

Environmental Protection Agency  
Air and Radiation Stratospheric Protection Division 6205J

Acceptable Substitutes for Class II (HCFCs) Substances in Air Conditioning and Refrigeration  
under the Significant New Alternatives Policy (SNAP) Program as of June 12, 2008

| Substitutes<br>(Name Used in<br>Federal Register) | Trade Name                 | Household<br>and Light<br>Commercial<br>AC | Commercial<br>Comfort Air<br>Conditioning | Industrial<br>Process<br>Refriger-<br>ation | Industrial<br>Process Air<br>Conditioning | Bus and<br>Passenger<br>Train AC | Cold<br>Storage<br>Warehouse<br>Systems | Ice<br>Skating<br>Rinks | Refriger-<br>ated<br>Transport | Retail<br>Food<br>Refriger-<br>ation | Ice<br>Machines | Very Low<br>Temp<br>Refriger-<br>ation | Household<br>and other<br>Refrigerated<br>Appliances |
|---------------------------------------------------|----------------------------|--------------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|----------------------------------|-----------------------------------------|-------------------------|--------------------------------|--------------------------------------|-----------------|----------------------------------------|------------------------------------------------------|
| R-410A                                            | AZ-20                      | N                                          | N                                         | N                                           | N                                         | N                                | N                                       | N                       | N                              | N                                    | N               | N                                      | N                                                    |
| R-410B                                            | Suva 9100                  | N                                          | N                                         | N                                           | N                                         |                                  | N                                       | N                       | N                              | N                                    | N               |                                        | N                                                    |
| R-404A                                            | HP62                       | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-407C                                            | Suva 407C,<br>KLEA 407C    | R,N                                        | R,N                                       | R,N                                         | R,N                                       | R,N                              | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| <del>R-421A</del>                                 | Choice R421A               | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             |                                        | R,N                                                  |
| <del>R-421B</del>                                 | Choice R421B               |                                            |                                           |                                             |                                           |                                  |                                         |                         |                                |                                      |                 |                                        |                                                      |
| R-422B                                            | ICOR XAC1                  | R,N                                        | R,N                                       | R,N                                         | R,N                                       | R,N                              | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-422C                                            | ICOR XLT1                  | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-422D                                            | ISCION<br>MO29             | R,N                                        | R,N                                       | R,N                                         | R,N                                       | R,N                              | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-424A                                            | RS-44 (new<br>formulation) | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-428A                                            | RS-52                      |                                            |                                           | N                                           |                                           |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             |                                        | R,N                                                  |
| R-134a                                            | HFC-134a                   | N                                          | -                                         | -                                           | -                                         | R,N                              | -                                       | -                       | -                              | -                                    | -               | N (141b)                               | -                                                    |
| R-245fa                                           | Geltron-<br>245fa          |                                            | R,N (123)                                 |                                             |                                           |                                  |                                         |                         |                                |                                      |                 |                                        |                                                      |
| R-507A                                            | AZ-50                      | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | -                       | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-417A                                            | Isceon 59, NU-<br>22       | R,N                                        | R,N                                       | R,N                                         | R,N                                       | R,N                              | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| R-125/134a/600a<br>(28.1/70.0/1.9)                |                            | R,N                                        | R,N                                       | R,N                                         | R,N                                       | R,N                              |                                         |                         | R,N                            |                                      |                 |                                        |                                                      |
| Hydrofluoroether-<br>7000                         | HFE-7000                   |                                            |                                           |                                             |                                           |                                  |                                         |                         |                                |                                      |                 | R,N                                    |                                                      |
| RS-44 (2003<br>formulation)                       |                            | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             |                                        | R,N                                                  |
| RS-45 (proposed<br>ASHRAE R-434A)                 | RS-45                      | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             |                                        | R,N                                                  |
| R-125/290/134a/600a<br>(45.0/10.42.5/1.5)         | ICOR AT-22                 | R,N                                        | R,N                                       | R,N                                         | R,N                                       |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             | R,N                                    | R,N                                                  |
| ISCION 79                                         | ISCION 79                  |                                            |                                           | R,N                                         |                                           |                                  | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             |                                        | R,N                                                  |
| KDD5                                              | KDD5                       | R,N                                        | R,N                                       | R,N                                         | R,N                                       | R,N                              | R,N                                     | R,N                     | R,N                            | R,N                                  | R,N             |                                        | R,N                                                  |
| Self-chilling cans<br>using CO <sub>2</sub>       |                            | -                                          | -                                         | -                                           | -                                         |                                  | R,N                                     | -                       | R,N                            | R,N                                  | -               |                                        | R,N                                                  |
| Ammonia                                           |                            | N <sup>1</sup>                             | N <sup>2</sup>                            | N <sup>3</sup>                              | N <sup>3</sup>                            |                                  | N <sup>3</sup>                          | N <sup>3</sup>          | -                              | N <sup>4</sup>                       | N <sup>3</sup>  |                                        | N <sup>1</sup>                                       |



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|-------------------------------------------------------------------------|------------|--------------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|----------------------------------|-----------------------------------------|-------------------------|--------------------------------|--------------------------------------|-----------------|----------------------------------------|------------------------------------------------------|
| Evaporative<br>Cooling                                                  |            | N                                          | N                                         | -                                           | N                                         |                                  | -                                       | -                       | -                              | -                                    | -               | -                                      | -                                                    |
| Desiccant Cooling                                                       |            | N                                          | N                                         | -                                           | N                                         |                                  | -                                       | -                       | -                              | -                                    | -               | -                                      | -                                                    |
| Water/Lithium<br>bromide                                                |            | -                                          | N                                         | -                                           | -                                         |                                  | -                                       | -                       | -                              | -                                    | -               | -                                      | -                                                    |
| THR-03                                                                  | THR-03     | N <sup>5</sup>                             | N                                         | R, N                                        | N                                         |                                  | N                                       | N                       | R, N                           | N                                    | N               |                                        | N                                                    |
| HFE-7100, HFE-<br>7200 for secondary<br>heat transfer in NIK<br>systems |            |                                            |                                           | N                                           |                                           |                                  |                                         |                         |                                |                                      |                 |                                        |                                                      |

Key: R = Retrofit Uses, N = New Uses, (-) = Not submitted for review against this end use or not practical to use the substitute refrigerant in this end use.

1. Absorption systems; 2. Absorption chillers or vapor compression with secondary loop; 3. Vapor compression or absorption systems; 4. Vapor compression with a secondary loop; 5. Only approved for window air conditioning units.



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| Description of Class II End Uses                |                                                                                                                                                                                                                                               |                                    |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| End Use                                         | Air Conditioning and Refrigeration Systems or Applications                                                                                                                                                                                    | Ozone Depleting Substance          |
| Household and Light Commercial Air Conditioning | Heat pumps, central air conditioning, direct-expansion commercial air conditioners, packaged terminal air conditioners, room air conditioners, and split system air conditioners                                                              | HCFC-22                            |
| Commercial Comfort Air Conditioning             | Reciprocating, centrifugal and screw chillers                                                                                                                                                                                                 | HCFC-22, CFC-12, R-500, and CFC-11 |
| Industrial Process Refrigeration                | Refrigeration applications within the chemical, pharmaceutical and petrochemical industries, the oil and gas industry, the metallurgical industry, civil engineering, sports and leisure facilities, and food processing.                     | HCFC-22, CFC-12, R-500, and R-502  |
| Industrial Process Air Conditioning             | Air conditioning systems that perform a critical mission in a high-temperature industrial environment, such as cooling a control cab on a crane in a foundry or protecting a computer room in a steel mill.                                   | HCFC-22, CFC-12, and CFC-114       |
| Cold Storage Warehouse Systems                  | Public and private facilities used to store meat, produce, dairy products, frozen food, and other perishable goods.                                                                                                                           | HCFC-22, R-502 and CFC-12          |
| Bus and Passenger Train Air Conditioning        | Motor vehicle air conditioning systems for buses and passenger trains.                                                                                                                                                                        | HCFC-22                            |
| Ice Skating Rinks                               | Ice Skating Rinks                                                                                                                                                                                                                             | HCFC-22, CFC-12, and R-502         |
| Refrigerated Transport                          | Refrigeration systems in trucks, trailers, railcars, ships, intermodal containers, on board ships, and air conditioning systems in buses and passenger trains.                                                                                | CFC-12, R-500 and R-502            |
| Retail Food Refrigeration                       | Stand alone refrigeration cases found in small markets, convenience stores, restaurants and other food establishments, large systems found in supermarkets, and HCFC-22 systems found in a wide variety of retail and service establishments. | HCFC-22, CFC-12, and R-502         |
| Ice Machines                                    | Small, medium, and large ice makers used by a number of entities including restaurants and hotels.                                                                                                                                            | CFC-12                             |
| Household and Other Refrigerated Appliances     | Refrigerators, freezers, water coolers, vending machines, and dehumidifiers.                                                                                                                                                                  | CFC-12 and R-502                   |

