(54) Title: CATALYTIC ISOMERIZATION BETWEEN F AND Z ISOMERS OF 1,2,3,3,3-PENTAFLUOROPROPENE

(57) Abstract: A process is disclosed to increase the Z/E ratio of 1,2,3,3,3-pentafluoropropene. The process involves contacting a starting material comprising 1,2,3,3,3-pentafluoropropene with a catalyst on AlF3 or carbon, wherein the catalyst is selected from the group consisting of SnCl4F3x, TiCl4F4x, SnCl4F4x, and TaCl4F3y, wherein w is from 0 to 4, x is from 0 to 3, y is from 0 to 3, and z is from 0 to 4, to obtain a product wherein the Z/E ratio of 1,2,3,3,3-pentafluoropropene is increased relative to the Z/E ratio of 1,2,3,3,3-pentafluoropropene in the starting material. The process is also disclosed to decrease the Z/E ratio of 1,2,3,3,3-pentafluoropropene. The process involves contacting a starting material comprising 1,2,3,3,3-pentafluoropropene with a catalyst on AlF3 or carbon, wherein the catalyst is selected from the group consisting of SnCl4F3x, TiCl4F4x, SnCl4F4x, and TaCl4F3y, wherein w is from 0 to 4, x is from 0 to 3, y is from 0 to 3, and z is from 0 to 4, to obtain a product wherein the Z/E ratio of 1,2,3,3,3-pentafluoropropene is decreased relative to the Z/E ratio of 1,2,3,3,3-pentafluoropropene in the starting material.
A. CLASSIFICATION OF SUBJECT MATTER

INV. C07C17/358 C07C21/18

According to international Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
  *A* document defining the general state of the art which is not considered to be of particular relevance
  *E* earlier document but published on or after the international filing date
  *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  *O* document referring to an oral disclosure, use, exhibition or other means
  *P* document published prior to the international filing date but later than the priority date claimed
  *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  *E* document member of the same patent family

Date of the actual completion of the international search: 9 January 2008

Date of mailing of the international search report: 23/01/2008

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epos.nl,
Fax. (+31-70) 340-3016

Authorized officer
Sen, Alina
<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
</table>