CLAIMS

What is claimed is:

1. A process of making HFO-1252zc (CF_2=$CHCH_3$), the process comprising:

   (i) converting a precursor compound of formula (I) to an intermediate compound of formula (II) by reaction of the precursor compound with hydrogen in the presence of a catalyst, and

   (ii) converting the intermediate compound of formula (II) to HFO-1252zc by reaction of the intermediate compound with a metal or with hydrogen,

   $CF_3CX=CH_2$ (I)

   CF_3CHXCH_3 (II)

   wherein X is selected from the group consisting of Cl, Br and I.

2. The process of claim 1,

   wherein the formula (I) compound is 2-chloro-3,3,3-trifluoropropene (HCFO-1233xf, $CF_3CCl=CH_2$) and the formula (II) compound is 2-chloro-1,1,1-trifluoropropane (HCFC-253db, $CF_3CHClCH_3$); or

   wherein the formula (I) compound is 2-bromo-3,3,3-trifluoropropene (HBFO-1233xfB, $CF_3CBr=CH_2$) and the formula (II) compound is 2-bromo-1,1,1-trifluoropropane (HBFC-253dbB, $CF_3CHBrCH_3$).

3. The process of claim 1 or claim 2, wherein conversion of the formula (I) compound to the formula (II) compound is conducted in the presence of a catalyst comprising a metal.

4. The process of claim 3, wherein the catalyst comprises a metal selected from the group consisting of Pd, Pt, Ni, Cu, Au and combinations thereof, with or without a support.

5. The process of claim 3 or claim 4, wherein the catalyst is Pd/Al_2O_3 or Pd/C.

6. The process of claim 2,

   wherein conversion of the HCFO-1233xf to the HCFC-253db is conducted in the vapor phase at a temperature between about 20°C to about 80°C; or

wherein conversion of the HCFO-1233xf to the HCFC-253db is conducted in the liquid phase at a temperature between about 20°C to about 120°C.

7. The process of claim 2,

wherein conversion of the HBFO-1233xfB to the HBFC-253dbB is conducted in the vapor phase at a temperature between about 30°C to about 130°C; or

wherein conversion of the HBFO-1233xfB to the HBFC-253dbB is conducted in the liquid phase at a temperature between about 20°C to about 140°C.

8. The process of claim 1, wherein the formula (II) compound is 2-chloro-1,1,1-trifluoropropane (HCFC-253db, $CF_3CHClCH_3$) or 2-bromo-1,1,1-trifluoropropane (HBFC-253dbB, $CF_3CHBrCH_3$).

9. The process of claim 8, wherein the formula (II) compound is contacted with hydrogen in the presence of a catalyst in the vapor phase.

10. The process of claim 9, wherein the catalyst is Au/C or Cu/C.

11. The process of claim 8, wherein the formula (II) compound is contacted with a metal in the absence or presence of a catalyst in the liquid phase.

12. The process of claim 11, wherein the metal is selected from the group consisting of zinc, magnesium and a combination thereof.

13. The process of claim 11, wherein the reaction is conducted in the presence of a catalyst.

14. The process of claim 11, wherein the reaction is conducted in the presence of a solvent.

15. A process of making HFO-1252zc, the process comprising:

    (i) converting HCFO-1233xf to HCFC-253db by reaction of the HCFO-1233xf with hydrogen in the presence of a catalyst, and

    (ii) converting the HCFC-253db to HFO-1252zc by reaction of the HCFC-253db with a metal in the absence or presence of a catalyst and/or a solvent, wherein the metal is selected from the group consisting of zinc, magnesium and a combination thereof, or with hydrogen in the presence of a catalyst; or

(ia) converting HBFO-1233xfB to HBFC-253dbB by reaction of the HBFO-1233xfB with hydrogen in the presence of a catalyst, and

(iia) converting the HBFC-253dbB to HFO-1252zc by reaction of the HBFC-253dbB with a metal in the absence or presence of a catalyst and/or a solvent, wherein the metal is selected from the group consisting of zinc, magnesium and a combination thereof, or with hydrogen in the presence of a catalyst.