1. Substitution through retrofit is only applicable to HCFC-22 systems.

Refrigerant blends that contain Class II Ozone Depleting Substances include, but are not limited to, R-401A, R-401B, R-402A, R-402B, R-403B, R-406A, R-408A, R-409A, R-411A, R-411B, R-411C, R-414A, R-414B, and R-416A.



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Alternative Refrigerant Manufacturers

| Refrigerant                 | Arkema                  | Dupont                         | Greencore<br>I   | Honeywell        | ICI                       | ICOR                 | IKON             | CFC<br>Refimax   | People's<br>Welding<br>Supply | Refrigerant<br>Solutions<br>LTD | RMS of<br>Georgia | Rhodia<br>Ltd. | Solpower         | Technical<br>Chemical | TechnoChem<br>Co., Ltd. <sup>1</sup> | Tsinghua<br>University of<br>Beijing <sup>2</sup> |
|-----------------------------|-------------------------|--------------------------------|------------------|------------------|---------------------------|----------------------|------------------|------------------|-------------------------------|---------------------------------|-------------------|----------------|------------------|-----------------------|--------------------------------------|---------------------------------------------------|
|                             | 800-343-<br>7940        | 800-235-<br>7882               | 703-643-<br>2376 | 800-522-<br>8001 | 800-275-<br>5532          | 800-<br>357-<br>4062 | 505-345-<br>2707 | 800-406-<br>2292 | 800-382-<br>9006              |                                 | 800-347-<br>5872  |                | 888-289-<br>8866 | 800-527-<br>0885      |                                      |                                                   |
| HCFC-123                    | Forane<br>123           | Suva 123                       |                  | Genetron<br>123  |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| HCFC-22                     | Forane 22               | Freon 22                       |                  | Genetron 22      | Arcion-22                 |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| HFC-134a                    | Forane<br>134a          | Suva 134a                      |                  | Genetron<br>134a | Klea 134a                 |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| HCFC-124                    | Forane<br>124           | HCFC-124                       |                  | Genetron<br>124  |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| KDD5                        |                         | KDD5                           |                  |                  |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-401A, R-<br>401B          | Forane<br>401A,<br>401B | Suva<br>MP39,<br>MP66          |                  | MP39,<br>MP66    |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-402A, R-<br>402B          | Forane<br>402A,<br>402B | Suva<br>HP80,<br>HP81          |                  | HP80, HP81       |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-404A                      | Forane<br>404A          | Suva<br>HP62                   |                  | Genetron<br>404A |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-406A                      |                         |                                |                  |                  |                           |                      |                  |                  | GHG                           |                                 |                   |                |                  |                       |                                      |                                                   |
| R407A, R-<br>407B           |                         |                                |                  |                  | Klea<br>407A,<br>407B     |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-407C                      | Forane<br>407C          | Suva<br>407C<br>(Suva<br>9000) |                  |                  | Klea<br>407C<br>(Klea 66) |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-408A                      | Forane<br>408A          | Suva 408A                      |                  | Genetron<br>408A |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-409A                      | Forane<br>409A          | Suva 409A                      |                  | Genetron<br>409A |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-411A, R-<br>411B          |                         |                                | R-411A, B        |                  |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-420A                      |                         |                                |                  |                  |                           |                      |                  |                  |                               |                                 | Choice R-<br>420A |                |                  |                       |                                      |                                                   |
| R-428A                      |                         |                                |                  |                  |                           |                      |                  |                  |                               | RS-52                           |                   |                |                  |                       |                                      |                                                   |
| R-507                       |                         | Suva 507                       |                  | AZ-50            |                           |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |
| R-508A (PFC<br>Blend Alpha) |                         |                                |                  |                  | Klea 5R3                  |                      |                  |                  |                               |                                 |                   |                |                  |                       |                                      |                                                   |



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| Alternative Refrigerant Manufacturers, con't |              |              |              |              |              |              |                 |              |                         |                           |                    |             |              |                    |                                   |                                             |
|----------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|--------------|-------------------------|---------------------------|--------------------|-------------|--------------|--------------------|-----------------------------------|---------------------------------------------|
| Refrigerant                                  | Arkema       | Dupont       | Greencool    | Honeywell    | ICI          | ICOR         | IKON            | CFC Refimax  | People's Welding Supply | Refrigerant Solutions LTD | RMS of Georgia     | Rhodia Ltd. | Solpower     | Technical Chemical | TechnoChem Co., Ltd. <sup>1</sup> | Tsinghua University of Beijing <sup>2</sup> |
|                                              | 800-343-7940 | 800-235-7882 | 703-643-2376 | 800-522-8001 | 800-275-5532 | 800-357-4062 | 505-345-2707    | 800-406-2292 | 800-382-9006            |                           | 800-347-5872       |             | 888-289-8866 | 800-527-0885       |                                   |                                             |
| R-508B                                       |              | Suva 95      |              |              |              |              |                 |              |                         |                           |                    |             |              |                    |                                   |                                             |
| HCFC Blend Beta                              |              |              |              |              |              |              |                 | FRIGC FR-12  |                         |                           |                    |             |              |                    |                                   |                                             |
| HCFC Blend Delta                             |              |              |              |              |              |              |                 |              |                         |                           | Free Zone / RB-276 |             |              |                    |                                   |                                             |
| GHG-X4                                       |              |              |              |              |              |              |                 |              | Autofrost / Chill-It    |                           |                    |             |              |                    |                                   |                                             |
| GHG-X5                                       |              |              |              |              |              |              |                 |              | GHG-X5                  |                           |                    |             |              |                    |                                   |                                             |
| GHG-HP                                       |              |              |              |              |              |              |                 |              | GHG-HP                  |                           |                    |             |              |                    |                                   |                                             |
| Hot Shot                                     |              |              |              |              |              | Hot Shot     |                 |              |                         |                           |                    |             |              |                    |                                   |                                             |
| Blend Zeta                                   |              |              |              |              |              |              | Ikon-12, Ikon A |              |                         |                           |                    |             |              |                    |                                   |                                             |
| Ikon B                                       |              |              |              |              |              |              | Ikon B          |              |                         |                           |                    |             |              |                    |                                   |                                             |
| Freeze 12                                    |              |              |              |              |              |              |                 |              |                         |                           |                    |             |              | Freeze 12          |                                   |                                             |
| G2018C                                       |              |              | R-411C       |              |              |              |                 |              |                         |                           |                    |             |              |                    |                                   | THR-02, THR-03                              |
| THR-02, THR-03                               |              |              |              |              |              |              |                 |              |                         |                           |                    |             |              |                    |                                   |                                             |
| Isceon 59/NU-22                              |              | Isceon 59    |              |              |              | NU-22        |                 |              |                         |                           |                    | Isceon 59   |              |                    |                                   |                                             |
| Isceon 79                                    |              | Isceon 79    |              |              |              |              |                 |              |                         |                           |                    | Isceon 79   |              |                    |                                   |                                             |
| Isceon 89                                    |              | Isceon 89    |              |              |              |              |                 |              |                         |                           |                    | Isceon 89   |              |                    |                                   |                                             |
| FOR12A, FOR12B                               |              |              |              |              |              |              |                 |              |                         |                           |                    |             |              |                    | FOR12A, FOR12B                    |                                             |
| RS-45                                        |              |              |              |              |              |              |                 |              |                         | RS-45                     |                    |             |              |                    |                                   |                                             |
| SP34E                                        |              |              |              |              |              |              |                 |              |                         |                           |                    |             | SP34E        |                    |                                   |                                             |

