ELSEVIER Journal of Molecular Catalysis A: Chemical 160 (2000) 465–480

JOURNAL OF MOLECULAR CATALYSIS A: CHEMICAL

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PII: S1381-1169(00)00193-X

CATALYSIS PREPARATION AND REGENERATION

5971788

Electrical connector with reinforced engagement means

Niitsu Toshihiro; Fukushima Minoru; Yokohama, JAPAN assigned to Molex Inc

An electrical connector has improved locking characteristics for mating with an opposing complementary connector component. The connector has an insulative housing with a series of walls defining a mating space, which receives the complementary connector component. Terminals are arranged in the mating space to interconnect with the complementary connector component. Sidewalls have two distinct inner and outer sections wherein the inner sidewall section are flexible and include an engagement surface for engagement with the complementary connector component.

5972820

Methods of making stabilized crystalline alumina compositions, and alumina compositions and catalyst supports made therefrom

Kharas Karl C.C.; Mitsche Roy T.; Robota Heinz J.; Gatter Michael G.; Tulsa, Peoria, Elk Grove Village, UNITED STATES assigned to ASEC Manufacturing, a General Partnership

Methods of making substantially phase-pure and thermally stable crystalline alumina compositions stabilized with an oxide of silicon, germanium, phosphorus, arsenic or a mixture thereof. Also provided are crystalline alumina compositions and catalyst supports made using these methods.

5972823

Supported ionic catalyst composition

Walzer Jr.; John Flexer; Seabrook, TX, UNITED STATES assigned to Exxon Chemical Patents

The invention is directed to a catalyst composition suitable for addition reactions of ethylenically and acetylenically unsaturated monomers comprising a metal oxide support having covalently bound to the surface thereof directly through the oxygen atom of the metal oxide an activator anion that is also ionically bound to a catalytically active transition metal cation compound. The invention includes a preparation process for the invention catalyst composition exemplified by reacting a Lewis acid, such as trisperfluorophenyl boron with residual silanol groups of a silica support, preferably then reacting with a Lewis base such as diethylaniline, so as to prepare a silica bound anionic activator that, when combined with a suitable transition metal compound, will protonate it so as to form the ionic catalyst system. Use of the invention catalyst to polymerize alpha-olefins is exemplified.

5977009

Catalyst compositions derived from titanium-containing molecule sieves

Faraj Mahmoud K.; Newtown Square, PA, UNITED STATES assigned to Arco Chemical Technology

Useful catalyst compositions are produced by treating substituted molecular sieves with reactive titanium compounds such as titanium tetrahalides, preferably in the vapor phase at elevated temperatures. The molecular sieve starting materials contain tellurium, boron or germanium oxides in addition to silicon and titanium oxides. Olefins are efficiently transformed to epoxides using these catalyst compositions and an oxidizing agent such as hydrogen peroxide or an organic hydroperoxide.

5977010

Shaped hydrogenation catalyst and processes for their preparation and use

Roberts Brian D.; Carrick William J.; Thakur Deepak S.; South Euclid, Munson, Solon, OH, UNITED STATES assigned to Engelhard Corporation

Shaped catalyst compositions are disclosed comprising of (i) at least one metal selected from the group consisting of copper, manganese, zinc, nickel, cobalt, and iron; (ii) calcium silicate; and (iii) at least one clay material. Also disclosed are a process for preparing the foregoing shaped compositions, and a process for hydrogenating aldehydes, ketone, carboxylic acids, carboxylic acid esters, and nitro aroniate compounds using these shaped catalysts.

