) cooler to account for the heat transfer approach temperatures. Although the high-end of the range exceeds standard equipment rating temperatures, it is relevant to reflect performance at temperature extremes when cooling is most needed, that result in the highest cooling loads, and that can occur at lower ambient temperatures for condensing units installed on dark rooftops and/or in direct sunlight especially or with discharge air recirculation.

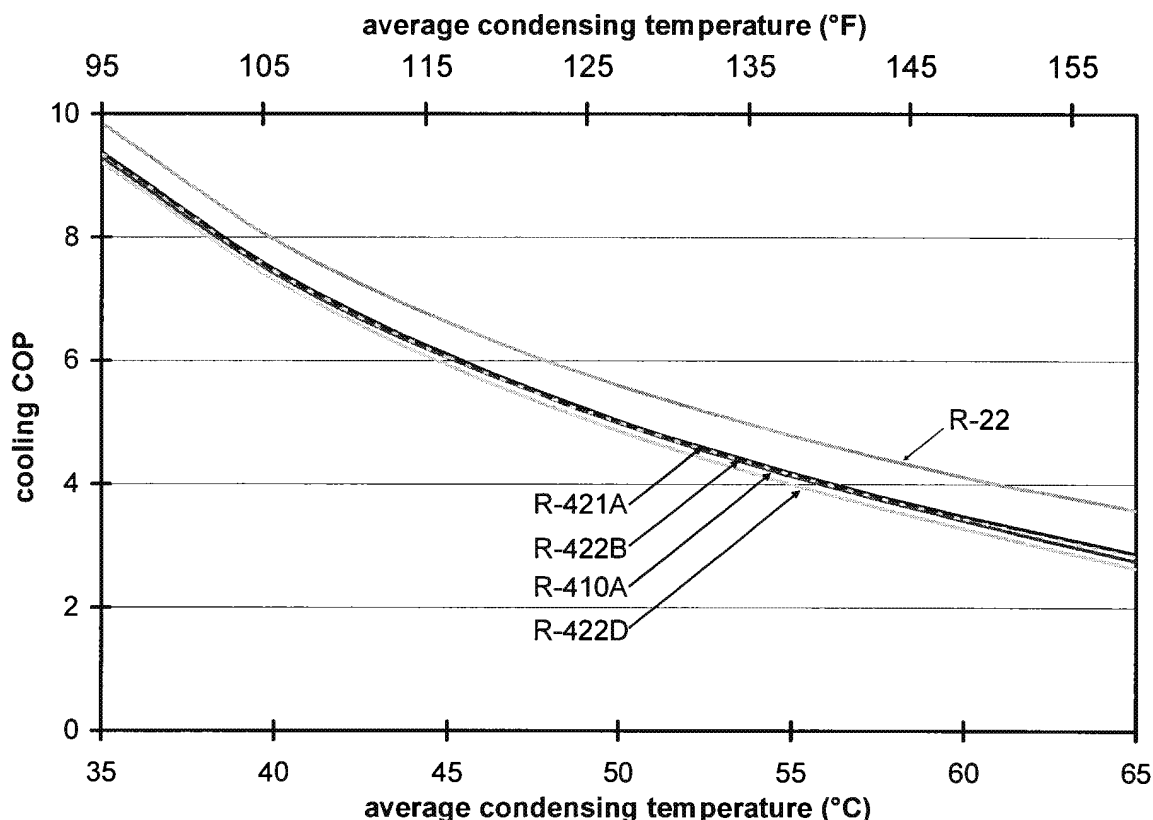


Figure 2: Cooling Coefficient of Performance (COP) Comparison

As shown, all four blends are thermodynamically less efficient than R-22 on an ideal-cycle basis. Of the four blends analyzed, R-421A offers the highest comparative efficiency, ranging from 4.8% to 19.8% lower than R-22 at 35-65 °C (95-149 °F) average condensing temperature. The lowest of the four ranges from 6.4% to 26.0% lower than R-22 for the same temperatures.