<sup>1</sup> and Inha University  
<sup>2</sup> and the Beijing Inoue Qinghua Refrigeration Technology Company LTD

## Electronic Acknowledgement Receipt

|                                             |                                                                     |
|---------------------------------------------|---------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 3967481                                                             |
| <b>Application Number:</b>                  | 10937736                                                            |
| <b>International Application Number:</b>    |                                                                     |
| <b>Confirmation Number:</b>                 | 1006                                                                |
| <b>Title of Invention:</b>                  | Refrigerant with lubricating oil for replacement of R22 refrigerant |
| <b>First Named Inventor/Applicant Name:</b> | Kenneth M. Ponder                                                   |
| <b>Customer Number:</b>                     | 24504                                                               |
| <b>Filer:</b>                               | Todd Deveau./Virginia Keenan                                        |
| <b>Filer Authorized By:</b>                 | Todd Deveau.                                                        |
| <b>Attorney Docket Number:</b>              | 821920-1030                                                         |
| <b>Receipt Date:</b>                        | 18-SEP-2008                                                         |
| <b>Filing Date:</b>                         | 08-SEP-2004                                                         |
| <b>Time Stamp:</b>                          | 17:05:07                                                            |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                         |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description      | File Name    | File Size(Bytes)/<br>Message Digest                | Multi Part /.zip | Pages (if appl.) |
|-----------------|---------------------------|--------------|----------------------------------------------------|------------------|------------------|
| 1               | Oath or Declaration filed | 00782473.PDF | 108120<br>f0246da669ede2f8ad719f6890cb58e07235bade | no               | 3                |

### Warnings:

### Information:

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| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Amendment After Final | 00782485.PDF | 1328952                                  | no      | 30 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |              | 1b84f5b937745302d7f783fe26cd52c5d8a4730e |         |    |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |              |                                          |         |    |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |              |                                          |         |    |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |              |                                          | 1437072 |    |
| <p>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.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                       |              |                                          |         |    |

**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****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. 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. 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. 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. 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. 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 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.

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:

9/18/08

  
Kenneth M. Ponder

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.

| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                 |                                                                                                         |                                                                                                                                                                                                                               |              |                                    | Application or Docket Number<br><b>10/937,736</b> |                 | Filing Date<br><b>09/08/2004</b> |    | <input type="checkbox"/> To be Mailed |                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------|---------------------------------------------------|-----------------|----------------------------------|----|---------------------------------------|---------------------|
| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                         |                                                                                                                                                                                                                               | (Column 2)   |                                    | SMALL ENTITY <input checked="" type="checkbox"/>  |                 | OR                               |    | OTHER THAN SMALL ENTITY               |                     |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                         | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA |                                    | RATE (\$)                                         | FEE (\$)        | OR                               |    | RATE (\$)                             | FEE (\$)            |
| <input type="checkbox"/> BASIC FEE<br><small>(37 CFR 1.16(a), (b), or (c))</small>                                                                                                                                                                                                                                                                                                                                |                                                                                                         | N/A                                                                                                                                                                                                                           | N/A          |                                    | N/A                                               |                 |                                  |    | N/A                                   |                     |
| <input type="checkbox"/> SEARCH FEE<br><small>(37 CFR 1.16(k), (l), or (m))</small>                                                                                                                                                                                                                                                                                                                               |                                                                                                         | N/A                                                                                                                                                                                                                           | N/A          |                                    | N/A                                               |                 |                                  |    | N/A                                   |                     |
| <input type="checkbox"/> EXAMINATION FEE<br><small>(37 CFR 1.16(o), (p), or (q))</small>                                                                                                                                                                                                                                                                                                                          |                                                                                                         | N/A                                                                                                                                                                                                                           | N/A          |                                    | N/A                                               |                 |                                  |    | N/A                                   |                     |
| TOTAL CLAIMS<br><small>(37 CFR 1.16(i))</small>                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                         | minus 20 =                                                                                                                                                                                                                    | *            |                                    | X \$ =                                            |                 |                                  |    | X \$ =                                |                     |
| INDEPENDENT CLAIMS<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                                                                                                                                                                                             |                                                                                                         | minus 3 =                                                                                                                                                                                                                     | *            |                                    | X \$ =                                            |                 |                                  |    | X \$ =                                |                     |
| <input type="checkbox"/> APPLICATION SIZE FEE<br><small>(37 CFR 1.16(s))</small>                                                                                                                                                                                                                                                                                                                                  |                                                                                                         | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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). |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| <input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>                                                                                                                                                                                                                                                                                                                         |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                         |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                         |                                                                                                                                                                                                                               | (Column 2)   |                                    | (Column 3)                                        |                 | SMALL ENTITY                     |    | OR OTHER THAN SMALL ENTITY            |                     |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                  | <b>09/18/2008</b>                                                                                       | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              |              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA                                     | RATE (\$)       | ADDITIONAL FEE (\$)              |    | RATE (\$)                             | ADDITIONAL FEE (\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Total <small>(37 CFR 1.16(i))</small>                                                                   | * 26                                                                                                                                                                                                                          | Minus        | ** 43                              | = 0                                               | X \$25 =        | 0                                | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Independent <small>(37 CFR 1.16(h))</small>                                                             | * 4                                                                                                                                                                                                                           | Minus        | ***5                               | = 0                                               | X \$105 =       | 0                                | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>                           |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small> |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   | TOTAL ADD'L FEE | 0                                | OR | TOTAL ADD'L FEE                       |                     |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                         | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              |              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA                                     | RATE (\$)       | ADDITIONAL FEE (\$)              |    | RATE (\$)                             | ADDITIONAL FEE (\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Total <small>(37 CFR 1.16(i))</small>                                                                   | *                                                                                                                                                                                                                             | Minus        | **                                 | =                                                 | X \$ =          |                                  | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Independent <small>(37 CFR 1.16(h))</small>                                                             | *                                                                                                                                                                                                                             | Minus        | ***                                | =                                                 | X \$ =          |                                  | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>                           |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small> |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   | TOTAL ADD'L FEE |                                  | OR | TOTAL ADD'L FEE                       |                     |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. |                                                                                                         |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |

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.**

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



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/937,736

09/08/2004

Kenneth M. Ponder

821920-1030

1006

24504

7590

09/25/2008

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP

600 GALLERIA PARKWAY, S.E.

STE 1500

ATLANTA, GA 30339-5994

EXAMINER

HARDEE, JOHN R

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

09/25/2008

PAPER

**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.

|                                                                                              |                                      |                                      |  |
|----------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|--|
| <p align="center"><b>Advisory Action</b><br/><b>Before the Filing of an Appeal Brief</b></p> | <b>Application No.</b><br>10/937,736 | <b>Applicant(s)</b><br>PONDER ET AL. |  |
|                                                                                              | <b>Examiner</b><br>John R. Hardee    | <b>Art Unit</b><br>1796              |  |

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

THE REPLY FILED 18 September 2008 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
 b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
 Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
 (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
 (b) ☐ They raise the issue of new matter (see NOTE below);  
 (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
 5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
 6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
 The status of the claim(s) is (or will be) as follows:  
 Claim(s) allowed: \_\_\_\_\_.  
 Claim(s) objected to: \_\_\_\_\_.  
 Claim(s) rejected: \_\_\_\_\_.  
 Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☒ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
 9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
 10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.  
 12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
 13. ☐ Other: \_\_\_\_\_.