5981417

Method of making an improved catalyst containing an acid-treated zeolite, a boron component, and a zinc component, a product from such method, and the use thereof in the conversion of hydrocarbons

Drake Charles A.; Nowata, OK, UNITED STATES assigned to Phillips Petroleum

An improved zeolite catalyst containing an acid-treated zeolite, a boron component, and a zinc component manufactured by a novel method having certain process steps necessary for providing the improved zeolite catalyst. The process steps include a first steam treatment of an acid-treated zeolite, followed by incorporation of such zeolite with a boron component and a zinc component, followed by a second steam treatment. Processes are also disclosed for using the improved zeolite catalyst in the conversion of hydrocarbons, preferably non-aromatic hydrocarbons, to lower olefins (such as ethylene and propylene) and aromatic hydrocarbons (such as benzene, toluene, and xylene).

5981427

Catalyst composition

Sung Shiang; Smaling Rudolf M.; Steger John J.; New York, Plainfield, Pittstown, UNITED STATES assigned to Engelhard Corporation

A catalyst composition comprising at least one first support, at least one first precious metal component, at least one second support, and at least one second precious metal component. The total amount of the first precious metal component comprises from 1 to 99 wt.%, based on the total of the first and second precious metal components. The average particle size of the second support is greater than the average particle size of the first support. The present invention includes a method to prepare the catalyst composition and a method to use the catalyst composition as a three-way catalyst. The composition results in a coated layer from a slurry where the more supported first precious metal component is in the bottom half and the more supported second precious metal component is in the top half.

5985235

Method of treating a catalyst

Nystrom Mats; Siverstrom Mikael; Ytterby, Partille, Sweden assigned to EKA Chemicals

The invention relates to a method of activating a catalyst for the hydrogenation of anthraquinones or derivatives thereof used in the production of hydrogen peroxide comprising the step of treating the catalyst with an acid. The invention also relates to a method of producing hydrogen peroxide.

5985787

Catalyst presulphuration process using two different presulphuration agents

Dufresne Pierre; Brahma Nilanjan; Murff Stephen R.; Valence, La Voulte sur Rhone, Houston, FRANCE/UNITED STATES assigned to Europenne De Retraitement De Catalyseurs Eurecat

The invention concerns a novel presulphuration process for a hydrocarbon conversion catalyst. Presulphuration is preferably carried out offsite (ex-situ). The catalyst presulphuration process is characterized in that a presulphuration agent is used, which contains (a) at least one first sulphur compound with a decomposition point T1 of less than 220°C, and (b) at least one second sulphur compound with a decomposition point greater than about 220°C

5985789

Ru, Sn/oxide catalyst and process for hydrogenation in acidic aqueous solution

Tooley Patricia Ann; Black Jesse Raymond; Wilmington, Baton Rouge, UNITED STATES assigned to E.I. du Pont de Nemours

Improved hydrogenation catalysts consisting essentially of reduced or at least partially reduced ruthenium and tin on a refractory oxide support, which is insoluble in aqueous acid. Such catalysts are very durable and exhibit high conversion rates in aqueous acidic solution hydrogenation of hydrogenatable precursors (e.g., maleic acid, succinic acid, gamma-butyrolactone, etc.) and high selectivity for their conversion to 1,4-butanediol and gamma-butyrolactone and their mixtures.

5989653

Process for metallization of a substrate by irradiative curing of a catalyst applied thereto

Chen Ken S.; Morgan William P.; Zich John L.; Albuquerque, NM, UNITED STATES assigned to Sandia Corporation

An improved additive process for the metallization of substrates is described whereby a catalyst solution is applied to a surface of a substrate. Metallic catalytic clusters can be formed in the catalyst solution on the substrate surface by irradiating the substrate. Electroless plating can then deposit metal onto the portion of the substrate surface having metallic clusters. Additional metallization thickness can be obtained by electrolytically plating the substrate surface after the electroless plating step.