Figure 3 depicts the comparative cooling efficiency of the four blends at increasing condensing temperatures relative to that of R-22 for cycles optimized for equivalent performance at 35 °C (95 °F), the primary product rating condition with ideal but unattainable heat transfer (an approach temperature of zero), again excluding control, fan power, and similar power burdens.⁷

This comparison does not imply comparable costs, since the efficiency differences depicted in Figure 2 require increased heat exchanger sizing and other component and cycle optimization to overcome the thermodynamic differences and to overcome refrigerant selection influences towards achieving comparable capacities. It also does not account for lubricant differences.

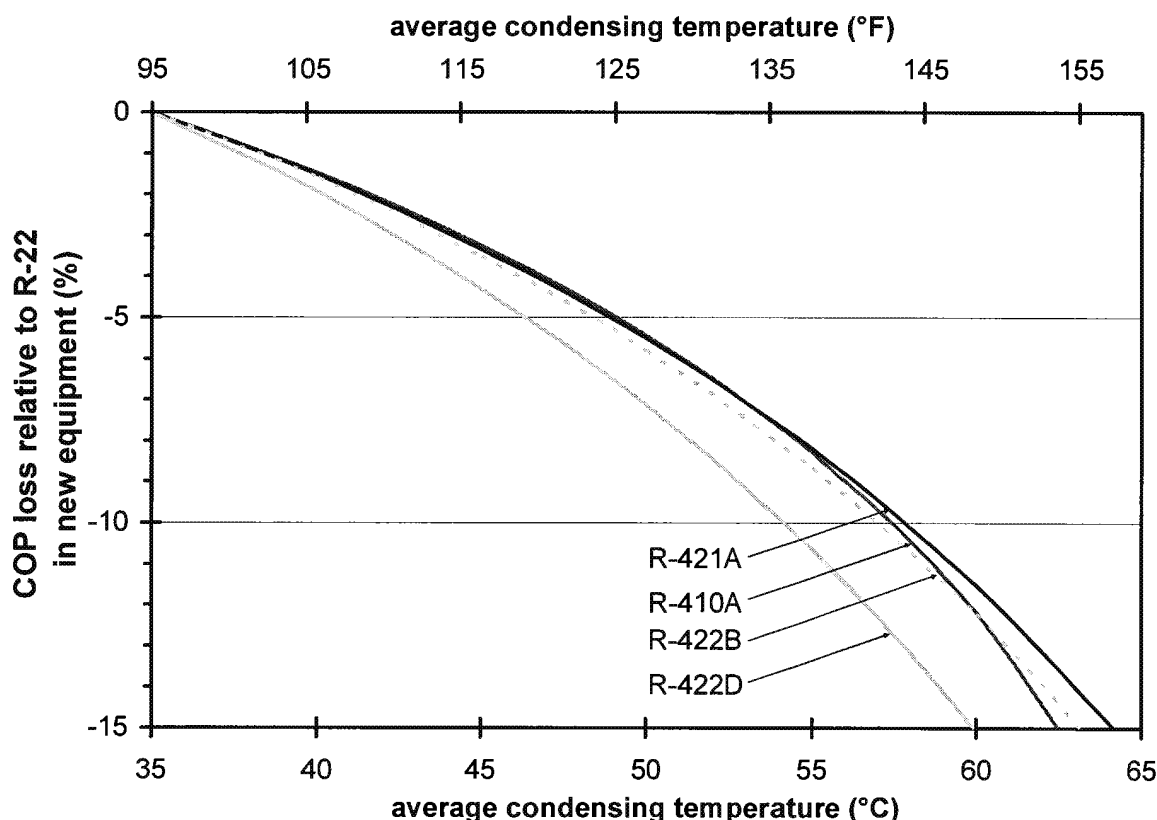


Figure 3: Relative COP Degradation with Increasing Condensing Temperature for Equipment Designed for Equivalent Performance at the Nominal Rating Point (35 °C, 95 °F)

As shown, the efficiencies of R410A, R-421A, and R-422B remain very similar for the low end of the temperature range illustrated, but R-421A's efficiency suffers the least degradation with increasing condensing temperatures (more extreme ambient temperatures).