/John R. Hardee/  
Primary Examiner, Art Unit 1796



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/937,736

09/08/2004

Kenneth M. Ponder

821920-1030

1006

24504 7590 10/31/2008  
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP  
600 GALLERIA PARKWAY, S.E.  
STE 1500  
ATLANTA, GA 30339-5994

EXAMINER

HARDEE, JOHN R

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

10/31/2008

PAPER

**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.

|                          |                                      |                                      |  |
|--------------------------|--------------------------------------|--------------------------------------|--|
| <b>Interview Summary</b> | <b>Application No.</b><br>10/937,736 | <b>Applicant(s)</b><br>PONDER ET AL. |  |
|                          | <b>Examiner</b><br>John R. Hardee    | <b>Art Unit</b><br>1796              |  |

All participants (applicant, applicant's representative, PTO personnel):

(1) John R. Hardee. (3) \_\_\_\_\_.

(2) Michael Barker. (4) \_\_\_\_\_.

Date of Interview: 28 October 2008.

Type: a) ☒ Telephonic    b) ☐ Video Conference  
           c) ☐ Personal [copy given to: 1) ☐ applicant    2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes    e) ☒ No.  
       If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: \_\_\_\_\_.

Identification of prior art discussed: \_\_\_\_\_.

Agreement with respect to the claims f) ☐ was reached.    g) ☐ was not reached.    h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Discussed the possibility of applicant submitting good and sufficient reason why the declaration of 9/18/08 could not be submitted before final rejection. The examiner agreed to consider such a submission.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

|                                                     |  |
|-----------------------------------------------------|--|
| /John R. Hardee/<br>Primary Examiner, Art Unit 1796 |  |
|-----------------------------------------------------|--|

**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 ENTRY OF DECLARATION AND  
OTHER EVIDENCE AFTER FINAL OFFICE ACTION**

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

Sir:

The Advisory Action, Paper No./Mail Date 20080623, from Examiner John R. Hardee of Art Unit 1796, mailed September 25, 2008, has been received and carefully reviewed. Applicants respectfully request reconsideration of the non-entry of Applicants' Response and Amendment electronically filed on 18 September 2008, and in particular the non-entry of the Declaration and other evidence filed with said Response after the Final Office Action (See Box 8 of the Advisory Action), and thus consideration of the Declaration, in view of the following remarks. No new matter and, thus, no new issues are presented.

**AUTHORIZATION TO DEBIT ACCOUNT**

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

**IN THE CLAIMS**

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

1. (Previously presented) In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a refrigerant composition containing a lubricant, the refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,

(a) said refrigerant gases consisting of:

about 40% to about 45% by weight tetrafluoroethane; and

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

(b) said non-refrigerant gas components including about 0.5% up to about 20% by weight of the refrigerant gases a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane,

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

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

65-88% hydrotreated light napthenic distillate, and

10-20% solvent refined light napthenic distillate petroleum.

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

4. (Previously presented) The invention according to claim 1 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.

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

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

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

(2) adding to said apparatus via the manifold the substitute refrigerant composition for chlorodifluoromethane, said substitute refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,

(a) the refrigerant gases consisting of:

about 40% to about 45% by weight tetrafluoroethane; and

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

(b) the non-refrigerant components including about 0.5% up to about 20% by weight of the refrigerant gases of a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane,

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

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

65-85% hydrotreated light naphthenic distillate, and

10-20% solvent refined light naphthenic distillate petroleum.

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

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

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

11. – 20. (Cancelled)

21. (Previously presented) A refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,

- (a) the refrigerant gases consisting of:
  - about 40% to about 45% by weight tetrafluoroethane; and
  - about 55% to about 60% by weight pentafluoroethane; and

- (b) the non-refrigerant gas components including about 0.5% up to about 20% by weight of the refrigerant gases of a lubricating oil,

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

22. (Previously presented) A refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,

- (a) the refrigerant gases consisting of:
  - about 40% to about 45% by weight tetrafluoroethane; and
  - about 55% to about 60% by weight pentafluoroethane; and

- (b) the non-refrigerant gas components including about 0.5% up to about 20% by weight of the refrigerant gases of a lubricating oil, the lubricating oil having the following components:

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

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

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

25. (Previously presented) A refrigerant composition according to claim 21 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 with a napthenic lubricant.

26. (Cancelled)

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

28. (Cancelled)

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

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

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

32. (Cancelled)

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

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

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

36. (Cancelled)

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

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

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

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

**REMARKS**

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

**INTERVIEW SUMMARY**

On October 28, 2008, Applicant and Examiner Hardy discussed the possibility of entering the Declaration filed September 18, 2008. Examiner Hardy agreed to consider the Declaration upon a showing of good and sufficient reason why the Declaration is necessary and was not presented earlier, per 37 CFR 1.116(e). Applicant respectfully presents its showing of good and sufficient reason below.

**CONSIDERATION OF AFFIDAVIT OR OTHER EVIDENCE**

Once a Final Office Action is issued, Applicant no longer has a right to unrestricted prosecution. However, Applicant is not barred from submitting an affidavit or other evidence after a Final Office Action issues. Any affidavit or other evidence which places an Application in condition for allowance or in better form for appeal may be entered at the discretion of the Examiner. An affidavit or other evidence filed after a Final Office Action but before the date of filing an appeal may be entered upon a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented in compliance with 37 CFR 1.116(e). MPEP 714.13.

Applicant submits that the Declaration of Kenneth M. Ponder, filed September 18, 2008, at least places this Application in better form for appeal. This Declaration is necessary as it clarifies and/or narrows the issues for consideration by the Board of Patent Appeals and Interferences. Applicant made no substantive amendments to the claims after the Non-Final Office Action, filed December 17, 2007. Therefore, Applicant respectfully submits that this Declaration should require only a cursory review and no further search by the Examiner.

It was not earlier presented because Applicant believed the prior responses placed this Application in condition for allowance, at least for the reasons set forth in those responses. Furthermore, no explicit request for unexpected properties was presented to Applicant until the mailing of the Final Office Action. Applicant was not presented the issue of unexpected results prior to the Final Office Action, filed June 27, 2008, in which the Office Action states, "If affiant believes that compositions as recited have unexpected properties *vis-à-vis* those which are exemplified, this assertion should be backed up with data." At that request, Applicant provided the requested unexpected results by way of the Declaration of Kenneth M. Ponder, filed September 18, 2008. Since the request of unexpected results was not presented until the Final

Office Action, Applicant was precluded from submitting evidence of unexpected results until after the close of prosecution. More particularly, Applicant presented no substantive amendment of the pending claims in response to the Non-Final Office Action of December 17, 2007 which would have warranted raising the issue of unexpected results for the first time in the Final Office Action. Put alternatively, no substantive changes occurred in the claims from Non-Final to Final Office Action which warranted a request for unexpected results. Accordingly, entry of the present Declaration as an earnest attempt to advance prosecution and reduce the number of issues for appeal is requested under 37 CFR 1.116(e).

**CONCLUSION**

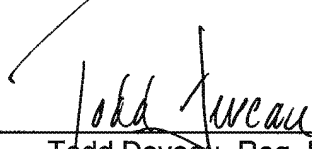
In view of the foregoing, favorable reconsideration and entry of the present Declaration is hereby requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at 770-933-9500.