5990037

Method of treating spontaneously combustible catalyst

Seamans James Dallas; Partin John Alexander; Samonte Edward Roy; The Woodlands, Spring, TX, UNITED STATES assigned to CRI International

Self-heating characteristics of a spontaneously combustible catalyst are reduced by treating spontaneously combustible catalysts with oxygen-containing hydrocarbons having at least 12 carbon atoms. The treatment is particularly suitable for reducing the self-heating characteristics of sulfidable metal oxide(s)-containing catalysts, presulfurized catalysts, presulfided catalysts or reduced catalysts. When applied to sulfur-containing catalysts, the treatment gives a catalyst that has suppressed self-heating properties without substantially compromising sulfur retention or activity. Further, a method of safely unloading a catalyst from a reactor is provided where the catalyst in the reactor is treated with a liquid mixture containing oxygen-containing hydrocarbon having at least 12 carbon atoms to wet the catalyst.

5990040

Promoted and stabilized copper oxide and zinc oxide catalyst and preparation

Hu X.D.; Wagner Jon P.; Louisville, KY, UNITED STATES assigned to United Catalysts

A catalyst for the conversion of carbon oxide comprising 30–70% CuO, 20–90% ZnO, 0.1–20% of an element of Group IV-B in the form of an oxide, preferably titanium and/or zirconium, most preferably titanium, about 5% to about 40% Al_2O_3 and preferably 50–1000 ppm of a Group 1-A element in the form of an oxide.

5972830

High heat-resistant catalyst with a porous ceria support

Yoshida Takeru; Murachi Mikio; Tsuji Shinji; Taguchi Norio; Susono, Toyota, Chiryu, JAPAN assigned to Toyota Jidosha Kabushiki Kaisha

This catalyst support aims to improve the heat resistance and durability by highly dispersing an NO_x storage component. This catalyst support is produced by mixing a solution of a chemical compound including at least one element of alkali metals, alkaline-earth metals, and rare-earth elements with a solution of oxide sol of at least one metal of Groups IIIb, IVa, and IVb in the periodic table to prepare a mixed sol solution, forming the mixed sol solution into gel, and drying and calcining the gel. The obtained catalyst support is amorphous and attains a high specific surface area even when calcined at elevated temperatures, so that the catalyst support is superior in heat resistance.

5976475

Reducing NO_X emissions from an engine by temperature-controlled urea injection for selective catalytic reduction

Peter-Hoblyn Jeremy D.; Balles Eric N.; Hofmann John E.; Tarabulski Theodore J.; Cornwall, Carlisle, Naperville, Brewster, GREAT BRITAIN/UNITED STATES assigned to Clean Diesel Technologies

A safe, reliable SCR system for reducing NO_x emissions from a lean-burn internal combustion engine utilizes urea in aqueous solution. Overheating and hydrolysis of the solution are prevented by maintaining the temperature of the urea solution sufficiently low that it is not permitted sufficient time at elevated temperatures to hydrolyze the urea to such an extent that solids precipitate. In a preferred embodiment, an injector system similar to those used for fuel injection provides a constant feed to injectors and a return line. The feed and injection can be controlled to provide sufficient urea for NO_x reduction and sufficient cooling capacity for the feed and injection system to avoid hydrolysis and deposits of hydrolysis products.

5977012

Alloyed metal catalyst for the reduction of NO_X in the exhaust gases from internal combustion engines containing excess oxygen

Kharas Karl C.C.; Robota Heinz J.; Nunan John G.; Henk Michael G.; Tulsa, OK, UNITED STATES assigned to ASEC Manufacturing General Partnership

Removal of carbon monoxide, hydrocarbons, and nitrogen oxides from the exhaust gas from lean-burn, diesel, and other engines that produce exhaust gases containing oxygen in substantial excess of stoichiometric is provided by catalysts containing platinum alloyed with cobalt, nickel, copper, rhodium, palladium, silver, or gold. Alloying is accomplished by thermal treatment or by colloidal methods. The catalysts are capable of reducing nitrogen oxides (NO_x) within a predetermined range of engine operating temperatures.

