

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

**5559068**

## **REFORMING/DEHYDROCYCLIZATION 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  $MM'F_5(H_2O)_2$  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

to 300 microns outward from the anchor surface. Catalyst particles which are also in the free molecule in the size range of 10 to 80 +521 ngstroms are attached to and dispersed throughout the support particle network. A process for making the reactor bed using binary gas phase nucleation of support particle and catalyst particle precursors is also disclosed.+RE

### 5543472

#### CONCURRENT EPOXIDATION AND CATALYST RESIDUE EXTRACTION

Stevens Craig; Rao Bhaskar P; Veith Cary A; Erickson James R Houston, TX, UNITED STATES assigned to Shell Oil Company

A process for the concurrent epoxidation of, and catalyst residue extraction from, anionically polymerized diene-containing polymers which have been hydrogenated using a Group VIII metal catalyst, said process comprising: (a) introducing a catalyst residue-containing diene-containing polymer cement into a reactor, (b) heating the polymer cement to a temperature of 25° to 65°C, (c) contacting the polymer cement with a caustic solution, (d) contacting the polymer cement with a peracid solution, (e) mixing the polymer, caustic, and acid at 25° to 65°C for 1/2 to 3 hours, (f) optionally adding sufficient caustic solution to neutralize excess acid while continuing the mixing, (g) adding sufficient water such that the aqueous/organic phase weight ratio is from 0.2:1 to 1:1 while continuing the mixing, (h) allowing the phases to settle for 5 to 90 minutes, (i) removing the aqueous phase from the reactor, (j) optionally repeating steps (g), (h), and (i) until the catalyst residue contents are less than 10 ppm, and (k) removing the polymer cement from the reactor and removing the solvent to recover the epoxidized polymer.

### 5552362

#### CATALYSTS FOR THE REMOVAL OF SULFUR COMPOUNDS FROM INDUSTRIAL GASES, A PROCESS FOR THEIR PRODUCTION AND THEIR USE

Immel Otto; Muml ullaer Harald Krefeld, GERMANY assigned to Bayer Aktiengesellschaft

PCT No. PCT/EP93/00917 Sec. 371 Date Oct. 20, 1994 Sec. 102(e) Date Oct. 20, 1994 PCT Filed Apr. 16, 1993 PCT Pub. No. WO93/22052 PCT Pub. Date Nov. 11, 1993. Catalysts useful for the removal of volatile sulfur compounds from industrial gases composed of an inorganic, abrasion-resistant, incombustible support which is uniformly impregnated with either (a) an oxide or hydroxide of niobium or tantalum or (b) an oxide or hydroxide of manganese and an oxide or hydroxide of hafnium, lanthanum or an element in the Lanthanide Series of Elements.

### 5554793

#### CATALYTIC REFORMING OF ALKYLENEAMINES

Hartwell George; Bowman Robert G; Molzahn David C Midland, MI, UNITED STATES assigned to The Dow Chemical Company

A process of reforming an alkyleneamine feedstock or a mixture of such feedstocks to an alkyleneamine or a mixture of alkyleneamines which is different from the feedstock or feedstock mixture. The process is catalyzed by one of the following: Group VB metal oxides, Group VB metal phosphates, Group IIA metal silicates, and tungsten oxides. For example, ethylenediamine is contacted with a catalyst of niobic acid or magnesium silicate to yield predominantly diethylenetriamine and non-cyclic triethylenetetramines; whereas high