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

Respectfully Submitted,

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

By

  
Todd Deveau, Reg. No. 29,526

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

Docket No. 821920-1030

## Electronic Acknowledgement Receipt

|                                             |                                                                     |
|---------------------------------------------|---------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 4224392                                                             |
| <b>Application Number:</b>                  | 10937736                                                            |
| <b>International Application Number:</b>    |                                                                     |
| <b>Confirmation Number:</b>                 | 1006                                                                |
| <b>Title of Invention:</b>                  | Refrigerant with lubricating oil for replacement of R22 refrigerant |
| <b>First Named Inventor/Applicant Name:</b> | Kenneth M. Ponder                                                   |
| <b>Customer Number:</b>                     | 24504                                                               |
| <b>Filer:</b>                               | Todd Deveau./Virginia Keenan                                        |
| <b>Filer Authorized By:</b>                 | Todd Deveau.                                                        |
| <b>Attorney Docket Number:</b>              | 821920-1030                                                         |
| <b>Receipt Date:</b>                        | 03-NOV-2008                                                         |
| <b>Filing Date:</b>                         | 08-SEP-2004                                                         |
| <b>Time Stamp:</b>                          | 17:47:40                                                            |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                         |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description                            | File Name    | File Size(Bytes)/<br>Message Digest                | Multi Part /.zip | Pages (if appl.) |
|-----------------|-------------------------------------------------|--------------|----------------------------------------------------|------------------|------------------|
| 1               | Supplemental Response or Supplemental Amendment | 00809927.PDF | 310375<br>56a895081074e44549e9465b8f4ace0f69ad6e4a | no               | 8                |

### Warnings:

### Information:

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.

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.

| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                 |                                                                                          |                                                                                                                                                                                                                               |              |                                    | Application or Docket Number<br><b>10/937,736</b> |                 | Filing Date<br><b>09/08/2004</b> |    | <input type="checkbox"/> To be Mailed |                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------|---------------------------------------------------|-----------------|----------------------------------|----|---------------------------------------|---------------------|
| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                              |                                                                                          |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                          |                                                                                                                                                                                                                               | (Column 2)   |                                    | SMALL ENTITY <input checked="" type="checkbox"/>  |                 | OR                               |    | OTHER THAN SMALL ENTITY               |                     |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                          | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA |                                    | RATE (\$)                                         | FEE (\$)        | OR                               |    | RATE (\$)                             | FEE (\$)            |
| <input type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                               |                                                                                          | N/A                                                                                                                                                                                                                           | N/A          |                                    | N/A                                               |                 |                                  |    | N/A                                   |                     |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                              |                                                                                          | N/A                                                                                                                                                                                                                           | N/A          |                                    | N/A                                               |                 |                                  |    | N/A                                   |                     |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                         |                                                                                          | N/A                                                                                                                                                                                                                           | N/A          |                                    | N/A                                               |                 |                                  |    | N/A                                   |                     |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                          | minus 20 =                                                                                                                                                                                                                    | *            |                                    | X \$ =                                            |                 |                                  |    | X \$ =                                |                     |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                            |                                                                                          | minus 3 =                                                                                                                                                                                                                     | *            |                                    | X \$ =                                            |                 |                                  |    | X \$ =                                |                     |
| <input type="checkbox"/> APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                 |                                                                                          | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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). |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| <input type="checkbox"/> 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                                             |                 |                                  |    | TOTAL                                 |                     |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                           |                                                                                          |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                          |                                                                                                                                                                                                                               | (Column 2)   |                                    | (Column 3)                                        |                 | SMALL ENTITY                     |    | OR OTHER THAN SMALL ENTITY            |                     |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                  | <b>11/03/2008</b>                                                                        | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              |              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA                                     | RATE (\$)       | ADDITIONAL FEE (\$)              |    | RATE (\$)                             | ADDITIONAL FEE (\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Total (37 CFR 1.16(i))                                                                   | * 26                                                                                                                                                                                                                          | Minus        | ** 43                              | = 0                                               | X \$26 =        | 0                                | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Independent (37 CFR 1.16(h))                                                             | * 4                                                                                                                                                                                                                           | Minus        | ***5                               | = 0                                               | X \$110 =       | 0                                | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                           |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  | OR |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                          |                                                                                                                                                                                                                               |              |                                    |                                                   | TOTAL ADD'L FEE | <b>0</b>                         | OR | TOTAL ADD'L FEE                       |                     |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                          | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              |              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA                                     | RATE (\$)       | ADDITIONAL FEE (\$)              |    | RATE (\$)                             | ADDITIONAL FEE (\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Total (37 CFR 1.16(i))                                                                   | *                                                                                                                                                                                                                             | Minus        | **                                 | =                                                 | X \$ =          |                                  | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Independent (37 CFR 1.16(h))                                                             | *                                                                                                                                                                                                                             | Minus        | ***                                | =                                                 | X \$ =          |                                  | OR | X \$ =                                |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                           |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  | OR |                                       |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                          |                                                                                                                                                                                                                               |              |                                    |                                                   | TOTAL ADD'L FEE |                                  | OR | TOTAL ADD'L FEE                       |                     |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. |                                                                                          |                                                                                                                                                                                                                               |              |                                    |                                                   |                 |                                  |    |                                       |                     |

Legal Instrument Examiner:  
/NICOLLE SCRIVNER/

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

**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**

**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

Mail Stop: Appeal Brief-Patents

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

Sir:

This Appeal Brief under 37 C.F.R. § 41.37 is submitted in support of the Notice of Appeal filed concurrently herewith. This appeal is taken from the *Final Office Action* mailed June 27, 2008, rejecting claims 1-10, 21-25, 27, 29-31, 33-35, and 37-40, as clarified by the *Advisory Action* mailed September 25, 2008.

It is not believed that extensions of time or fees are required to consider this Appeal Brief, in addition to the Petition for Extension simultaneously filed. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefore are hereby authorized to be charged to Deposit Account No. 20-0778.

### **I. REAL PARTY IN INTEREST**

The real party in interest is Stefko Properties LLC, a for profit corporation established under the laws of the State of Georgia and having a principal place of business at 610 McFarland-400 Drive, Alpharetta, Georgia 30004

### **II. RELATED APPEALS AND INTERFERENCES**

There are no known related appeals or interferences that will affect or be affected by a decision in this Appeal.

### **III. STATUS OF CLAIMS**

Claims 1-10, 21-25, 27, 29-31, 33-35, and 37-40 are pending. The final rejection of claims 1-10, 21-25, 27, 29-31, 33-35, and 37-40 is appealed.

### **IV. STATUS OF AMENDMENTS**

No amendments have been made or requested since the mailing of the FINAL Office Action. All amendments submitted prior to the FINAL action have been entered. A copy of the current claims is attached in the Claims Appendix (See below).

### **V. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed inventions are summarized below with reference numerals and references to the written description ("Specification") and drawings. The subject matter described in the following appears in the original disclosure at least where indicated, and may further appear in other places within the original disclosure.

Independent claim 1 recites an improvement to an apparatus designed for use with chlorodifluoromethane refrigerant (also referred to as R-22), which comprises substituting the

chlorodifluoromethane with a refrigerant composition containing a lubricant, the refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components. See, Applicant's Specification of September 9, 2004, page 1, lines 10-16, and page 11, lines, lines 5-16. The refrigerant gases consist of about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane. See, Applicant's Amended Specification of August 13, 2008, page 2, lines 3-7, and Applicant's Specification of September 9, 2004, p. 16, Table 2. The non-refrigerant gas components include about 0.5% to about 20% by weight of the refrigerant gases a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane, wherein the lubricating oil is selected from naphthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester. See, Applicant's Specification of September 9, 2004, page 7, lines 5-12 and 20-26, page 8, lines 1-4, and page 9, lines 9-12 and 21-22.

Independent claim 6 recites a method for refilling an apparatus designed for use with a chlorodifluoromethane refrigerant (R-22). See, Applicant's Specification of September 9, 2004, page 1, lines 10-18, page 8, lines 5-14. The method comprises supplying a substitute refrigerant composition under pressure, in a cylinder can fitted with an outlet compatible with a chlorodifluoromethane recharging manifold of the apparatus and adding a substitute refrigerant composition for chlorodifluoromethane via the manifold, the substitute refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components. See, Applicant's Specification of September 9, 2004, page 8, lines 21-27. The refrigerant gases consist of about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane. See, Applicant's amended Specification of August 13, 2008, page 2, lines 3-7, and Applicant's Specification of September 9, 2004, p. 16, Table 2.. The non-refrigerant gas components include about 0.5% to about 20% by weight of the refrigerant gases

a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane, wherein the lubricating oil is selected from napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester. See, Applicant's Specification of September 9, 2004, page 7, lines 5-12 and 20-26, page 8, lines 1-4, and page 9, lines 9-12 and 21-22.