5980844

SO_2-tolerant silver oxide catalysts

Kharas Karl C.C.; Tulsa, OK, UNITED STATES assigned to ASEC Manufacturing

An SO_2-tolerant catalyst for reducing NO_x, in exhaust gas from internal combustion, wherein the exhaust gas contains unburnt hydrocarbons and oxygen comprising silver oxide dispersed on alumina characterized in that such catalyst is white in color.

5985225

Nitrogen oxides reduction catalyst and process for reducing nitrogen oxides in exhaust gas

Ohtsuka Hirofumi; Tabata Takeshi; Okada Osamu; Bellussi Giuseppe; Sabatino Luigina Maria Flora; Hyogo, Osaka, Piacenza, San Donato Milanese, JAPAN/ITALY assigned to Osaka Gas, Eniricerche(18)

The present invention relates to a catalyst for the reduction of nitrogen oxides in exhaust gas containing oxygen by hydrocarbons, which comprises cobalt-loaded zeolite not showing a Raman spectral band assignable to cobalt oxide ($\mathrm{Company}_3\ O_4$).

5990038

Catalyst for purifying oxygen-rich exhaust gas

Suga Katsuo; Sekiba Toru; Yokohama, JAPAN assigned to Nissan Motor

The invention relates to a first catalyst for purifying an exhaust gas. The first catalyst has a substrate and a catalytic coating formed thereon. This catalytic coating has first and second grains. The first grain includes a porous carrier supporting thereon at least one of palladium and rhodium. The second grain includes a double oxide supporting thereon at least one of platinum and palladium. This double oxide is represented by a formula of $(La_{1-x}A_x)_{1-\alpha}BO_\delta$ where A is at least one element selected from barium, potassium, and cesium, B is at least one of iron, cobalt, nickel, and manganese, $0 < x < 1$, $0 < \alpha < 0.2$, and δ is a number such that a net electric charge of the first double oxide becomes zero. The invention further relates to a second catalyst similar to the first catalyst. The first grain of the second catalyst includes a porous carrier supporting thereon at least one of platinum, palladium, rhodium, and iridium. The second grain of the second catalyst includes a double oxide represented by a formula of $(La_{1-x}A_x)_{1-\alpha}BZr_\beta O_\delta$. where A, B, x, α, and δ are defined as above and $0 < \beta < 1$. The first and second catalysts are each improved in NO_x absorption capability and are capable of purifying NO_x contained in an oxygen-rich exhaust gas, even after the passage of an exhaust gas of high temperature for a long time through these catalysts.

5990039

Metal complex derived catalyst and method of forming

Paul Partha P; Schwab Stuart T.; San Antonio, TX, UNITED STATES assigned to Southwest Research Institute

A hydrocarbon-independent lean-burn NO_x catalyst for treatment of products of combustion includes a porous support impregnated with two transition metals. The first transition metal has a stable upper oxidation state that is reducible to a lower oxidation state in the presence of carbon monoxide, which is oxidized in the presence of the first transition metal to form carbon dioxide. The second transition metal has a stable lower oxidation state and is capable of being raised to a higher oxidation state in the presence of NO_x, which is reduced to nitrogen and oxygen in the presence of the second metal. The first and second metals cooperate to form a redox reaction system that regenerates the active form of the catalyst by raising the first metal to its stable oxidation state and reducing the second metal to its stable lower oxidation state by electron transfer between the first and second metals. The catalyst is based on transition metals, which are less expensive than the noble metal-containing catalysts in current use.

5973210

Intermetallic ruthenium–tin — catalyst for use in aldehyde synthesis

Jacquot Roland; LeClercq Jean-Marc; Mercier Claude; Popa Jean-Michel; Sainte-Foy-les-Lyon, Domont, Lyon, Drancy, FRANCE assigned to Rhone-Poulenc Chimie

The present invention relates to a composition that can be used as reduction catalyst. This composition is characterized in that it comprises a support whose constituent material comprises at least one oxide chosen from oxides, which are inert or capable of being made inert relative to the reaction mixture and a phase at least partially covering the said support, of which at least part comprises an intermetallic ruthenium–tin compound of composition Ru_3Sn_7. The invention also describes the use of the reduction catalyst and its application to organic synthesis.