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Kenneth M. Ponder

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10/04/2010

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP

600 GALLERIA PARKWAY, S.E.

STE 1500

ATLANTA, GA 30339-5994

EXAMINER

HARDEE, JOHN R

ART UNIT

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PAPER

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

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENNETH M. PONDER
and STEFFAN THOMAS JR.

Appeal 2009-012229
Application 10/937,736
Technology Center 1700

Before MICHAEL P. COLAIANNI, LINDA M. GAUDETTE, and
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING/ REQUEST FOR
REOPENING PROSECUTION¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

This is in response to a Request, filed June 29, 2010, for rehearing of our decision, decided April 29, 2010, wherein we sustained the § 103 rejection of claims 1-10, 21-25, 27, 29-31, 33-35, and 37-40 over Takigawa (US 6,207,071, issued Mar. 27, 2001).

Appellants seek either to have prosecution reopened based upon what they allege to be new grounds of rejection in the Decision, or, in the alternative to have the appeal reheard based upon what Appellants allege to be errors on the part of the Board in rendering the Decision (Request 1, 4).

Regarding the request to reopen prosecution, Appellants argue that the Board's reliance on "routine experimentation" and new characterizations in the Decision constitute new grounds of rejection (Request 1-3, 6).

Specifically, Appellants contend that the Board's statement that "Takigawa's alkane fluoride that is to be mixed with the HFC-134a and HFC-125 blend may be an additional amount of HFC-134a or HFC-125, rather than a different HFC", constitutes a new characterization of Takigawa not presented by the Examiner (Request 6) (citing Decision 5). Appellants argue that the allegedly new characterization indicates that there is no restriction on the *amount* of HFC-134a and/or HFC-125 which would teach away from the specific weight percentages recited in claims 3, 8, 21, and 23 (Request 6-7).

Appellants argue that the Board's citation to Takigawa's claim 1 in the Decision is a new portion of an existing reference which was not relied upon by the Examiner (Request 7). Appellants contend that this citation suggests that the Board is relying on a new interpretation of Takigawa (*id.*). Appellants argue that the Board's determination that Takigawa would have suggested at least two of the end points of Appellants' claimed ranges is a

new characterization of Takigawa (*id.*). Appellants submit new evidence, the Second Declaration of Kenneth M. Ponder, which they allege shows that the experimentation required is not routine and comparing the claimed refrigerant (i.e., R-421A) to a refrigerant (e.g., R-422B) within the purported teachings of Takigawa (*id.* at 7-8).

We have fully considered Appellants' arguments, however, we do not agree that our findings and determinations in the Decision amount to new grounds of rejection. Contrary to Appellants' arguments, the Board's position with respect to "routine experimentation" is not a new ground of rejection. Rather, the Examiner stated that optimizing the desired amounts of 40% or more of tetrafluoroethane and/or pentafluoroethane "amounts to routine experimentation" (Ans. 5-6). Appellants concede that the Examiner's Answer explains that the claimed weight percentages would have been a matter of routine experimentation (Request 2). Though Appellants now argue that the Examiner did not rely on routine experimentation in the Final Office Action (Request 6), Appellant did not complain that the Examiner's position in the Answer was a new ground of rejection in their Reply Brief or petition the Director to have prosecution reopened. In other words, Appellants had a full and fair opportunity to respond to the Examiner's position, but elected not to do so in a timely manner. Our reliance on routine experimentation, in the same manner as the Examiner, does not constitute a new ground of rejection.

We are unpersuaded by Appellants' argument that the Board's citation to Takigawa's claim 1 to explain that Takigawa's column 8 disclosure (i.e., there is no restriction on the hydrofluorocarbons (HFC) that are to be mixed with Takigawa's HFC-134a and HFC-125 blend) means that no additional