Independent claim 21 recites a refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components. See, Applicant's Specification of September 9, 2004, page 1, lines 10-16, and page 11, lines , lines 5-16. The refrigerant gases consist of about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane. See, Applicant's amended Specification of August 13, 2008, page 2, lines 3-7, and Applicant's Specification of September 9, 2004, p. 16, Table 2.. The non-refrigerant gas components include about 0.5% to about 20% by weight of the refrigerant gases a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane, wherein the lubricating oil is selected from napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester. See, Applicant's Specification of September 9, 2004, page 7, lines 5-12 and 20-26, page 8, lines 1-4, and page 9, lines 9-12 and 21-22.

Independent claim 22 recites a refrigerant composition comprising a combination of refrigerant and non-refrigerant gas components. See, Applicant's Specification of September 9, 2004, page 1, lines 10-16, and page 11, lines , lines 5-16. The refrigerant gases consist of about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane. See, Applicant's amended Specification of August 13, 2008, page 2, lines 3-7, and Applicant's Specification of September 9, 2004, p. 16, Table 2.. The non-refrigerant gas components include about 0.5% to about 20% by weight of the refrigerant gases a lubricating oil

having 65% to 85% hydrotreated light naphthenic distillate, and 10% to 20% solvent refined light naphthenic distillate petroleum. See, Applicant's Specification of September 9, 2004, page 7, lines 5-12 and 14-19.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following grounds of rejections are to be reviewed on appeal:

Claims 1-10, 21-25, 27, 29-31, 33-35, and 37-40 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Takigawa* (U.S. Patent No. 6,207,071).

## **VII. ARGUMENTS**

### **Rejection under 35 U.S.C. 103(a) over *Takigawa***

Applicants respectfully submit the rejection of independent claims 1, 6, 21, and 22 under 35 U.S.C. §103 should be overturned, since no *prima facie* case of obviousness is established. For the same reasons, Applicants respectfully submit pending dependent claims 2-5, 7-10, 23-25, 27, 29-31, 33-35, and 37-40 are also allowable. *In re Fine*, 5 USPQ.2d 1596, 1600 (Fed. Cir. 1988).

Applicant submits that no *prima facie* obviousness has been established to adequately support the rejection for at least the following reasons:

- 1) No adequate rationale was provided which proves by a preponderance of the evidence that *Takigawa* would lead one of skill in the art to the refrigerant composition recited in the rejected claims;
- 2) *Takigawa* does not teach every limitation of the refrigerant composition recited in the rejected claims;
- 3) There is no reasonable expectation of success that the hypothetical modification of *Takigawa* would result in the refrigerant composition recited in the rejected claims;
- 4) *Takigawa* is drawn to solving a different problem; and
- 5) The refrigerant composition recited in claims 1, 6, 21, and 22 possesses a superior property not possessed or taught by *Takigawa*.

As established by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office ("USPTO") bears the burden under 35 U.S.C. 103(a) to establish a *prima facie* case of obviousness by providing a rationale demonstrating that an objective teaching in the prior art or knowledge generally available would lead one of ordinary skill in that art to the claimed invention. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). This requirement is not negated by *KSR*, which points out that a rationale should accompany the legal conclusion of obviousness and should be made explicit. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385, 1395-97, 127 S.Ct. 1727, 1742 (2007). The legal standard to be met for *prima facie* obviousness is "a preponderance of evidence", which requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the Examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR*, 550 U.S. at 398, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). In the present case, however, the Examiner presented no rationale demonstrating by a preponderance of the evidence that *Takigawa* would lead one of ordinary skill in the art to the refrigerant composition recited in the rejected claims. Instead, at p. 3 of the *Non-Final Office Action* of December 18, 2007, the Examiner reasons,

"It would have been obvious at the time the invention was made to make such a composition [as disclosed in independent claims 1, 6, 21, and 22], because [*Takigawa*] teaches that all of the ingredients recited by applicants are suitable for inclusion in a refrigerant composition." lines 7-9.

*(Please note: Reference to the Non-Final Office Action is made where necessary, as the grounds for rejection were not reiterated in the Final Office Action.)*

This sentence does not provide articulated reasoning proving obviousness by a preponderance of the evidence. It is instead a conclusory statement, with no supporting analysis.

"[R]ejections 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." *KSR*, 550 U.S. at 398, 82 USPQ2d at 1396, S. Ct. at 1741 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (C.A.Fed. 2006)) (Emphasis added). The Court further stated it is "important to *identify a reason* that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.* (Emphasis added). An invention composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.

There must be adequate prior art support involved for structural changes to complete the PTO's *prima facie* case and shift the burden of going forward to Applicant. The mere fact that it is possible to find two isolated teachings that might be combined in such a way to produce a new compound does not necessarily render such production obvious. *In re Grabiak*, 769 F.2d 729, 226 USPQ 870 (Fed. Cir. 1985). See also *In re Levitt*, 11 USPQ2d 1315, 1316 (Fed. Cir. 1989 – unpublished) ("The mere fact that both references originate from the herbicide art does not provide any teaching or suggestion to combine them. Nor does the fact that both references concern compounds containing a phenyl ring suggest that substituents suitable in one case would be expected to be suitable in the other."). Because there is no objective rationale provided to modify *Takigawa* to yield the refrigerant composition encompassed by the rejected claims, *prima facie* obviousness is negated, and Applicant respectfully requests the rejections be withdrawn.

Furthermore, *Takigawa* does not disclose or teach each limitation of the rejected claims. According to MPEP 2143.03, all claim limitations must be considered when determining patentability of a claim against the prior art. At p. 2, lines 6-10, the *Non-Final Office Action* of December 18, 2007 references col. 8, lines 20+ of *Takigawa* to provide motivation to make the

composition encompassed by independent claims 1, 6, 21, and 22. To the contrary, at col. 8, lines 20+, *Takigawa* discloses:

“The refrigerants used for a refrigerating machine together with the refrigerating machine oil of this invention, include an alkane fluoride having 1 to 3 carbon atoms, preferably 1 to 2 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, more preferably 40% by weight or more of pentafluoroethane (HFC-125).”

Put alternatively, at most *Takigawa* discloses a refrigerant composition including 40% to 100% by weight of tetrafluoroethane and 20% to 100% by weight pentafluoroethane. In contrast, independent claims 1, 6, 21, and 22 make reference to a combination of refrigerant gases and non-refrigerant gas components, the refrigerant gases consisting of about 40% to about 45% by weight tetrafluoroethane and about 55% to about 60% by weight pentafluoroethane. *Takigawa* does not meet each limitation of the rejected claims, since it does not disclose or teach a refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components, the refrigerant gases consisting of, “about 40% to about 45% by weight tetrafluoroethane; and about 55% to about 60% by weight pentafluoroethane”, as recited in independent claims 1, 6, 21, and 22. Because *Takigawa* does not disclose every limitation of the rejected claims, *prima facie* obviousness is negated, and Applicants respectfully request the rejections be withdrawn. In addition to the aforementioned arguments in support of allowance, Applicants respectfully request consideration of the following arguments.

Notably, *Takigawa* states there is “no restriction as to the kind of HFC to be mixed with” tetrafluoroethane and/or pentafluoroethane. See, col. 8, lines 29-31. The *Non-Final Office Action* of December 18, 2007 interpreted this statement to mean that “no additional HFC need be added”. See, p. 2, line 13. Applicants respectfully take issue with this conclusion. It is not supported by the citation. This citation is a far cry from teaching that no HFC should be mixed with tetrafluoroethane and/or pentafluoroethane. *Takigawa* specifically stipulates certain HFC’s

"to be mixed" with tetrafluoroethane and/or pentafluoroethane. See, col. 8, line 30. The phrase "to be mixed" indicates an additional HFC is mixed with tetrafluoroethane and/or pentafluoroethane. This indication is borne out by the examples, each of which comprises tetrafluoroethane and/or pentafluoroethane plus an additional HFC. See, *Takigawa*, col. 8, lines 35-55.