5977011

Catalyst, process for its preparation, and use for synthesis of methyl mercaptan

Sauer Joerg; von Hippel Lukas; Arntz Dietrich; Boeck Wolfgang; Rodenbach, Alzenau, Oberursel, Langenselbold, GERMANY assigned to Degussa Huls

A catalyst for the synthesis of methyl mercaptan from hydrogen sulfide and methanol as well as a process for preparation of the catalyst. The catalyst is an active aluminum oxide onto which 5–25% by weight potassium tungstate is deposited as an activator. A two-stage impregnation with intermediate drying produces a catalyst that exhibits distinctly better selectivity for the formation of methyl mercaptan than catalysts obtained by single-stage impregnation.

5977393

Schiff base derivatives of ruthenium and osmium olefin metathesis catalysts

Grubbs Robert H.; Chang Sukbok; Jones II LeRoy; Wang Chunming; S. Pasadena, Seoul, Bolingbrook, Highland Park, UNITED STATES/SOUTH KOREA assigned to California Institute of Technology

The present invention generally relates to ruthenium and osmium carbene catalysts for use in olefin metathesis reactions. More particularly, the present invention relates to Schiff base derivatives of ruthenium and osmium carbene catalysts and methods for making the same. The inventive catalysts are generally prepared by the treatment of unmodified catalysts with the salts of the desired Schiff base ligands, in which an anionic and a neutral electron donating ligands of the unmodified catalysts are simultaneously replaced. The Schiff base derivatives of the ruthenium and osmium carbene catalysts show unexpectedly improved thermal stability while maintaining high metathesis activity, even in polar protic solvents. Although the inventive catalysts may be used in all metathesis reactions, use of these catalysts for ring-closing metathesis (“RCM”) reactions is particularly preferred.

5977411

Catalytic hydrogeneration of nitrobenzene to 4-aminodiphenylamine in the presence of a hydroxyl compound and a solvent

DeVera Antonio L.; Ballwin, MT, UNITED STATES assigned to Flexsys America L.P.

This invention provides a method for preparing 4-ADPA by charging nitrobenzene into a reaction zone under hydrogen pressure in the presence of a strong organic base and a catalyst for hydrogenation. The method provides the convenience and economy of a one-step process, while producing improved yields and selectivities. The invention further provides for various embodiments of the foregoing, which are suitable for the production of 4-ADPA, and the hydrogenation or reductive alkylation to produce PPD. Important to the invention are the molar ratios of aniline to nitrobenzene and nitrobenzene to the strong organic base and the choice and use of hydrogenation catalyst.

5977415

Preparation of 3, 3-dimethylbutyraldehyde from a *tert*-butyl cation precursor, vinyl chloride and an acidic catalyst

Prakash Indra; Guo Zhi; Hoffman Estates, Chicago, IL, UNITED STATES assigned to The NutraSweet Company

This invention provides a method for preparing 3,3-dimethylbutyraldehyde from a *tert*-butyl cation precursor and vinyl chloride. The *tert*-butyl cation precursor is contacted with vinyl chloride in the presence of an inorganic acid, and the product is allowed to react with water to form 3,3-dimethylbutyraldehyde.

