Claims

What is claimed is:

1. A fluoropropene composition comprising Z-1,3,3,3-tetrafluoropropene, E-1,3,3,3,- tetrafluoropropene, 1,1,3,3,3-pentafluoropropene, and 2,3,3,3-tetrafluoropropene, wherein 2,3,3,3-tetrafluoropropene and 1,1,3,3,3-pentafluoropropene both being ~~presentand~~present and wherein the total amount of 1,1,3,3,3-pentafluoropropene and 2,3,3,3-tetrafluoropropene is less than 1.0 mol%,

2. The composition of claim 1, wherein the 2,3,3,3-tetrafluoropropene is present in an amount of 0.1 to 0.9 mol%.

3. The composition of claim 1, wherein the 2,3,3,3-tetrafluoropropene is present in an amount of 0.2 to 0.4 mol%.

4. The composition of claim 1, wherein the 2,3,3,3-tetrafluoropropene is present in an amount of 0.3 to 0.4 mol%.

5. The composition of claim 1, wherein the fluoropropene composition additionally comprises one or more of R-143a, R-152a, TFP, R-1233xf, R-1233zd(E), R-1233zd(Z) 1224yd, 1224zc, 1326mxz, 113, 32, 23, trifluoro propyne, 356mff, 1326mxz, HFC-245fa, HFC-245cb 1234zc, 1234yc, 1234ye, 134a, 1225ye (Z and E), 114, 124, and 236fa.

6. The composition of claim 5, wherein the sum total of the amounts of R-143a, R-152a, TFP, R-1233xf, R-1233zd(E), R-1233zd(Z), 1224yd, 1224zc, 1326mxz, 113, 32, 23, trifluoro propyne, 356mff, 1326mxz, HFC-245fa and HFC-245cb is between 0.001 mole percent and 2 mole percent, based on the total fluoropropene composition.

7. The composition of claim 1, wherein the fluoropropene composition includes R-1233zd(E) in an amount of 0.7 mole percent to 1.15 mole percent, based on the total fluoropropene composition.

8. The composition of claim 1, wherein the fluoropropene composition includes R-1233zd(Z) in an amount of 0.05 mole percent to 0.25 mole percent, based on the total fluoropropene composition.

9. The composition of claim 1, wherein the fluoropropene composition includes R-143a in an amount of 0.05 mole percent to 0.25 mole percent, based on the total fluoropropene composition.

10. The composition of claim 1 wherein the composition is near azeotropic.

11. The composition of claim 10 further comprising at least one member selected from the group consisting of HFC-1234ye, HFC-1243zf, HFC-32, HFC-125, HFC-134, HFC-134a, HFC-143a, HFC-152a, HFC-161, HFC-227ea, HFC-236ea, HFC-236fa, HFC-245fa, HFC-365mfc, R1336mmz(E), propane, n-butane, isobutane, 2-methylbutane, n-pentane, cyclopentane, dimethylether, CF_3SCF_3, CO_2, and CF_3I

~~12. A method of producing a mixture of a fluoropropene of formula $CF_3CH=CHF$ and a fluoropropene of formula $CF_3CF=CH_2$, comprising:~~

~~contacting a mixture of 1,1,1,3,3-pentafluoropropane and Z-1,3,3,3-tetrafluoropropene in the gas phase with a catalyst comprising at least one catalyst selected from the group consisting of fluorinated Cr_2O_3 or Cr/Ni on fluorided alumina, in the presence of an oxygen containing gas, to form a mixture comprising Z-1,3,3,3- tetrafluoropropene, E-1,3,3,3,-tetrafluoropropene, 1,1,3,3,3-pentafluoropropene, 2,3,3,3-tetrafluoropropene, hydrogen fluoride, and optionally unreacted 1,1,1,3,3-pentafluoropropane~~

~~wherein the mixture includes 0.00001% to 1.00mol% 2,3,3,3-tetrafluoropropene and greater than 0 and less than 1.00mol% 1,1,3,3,3-pentafluoropropene,~~

~~13. The method of claim 12, wherein said mixture of 1,1,1,3,3-pentafluoropropane and Z- 1,3,3,3-tetrafluoropropene comprises at least 7% by weight Z-1,3,3,3-tetrafluoropropene.~~