Accordingly, *Takigawa* does not teach any composition "consisting of" tetrafluoroethane and pentafluoroethane as the refrigerant gases in the composition. The transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. *In re Gray*, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("consisting of" defined as "closing the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith."). When the phrase "consists of" appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole. *Mannesmann Demag Corp. v. Engineered Metal Products Co.*, 793 F.2d 1279, 230 USPQ 45 (Fed. Cir. 1986).

Even if *Takigawa* were interpreted to teach a composition "consisting of" tetrafluoroethane (at 40% to 100%) and tetrafluoroethane (at 20% to 100%), the Examiner has not met the burden of providing motivation to select the narrower ranges specified by the instant invention. Instead, the *Non-Final Office Action* of December 18, 2007 notes, "In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists." See, p. 3, lines 12 and 13. This statement is not universally true. It may apply to cases in which the ranges are similar or disclose a small number of distinct compositions. "A prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a *prima facie* case of obviousness." *In re Peterson*, 315 F.3d 1325 (Fed. Cir. 2003). The rationale used by the Peterson court is similar to that of the

species-genus argument: A species can anticipate a genus, but a genus does not always anticipate a species.

As applied to the currently appealed claims, a reference disclosing a narrower range (species or sub-genus) might render obvious a broader claimed range (genus). However, *Takigawa* does not disclose a narrower range than recited in the present claims; it is exactly opposite. The MPEP warns: "If the reference's disclosed range is so broad as to encompass a very large number of possible distinct compositions, this might present a situation analogous to the obviousness of a species when the prior art broadly discloses a genus." 2144.05(I). See also, *In re Baird*, 16 F.3d 380 (Fed. Cir. 1994). *Baird* dealt with a prior art reference disclosing a broad genus of compounds. Applicant claimed a particular species, one of many encompassed by the broad range taught under the prior art reference. The court held that applicant's compound was nonobvious since the prior art reference made no suggestion that this particular compound, amongst the broad range it disclosed, would work well, or even at all. Similarly, in this case, the prior art makes no suggestion that the specific, claimed composition would work well or even at all.

Within *Takigawa*, there is no suggestion or teaching to narrow the range of tetrafluoroethane from 40% to 100% down to the claimed ranges of 40% to 45% and pentafluoroethane from 20% to 100% down to the claimed ranges 55% to 60. As recited in independent claims 1, 6, 21, and 22, let alone to narrow the amount of pentafluoroethane and tetrafluoroethane down to 58% and 42% respectively, as recited in dependent claims 4, 9, and 25. In other words, there is no suggestion in *Takigawa* to select the specific ranges of the instant invention from the broad ranges listed at col. 8, lines 20-28. Moreover, there is no suggestion, as noted above, of a composition including refrigerant gases "consisting of" the specific ranges of the two gases recited in Applicants' claims – to the exclusion of other refrigerant gases.

The Examiner may not pick and choose amongst the ranges until finding similar ranges in order to ground an obviousness rejection. Within *Takigawa*, there must be a suggestion or teaching toward selecting narrower ranges. The teaching can come from 'blaze marks' pointing toward the instant invention or elsewhere, but there must be some rationale presented leading a skilled artisan to the invention as claimed. There is no such teaching in *Takigawa*. See *In re Baird*, 16 F.3d 380 (Fed. Cir. 1994). Thus, the overlap in ranges of *Takigawa* and Applicants' recited composition does not suffice to establish a *prima facie* case of obviousness.

Additionally, there is no showing in the Office Action of a reasonable expectation of success to support the hypothetical modification of *Takigawa* or rejection. *Takigawa* is directed to a different problem than that solved by the composition recited in independent claims 1, 6, 21, and 22. *Takigawa* is directed to the question of providing a refrigerator oil and a fluid composition containing said oil. See, col. 1, lines 14-15. *Takigawa* does not address the problems solved by Applicants' recited composition. Specifically, the refrigerant composition recited in Applicants' claims addresses problems, including:

- 1) High temperature application in the industry; and
- 2) Replacing R-22 refrigerant without retrofitting existing refrigerant systems.

*Takigawa* does not address these problems. In contrast, the claims provide a specific refrigerant composition capable of replacing R-22 refrigerant in high temperature applications. *Takigawa* seeks to solve a different problem than that solved by the present claims. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 3, paragraph 8. Since *Takigawa* is directed to a different problem, its teaching provides no reasonable expectation, in the absence of Applicants' disclosure, that Applicants' problems would be successfully addressed by the Office Action's hypothetical modification of *Takigawa*. Notwithstanding the reasons for allowance presented above, independent claims 1, 6, 21, and 22 are allowable for the additional reasons presented below.

The composition recited in independent claims 1, 6, 21, and 22 possesses a superior property not possessed or taught by *Takigawa*. Evidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness. See, MPEP 716.02(a)(II).

According to the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE) the presence or absence of even a small amount of a refrigerant gas is considered to materially affect the basic properties of a given refrigerant composition resulting in one refrigerant composition having different properties than another refrigerant composition consisting of the same refrigerant gases. For example, refrigerants known under the ASHRAE designations R421A and R421B contain only pentafluoroethane and tetrafluoroethane, as the refrigerant gases. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 1, paragraph 3. The ASHRAE designation R421A indicates a refrigerant with a gaseous ratio of 58/42 of pentafluoroethane to tetrafluoroethane. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 1, paragraph 3, and Exhibit C, ANSI/ASHRAE Addenda, page 13. The ASHRAE designation R421B, covered by applicant's own U.S. Patent No. 7,320,763, indicates a refrigerant with a gaseous ratio of 85/15 of pentafluoroethane to tetrafluoroethane. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 1, paragraph 3, and Exhibit C, ANSI/ASHRAE Addenda, page 22.

R421A and R421B, differing only in the ratio of pentafluoroethane and tetrafluoroethane, were developed to address different uses in the marketplace. R421A was developed to address high temperature applications, while R421B was developed to address low temperature applications. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 2, paragraph 6. R421A and R421B are SNAP approved by the EPA for different uses. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 1, paragraph 3. Accordingly, R421A and R421B are marketed toward different applications and meet different customer needs. In particular, R421A is superior to R421B in high temperature applications

resulting from its temperature-pressure profile. R421B is superior to R421A in low temperature applications also resulting from its temperature-pressure profile. See, Exhibit A, Declaration of Kenneth M. Ponder of September 18, 2008, page 2, paragraph 7. These different ASHRAE designations demonstrate 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. See, Exhibit B, Declaration of Andy Gbur of May 16, 2008, pages 1 and 2, paragraph 6.

As confirmed by Andy Gbur's Declaration, the different designations by ASHRAE among refrigerant blends having the same components in different proportions reflected by different uppercase letters is due to a recognition in the industry that even the same components in different proportions can produce refrigerant blend compositions having different refrigerant properties as typically reflected by differences in temperature/pressure profiles. See, Exhibit B, Declaration of Andy Gbur of May 16, 2008, pages 1 and 2, paragraph 6. Put differently, a refrigerant blend consisting of pentafluoroethane and tetrafluoroethane in a 58/42 ratio, as recited in dependent claims 4, 9, and 25 and reflected by ASHRAE designation R421A, would not render obvious a refrigerant blend consisting of pentafluoroethane and tetrafluoroethane in an 85/15 ratio. As demonstrated by different ASHRAE designations, 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. See, Exhibit B, Declaration of Andy Gbur of May 16, 2008, pages 1 and 2, paragraph 6.

