hydrogenation, imination and reductive hydrolysis processes.

## 5558766

## HYDROCRACKING OF FEEDSTOCKS AND CATALYST THEREFOR

Prada Ricardo; Galiasso Robert T; Romero Yilda; Reyes Edito; Rodriguez Edilberto Caracas, VENEZUELA assigned to Intevep S A

A tri-elemental catalyst on a support that includes a pentasil crystalline zeolite and is suitable for hydrocracking and hydrogenation of aromatics-containing petroleum hydrocarbon feedstocks such as hydrotreated cracked feedstock, virgin feedstock, vacuum distillate, middle distillate, mixtures thereof, and the like, is disclosed. The catalyst is suitable for hydrodesulfurization as well as hydrodenitrogenation, thus the feedstock can contain sulfur and nitrogen in addition to the aromatic components. Hydrocracking and aromatics hydrogenation of the petroleum hydrocarbon feedstocks is accomplished under a relatively wide range of process conditions in plural process zones using the tri-elemental catalyst thatcontains a catalytically active metal phase constituted by a Group VI-B element, a Group VIII first transition series element and a Group VIII second transition series element. In an upstream zone the catalytically active metal phase is supported on a titania-alumina support containing about 5% to about 30% by weight titania in the support. In a downstream zone the catalytically active metal phase is supported on a titania-alumina-pentasil crystalline zeolite support. The preferred pentasil crystalline zeolite is ZSM-5.

## 5559066

## PREPARATION OF IRON-, POTASSIUM- AND CERIUM-CONTAINING CATALYSTS

Poepel Wolfgang J; Tremmel Grego; Buechele Wolfgang; Deimling Axel; Petersen Hermann Darmstadt, GERMANY assigned to BASF Aktiengesellschaft

PCT No. PCT/EP93/03083 Sec. 371 Date Feb. 13, 1995 Sec. 102(e) Date Feb. 13, 1995 PCT Filed Nov. 5, 1993 PCT Pub. No. WO94/11104 PCT Pub. Date May 26, 1994. A process for the preparation of iron-, potassium- and cerium-containing catalysts for the dehydrogenation of hydrocarbons from the same spent catalysts (regeneration) by grinding and, if necessary, purifying the spent material, restoring the original activity by adjusting the composition and restoring the external shape comprises adding to the ground material an effective amount of potassium and such an amount of cerium that the total amount of cerium is greater than the amount originally present.

## 5559067

## MODIFIED MICROSPHERE FCC CATALYSTS AND MANUFACTURE THEREOF

Lerner Bruce A; Stockwell David M; Madon Rostam J Plainsboro, NJ, UNITED STATES assigned to Engelhard Corporation

An in situ process for making improved zeolitic fluid cracking catalyst by spray drying a mixture of hydrous kaolin, gibbsite and spinel, essentially free from metakaolin, calcining the resulting microspheres to convert the hydrous kaolin to metakaolin whereby the gibbsite is hydrothermally converted to a transitional alumina, and reacting the

microspheres composed of a mixture of spinel, transitional alumina and metakaolin with a seeded alkaline sodium silicate solution.

## 5559068

## REFORMING/DEHYDROCYCLIZATIO N CATALYSTS

Chen Qianjun; Coughlin Peter K; Pellet Regis Des Plaines, IL, UNITED STATES assigned to UOP

Reforming is effected with a combination of a primary supported noble-metal catalyst and a catalyst containing one or more medium-pore non-zeolitic molecular sieves (MP-NZMS). The latter reforming and dehydrocyclization catalysts comprise a Group VIII metal and at least one bound MP-NZMS characterized in the calcined form by an adsorption of isobutane of at least 2% by weight at a partial pressure of 500 torr and a temperature of 20°C and characterized by an adsorption of triethylamine less than about 5% by weight at a partial pressure of 2.6 torr and a temperature of 22°C. The MP-NZMS catalyst binder preferably is alumina and/or silica, and the Group VIII metal preferably is platinum.

## 5559069

## CATALYSTS FOR HALOGENATED HYDROCARBON PROCESSING, THEIR PRECURSORS AND THEIR PREPARATION AND USE

Rao V N Mallikarjuna; Subramanian Munirpallam A Wilmington, DE, UNITED STATES assigned to E I du Pont de Nemours and Company

A process is disclosed for changing the fluorine content of halogenated hydrocarbons containing from 1 to 6 carbon atoms, in the presence of a multiphase catalyst, which is characterized by preparing certain single phase solid catalyst precursors containing two metal components (e.g., a divalent component of Mn, Co, Zn, Mg and/or Cd and a trivalent component of Al, Ga, Cr and/or V) which have structures that collapse at about 600°C or less; and producing said catalyst by heating the precursor to produce a multiphase composition wherein a phase containing one of the metal components is homogeneously dispersed with a phase containing the other metal component, and at least when the precursor contains no fluoride, contacting said multiphase composition with a vaporizable fluorine-containing fluorination compound at a temperature of from about 200°C to 450°C. Also disclosed are single phase fluoride compositions having the formula MM'F5(H2O)2 wherein M is a divalent component selected from Mn, Co, Zn, Mg and/or Cd and M' is a trivalent component selected from Al, Ga, Cr and/or V (provided that Cr is not more than about 10 atom percent of M'); preparation of certain homogeneously dispersed multiphase catalyst compositions containing fluorides of those divalent and trivalent metal components; and certain homogeneously dispersed multiphase catalyst compositions containing fluorides of those divalent and trivalent metal components (provided that when Co is used another of said divalent elements is also used).

# *CATALYTIC PROCESSES*

## 5541147

## IMMOBILIZED FREE MOLECULE AEROSOL CATALYTIC REACTOR

Friedlander Sheldon; Fischel Lawrence B Pacific Palisades, CA, UNITED STATES assigned to The Regents of the University of California

A catalytic reactor bed in which support particles in the free molecule size range of 50 to 500 #521 ngstroms are attached to an anchor surface to form a dendritic network which extends from 10 microns