~~14. The method of claim 12, wherein said mixture of 1,1,1,3,3-pentafluoropropane and Z- 1,3,3,3-tetrafluoropropene comprises at least 10% by weight Z-1,3,3,3-tetrafluoropropene.~~

~~15. The method of claim 12, wherein at least 94% of the 1,1,1,3,3-pentafluoropropane is converted to E-isomer of 1,3,3,3-tetrafloropropene.~~

~~16. The method of claim 12, wherein at least 98% of the 1,1,1,3,3-pentafluoropropane is converted to E-isomer of 1,3,3,3-tetrafloropropene.~~

~~17. The method of claim 12, further comprising recovering Z-1,3,3,3-tetrafluoropropene, or a mixture of Z-1,3,3,3-tetrafluoropropene and 1,1,1,3,3-pentafluoropropane, and recycling Z-1,3,3,3-tetrafluoropropene, or a mixture of Z-1,3,3,3-tetrafluoropropene and 1,1,1,3,3- pentafluoropropane back to step (a).~~

~~18. The method of claim 12, wherein said hydrogen fluoride produced in step (a) is separated and recovered.~~

~~19. The method of claim 12, wherein said oxygen containing gas is oxygen, or air.~~

~~20. The method of claim 19, wherein the mixture includes 0.1 to 0.5% 2,3,3,3-tetrafluoropropene.~~

~~21. The method of claim 20, wherein the mixture includes 0.2 to 0.4% 2,3,3,3-tetrafluoropropene.~~

~~22. The method of claim 21, wherein the mixture includes 0.3 to 0.4% 2,3,3,3-tetrafluoropropene.~~

~~23. A fluoropropene composition formed by the method of claim 13.~~

~~24~~12. A refrigerant composition comprising Z-1,3,3,3-tetrafluoropropene, E-1,3,3,3,- tetrafluoropropene, 1,1,3,3,3-pentafluoropropene, and 2,3,3,3-tetrafluoropropene and at least one member selected from the following groups:

(a) comprising one or more of R-143a, R-152a, TFP, R-1233xf, R-1233zd(E), R-1233zd(Z) 1224yd, 1224zc, 1326mxz, 113, 32, 23, trifluoropropyne, 356mff, 1326mxz, HFC-245fa, HFC-245cb 1234zc, 1234yc, 1234ye, 134a, 1225ye (Z and E), 114, 124, and 236fa,

(b) comprising one or more of R-143a, R-152a, TFP, R-1233xf, R-1233zd(E), R-1233zd(Z), 1224yd, 1224zc, 1326mxz, 113, 32, 23, trifluoropropyne, 356mff, 1326mxz, HFC-245fa and HFC-245cb,

(c) comprising one or more of HFC-1234ye, HFC-1243zf, HFC-32, HFC-125, HFC-134, HFC-134a, HFC-143a, HFC-152a, HFC-161, HFC-227ea, HFC-236ea, HFC-236fa, HFC-245fa, HFC-365mfc, R1336mzz(E), propane, n-butane, isobutane, 2-methylbutane, n-pentane, cyclopentane, dimethylether, CF_3SCF_3, CO_2, and CF_3I; and,

(d) combinations thereof.

~~25~~13. A process for transferring heat, comprising:

providing an article;

contacting the article with a heat transfer media;

wherein the heat transfer media comprises the fluoropropene composition of claim 1 or 12.

~~26. A process for treating a surface, comprising:~~

~~providing a surface;~~

~~contacting the surface with a treatment composition;~~

~~wherein the surface includes a treatable material deposited thereon; and~~

~~wherein the treatment composition comprises the fluoropropene composition of claim 1.~~

~~27. The process of claim 25, wherein the treatment composition substantially dissolves the treatable material.~~

~~28. A process for forming a composition comprising:~~

~~providing a solute;~~

~~contacting the solute with a solvent;~~

~~wherein the solvent comprises the fluoropropene composition of claim 1.~~

~~29~~14. A refrigeration system, comprising:

an evaporator; a condenser;

a compressor;

an expansion device; and a heat transfer media;

wherein the heat transfer media comprises the fluoropropene composition of claim 1 or 12.