More specifically, Mr. Gbur, a skilled artisan, reviewed *Takigawa* and concluded it is not obvious to one skilled in the art from a reading of *Takigawa* to produce a refrigerant gas composition as instantly claimed. See, Exhibit B, Declaration of Andy Gbur of May 16, 2008, pages 2 and 3, paragraph 7. Because it fails to address the opinion, the *Final Office Action* of June 27, 2008 does not contest Mr. Gbur's opinion and therefore concedes the opinion. 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 superior properties to another composition, such as Applicants' R421A and R421B. Thus, there is no teaching or suggestion in *Takigawa* to combine pentafluoroethane with tetrafluoroethane, as recited in the pending claims, to create a refrigerant gas composition having a temperature-pressure profile that provides superior properties for use in high temperature applications. Accordingly, *prima facie* obviousness is negated, and Applicants respectfully request the rejections be withdrawn.

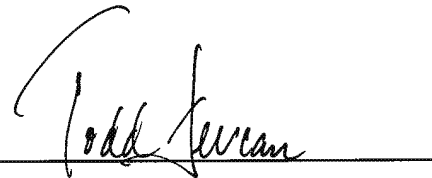
Furthermore, pending dependent claims 2-5, 7-10, 23-25, 27, 29-31, 33-35, and 37-40 include every feature of independent claims 1, 6, 21, and 22. Thus, pending dependent claims 2-5, 7-10, 23-25, 27, 29-31, 33-35, and 37-40 are also allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988). Therefore, Applicants respectfully request the rejection of claims 2-5, 7-10, 23-25, 27, 29-31, 33-35, and 37-40 be overturned.

#### **VIII. CONCLUSION**

In summary, it is Applicant's position that claims 1-10, 21-25, 27, 29-31, 33-35, and 37-40 are patentable over the applied cited art reference and that the rejection of these claims should be withdrawn. Appellant therefore respectfully requests that the Board of Appeals overturn the Examiner's rejection and allow Applicant's pending claims.

Respectfully submitted,

By:



Todd Deveau

Registration No. 29,526

**CLAIMS APPENDIX UNDER 37 C.F.R. § 41.37(c)(1)(viii)**

The following are the claims that are involved in this Appeal.

1. In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a refrigerant composition containing a lubricant, the refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,
  - (a) said refrigerant gases consisting of:
    - about 40% to about 45% by weight tetrafluoroethane; and
    - about 55% to about 60% by weight pentafluoroethane; and
  - (b) said non-refrigerant gas components including about 0.5% up to about 20% by weight of the refrigerant gases a lubricating oil that is soluble in chlorodifluoromethane, pentafluoroethane and tetrafluoroethane, wherein the lubricating oil is selected from the group consisting of napthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.
2. The invention according to Claim 1, the lubricating oil having the following components:
  - 65-88% hydrotreated light napthenic distillate, and
  - 10-20% solvent refined light napthenic distillate petroleum.

3. The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 60% by weight to said tetrafluoroethane present in an amount of about 40% by weight.
4. The invention according to claim 1 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.
5. The invention according to claim 1 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 55% by weight to said tetrafluoroethane present in an amount of about 45% by weight.
6. A method for refilling an apparatus designed for use with a chlorodifluoromethane refrigerant, the method comprising:
  - (1) supplying a substitute refrigerant composition under pressure, in a cylinder can fitted with an outlet compatible with a chlorodifluoromethane recharging manifold of the apparatus; and
  - (2) adding to said apparatus via the manifold the substitute refrigerant composition for chlorodifluoromethane, said substitute refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,
    - (a) the refrigerant gases consisting of:
      - about 40% to about 45% by weight tetrafluoroethane; and
      - about 55% to about 60% by weight pentafluoroethane; and
    - (b) the non-refrigerant components including about 0.5% up to about 20% by weight of the refrigerant gases of a lubricating oil that is

soluble in chlorodifluoromethane, pentafluoroethane and  
tetrafluoroethane,

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

7. The method according to claim 6, the lubricating oil having the following components:  
65-85% hydrotreated light napthenic distillate, and  
10-20% solvent refined light napthenic distillate petroleum.
8. The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 60% by weight to said tetrafluoroethane present in an amount of about 40% by weight.
9. The method according to claim 6 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.
10. The method according to claim 6 wherein in the substitute refrigerant said pentafluoroethane is present in the ratio of about 55% by weight to said tetrafluoroethane present in an amount of about 45% by weight.
11. – 20. Cancelled

21. A refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,
- (a) the refrigerant gases consisting of:
    - about 40% to about 45% by weight tetrafluoroethane; and
    - about 55% to about 60% by weight pentafluoroethane; and
  - (b) the non-refrigerant gas components including about 0.5% up to about 20% by weight of the refrigerant gases of a lubricating oil, wherein the lubricating oil is selected from the group consisting of naphthenic based lubricants, paraffinic based lubricants, and mixtures thereof, mineral oil, polyol ester, synthetic alkyl aromatic lubricants, synthetic alkyl aromatic lubricants mixed with mineral oil, and synthetic alkyl aromatic lubricants mixed with polyol ester.
22. A refrigerant composition comprising a combination of refrigerant gases and non-refrigerant gas components,
- (a) the refrigerant gases consisting of: about 40% to about 45% by weight tetrafluoroethane; and about 55% to about 60% by weight pentafluoroethane; and
  - (b) the non-refrigerant gas components including about 0.5% up to about 20% by weight of the refrigerant gases of a lubricating oil, the lubricating oil having the following components:
    - 65-85% hydrotreated light naphthenic distillate, and
    - 10-20% solvent refined light naphthenic distillate petroleum.

23. A refrigerant composition according to claim 21 wherein said pentafluoroethane is present in the ratio of about 60% by weight to said tetrafluoroethane present in an amount of about 40% by weight.
24. A refrigerant composition according to claim 21 wherein said pentafluoroethane is present in the ratio of about 55% by weight to said tetrafluoroethane present in an amount of about 45% by weight with a napthenic lubricant.
25. A refrigerant composition according to claim 21 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 with a napthenic lubricant.
26. Cancelled
27. The refrigerant composition according to claim 21, wherein the lubricating oil further includes an acrylic polymer or a corrosion inhibitor or both.
28. Cancelled
29. The refrigerant composition according to claim 21, wherein the lubricating oil is an alkylbenzene-based lubricating oil.
30. The invention according to claim 1, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.

31. The invention according to claim 1, wherein the lubricating oil includes an additive selected from the group consisting of acrylic polymer, a corrosion inhibitor and mixtures thereof.
32. Cancelled
33. The invention according to claim 1, wherein the lubricating oil is an alkylbenzene-based lubricating oil.
34. The method according to claim 6, wherein the apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment.
35. The method according to claim 6, wherein the lubricating oil includes an additive selected from the group consisting of acrylic polymer, a corrosion inhibitor and mixtures thereof.
36. Cancelled
37. The method according to claim 6, wherein the lubricating oil is an alkylbenzene-based lubricating oil.

38. The invention according to claim 1, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.
39. The method of claim 6, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.
40. The refrigerant composition of claim 21, wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

**EVIDENCE APPENDIX UNDER 37 C.F.R. § 41.37(c)(1)(ix)**

Extrinsic evidence to be considered in this Appeal is as follows:

- Exhibit A:** Declaration of Kenneth M. Ponder of September 18, 2008. On December 8, 2008, Examiner Hardee agreed to enter the Declaration of Kenneth M. Ponder via a voicemail message. See, Statement of Substance of Interview, filed December 9, 2008.
- Exhibit B:** Declaration of Andy Gbur of May 16, 2008, entered June 27, 2008.
- Exhibit C:** ANSI/ASHRAE Addenda a, b, c, e, f, k, n, o, p, q, r, s, and u to ANSI/ASHRAE Standard 34-2004, 2006 Supplement.
- Exhibit D:** Declaration of Andy Gbur of October 30, 2007, entered December 17, 2007.

## Exhibit A

**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. Hardoe

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