

Patent report

particles, followed by treatment with a group VIII metal (e.g., Pt), gives a catalyst showing high selectivity to *p*-xylene in the isomerization of aromatic C₈ hydrocarbons.

Process for the production of ethers

M.R. Apelian; S.L.A. Fung; D.N. Mazzone et al.
Mobil Oil Corp.

PCT Int. Appl. 94/26,685, Nov. 24, 1994; U.S. Appl. May 6, 1993

A process for synthesizing ethers, particularly diisopropyl ether (DIPE), by olefin hydration or alcohol dehydration, uses a catalyst-containing zeolite β having a reduced surface acidity. The surface acidity is reduced by treatment of organic-containing zeolite β with a dicarboxylic acid, such as oxalic acid. The method is especially useful for converting olefins from gas plant off-gases, FCC light gasoline containing pentene, hexenes, and heptenes, and refinery FCC propane/propene streams to DIPE for use as a gasoline oxygenate.

SEPARATION PROCESSES

Honeycomb-shaped adsorbents

K. Mori; T. Ikehata; A. Hashimoto et al.
Matsushita Electric Industries Co. Ltd.

Jpn. Kokai Tokkyo Koho 94,327,967, Nov. 29, 1994; Appl. May 21, 1993

The adsorbents comprise zeolites, Zn aluminosilicates, and TiO₂; inorganic binders capable of binding at $\leq 600^\circ\text{C}$; and optionally metal or metal oxide catalysts. The adsorbents are used for adsorbing and removing malodorous substances and harmful substances (such as H₂S) and are capable of being recycled by heating for oxidative decomposition of the substance.

Adsorbents for hydrocarbons

S. Nojima; K. Iida
Mitsubishi Heavy Industries Ltd.

Jpn. Kokai Tokkyo Koho 94,312,132, Nov. 8, 1994; Appl. Apr. 28, 1993

The title adsorbents are crystalline silicates having molecular sieve structure with Ag supported on them; the dehydrated crystalline silicates have oxide compositions of $(1 \pm 0.6)\text{R}_2\text{O} \cdot [a\text{M}_2\text{O}_3 \cdot b\text{Al}_2\text{O}_3 \cdot c\text{MeO}] \cdot \gamma\text{SiO}_2$, where R = alkali metal and/or H, M = group VIII metals, rare earth metals, Ti, V, Cr, Nb, Sb, and/or Ga, Me = alkaline earth metals, $a \geq 0$, $b \geq 0$, $c \geq 0$, $a + b = 1$, $\gamma/c > 12$, and $\gamma > 12$. Hydrocarbons in exhaust gases are adsorbed on the adsorbents and removed by combustion.

Nitrogen adsorbents for separation of oxygen and nitrogen

S. Kobayashi; J. Izumi; A. Yatsutake
Tokyo Electric Power Co.; Mitsubishi Heavy Industries Ltd.

Jpn. Kokai Tokkyo Koho 94,178,932, June 28, 1994; Appl. Dec. 14, 1992

Sodium faujasite is ion exchanged with 30–100% K⁺ and heat treated at $\geq 450^\circ\text{C}$ to give adsorbents for low temperature adsorption of N₂ in the separation of O₂ and N₂. Power consumption is minimized.

Removal of odorous components from fuel gases

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Shinnippon Seitetsu K.K.; Shinnittetsu Kagaku

Jpn. Kokai Tokkyo Koho 94,306,377, Nov. 1, 1994; Appl. Apr. 23, 1993

The method involves contacting fuel gases containing mercaptans as odorous substances with H and/or polyvalent metal ion-exchanged zeolites (except alkaline earth metals) under O-free atmospheres. The zeolites may comprise Mn, Fe, Co, Ni, Cu, Sn, and/or Zn. The method, especially suitable for town gases and LP gases, removes odorous substances with high selectivity and efficiency.

Pressure swing adsorption process for chlorine plant off-gas

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UOP Inc.

U.S. 5,376,164, Dec. 27, 1994; Appl. Aug. 9, 1993

A pressure swing adsorption (PSA) process is used to remove Cl from Cl plant off-gas, where the PSA zone comprises ≥ 2 layered adsorption beds. The first adsorption layer contains a weak (e.g., zeolite) adsorbent selective for the adsorption of Cl and has a large pore structure with ≥ 12 -membered rings. The second adsorption layer contains a strong (e.g., zeolite) adsorbent selective for the adsorption of Cl and has a small pore structure with ≤ 10 -membered rings. The vent gas withdrawn from the process is essentially free of Cl.

Removal of stabilizing agents from trichloroethylene

H. Oono; T. Ooi
Showa Denko K.K.

Jpn. Kokai Tokkyo Koho 94,321,819, Nov. 22, 1994; Appl. May 10, 1993

Amine-containing aliphatic hydrocarbon stabilizing agents contained in CHCl₃:CCl₂(l) were removed by zeolites (e.g., zeolite 3A). l is useful as a material for the preparation of C-134a.

Liquid phase adsorptive process for the separation of mixtures of meta- and para-dichlorobenzenes

U. Pentling; H.-J. Buysch; L. Puppe et al.
Bayer A.-G.

Ger. Offen. 4,325,484, Feb. 2, 1995; Appl. July 29, 1993

The title process comprises separating a mixture of *m*-dichlorobenzene (I) and *p*-dichlorobenzene (II) using a solvent mixture of ≥ 2 solvents selected from C_{6–10} aromatic hydrocarbons having a halogen atom and one or two substituents (e.g., 4-chlorotoluene, *o*-dichlorobenzene) or one halogen atom and one halogen-free substituent at 20–250°C in the presence of pentasil-type zeolites exchanged with either an alkali metal, an alkaline earth metal, a proton, or a rare earth metal (e.g., MgZSM-5). From the zeolites, an I-enriched raffinate is obtained along with an II-enriched extract.

DETERGENTS

Polycarboxylate/zeolite builder in laundry detergents

M. Ragnetti; W. Leonhardt; D. Arnoldi et al.
Degussa A.-G.

Eur. Pat. Appl. 609,777, Aug. 10, 1994; Ger. Appl. Feb. 5, 1993

A copolymer containing units CA(CO₂M)CHB and CA(CODECO)*r*CHB [A = H, OH, C_{1–6} alkyl, CH₂CO(DECO)*r–1*OM; B = H, OH, C_{1–6}alkyl, CO₂M; D = O, NH; E = C_{1–6} alkylene; M = H, alkali or alkaline earth metal, ammonium, etc; *r* = 1–5], for example, prepared from acrylic acid and acrolein, is used, especially with zeolite A, in laundry detergents containing little or no phosphate. The copolymer improves soil removal and inhibits incrustations during repeated laundering of fabrics.

Carbohydrates and derivatives for inhibiting incrustations on textiles during laundering

F. Burzio; R. Beck
Ausimont S.p.A.; Cerestar Holding B.V.

Eur. Pat. Appl. 618,286, Oct. 5, 1994; Appl. Mar. 30, 1993

A nonreducing carbohydrate or derivative, for example, sorbitol, mannitol, sucrose, or glycerol, is used in detergent compositions to inhibit incrustations on textiles. A cotton fabric laundered 25 times at 60°C with a detergent composition containing zeolite 4A and sorbitol as builders showed incrustation content 1.1% versus 1.9% without sorbitol.