5977416

Dehydration catalyst and process for producing a monoalkylether of a dihydric phenolic compound using same

Matsuzaki Tokuo; Sugimoto Tsunemi; Nakamura Yasuo; Manabe Takumi; Ube, JAPAN assigned to Ube Industries

A dehydration catalyst useful for producing a monoalkylether of dihydric phenolic compound by a dehydration reaction of a dihydric phenolic compound with a lower alkyl alcohol with a high conversion at a high selectivity, comprises at least one inorganic substance of the empirical formula (I): wherein X represents a member selected from the group consisting of (1) an antimony and/or a bismuth atom, and (2) a sulfur atom, a, b, c, d, e and f, respectively, represent the numbers of Al, P, Ti, Si, X, and O atoms, the atomic ratio $a:b$ is 1:1.0–1.9, the atomic ratio $a:c$ is 1:0.05–0.5, the atomic ratio $a:d$ is 1:0.05–0.2, the atomic ratio $a:e$ is 1:0.01–0.3 when X represents antimony and/or bismuth atom and 1:0.004–0.015 when X represents a sulfur atom, and the atomic ratio $a:f$ is 1:4.1–8.4.

5977424

Catalyst and process for preparing long chain alkyl-aromatic compounds

Colombo Giovanni; Amarilli Stefano; Kiricsi Imre; Perego Carlo; Inveruno, Maggiora, Szeged, Carnate, ITALY assigned to Enichem Augusta

A catalyst is disclosed which comprises a clay belonging to the family of smectites, containing multimetal pillars, together with a process that uses such a catalyst for the alkylation of aromatic hydrocarbons by means of long chain linear olefins. The resulting alkylaromatic compounds are useful for preparing biodegradable synthetic detergents.

5980843

Method and apparatus in catalytic reactions

Silversand Fredrik Ahlstrom; Loddekopinge, SWEDEN assigned to Katator

A catalyzer is provided for promoting chemical reactions, such as the reaction between ammonia and air to produce nitrogen monoxide that, in turn, can be used to manufacture nitric acid or the purification of flue gas from incineration plants. The catalyzer is made by forming a mixture of a combustible pore forming substance, such as a polymer, vegetable material or graphite, and a ceramic material, such as alumina, zirconia, titanium dioxide, silica, tungsten carbides, silicon nitrides, and mixtures thereof, and thermally spraying this mixture onto a support net to result in a net having porous ceramic deposited thereon. The surface area of this porous ceramic/net composition can be enlarged by depositing a high surface area ceramic, such as alumina, silica, titanium dioxide, zirconia, aluminum–titanium, silicon carbide, and mixtures thereof, into the pores the ceramic/net composition by an in-situ precipitation technique; by a sol–gel technique or by injecting the high surface area ceramic into the jet spray of the ceramic material during the thermal spraying process so that both high surface area ceramic and ceramic material are deposited onto the net. Catalytically active metal components, such as palladium, platinum and oxides of iron, chromium, copper, and zinc are deposited onto the resulting high surface area ceramic/net composition.

5981420

Oxidation catalytic system and oxidation process

Nakano Tatsuya; Ishii Yasutaka; Himeji, Takatsuki, JAPAN assigned to Daicel Chemical Industries

A substrate (e.g., a cycloalkane, a polycyclic hydrocarbon, an aromatic compound having a methyl group) is oxidized with oxygen in the presence of an oxidation catalytic system comprising an imide compound of the following formula (1) (e.g., *N*-hydroxyphthalimide) and a co-catalyst containing a element selected from Group 3 to 12 elements (in particular, Group 4 to 11 elements) of the Periodic Table of Elements. The co-catalyst comprises a compound containing plural elements (except heteropolyacid and a combination of Group 7 and 8 elements of the Periodic Table of Elements), and is useful for the formation of an oxide (e.g., a ketone, an alcohol, a carboxylic acid): ##STR1## wherein R^1 and R^2 represent a substituent such as a hydrogen atom or a halogen atom, or R^1 and R^2 may together form a double bond or an aromatic or nonaromatic 5- to 12-membered ring, X is O or OH, and n is 1–3.

5981424

Catalysts for hydroxylation and ammination of aromatics using molecular oxygen as the terminal oxidant without coreductant

Durante Vincent A.; Wijesekera Tilak P.; Karmakar Swati; West Chester, Glen Mills, Melvern, PA, UNITED STATES assigned to Sunoco Inc. (R&M)

Catalyst compositions are disclosed which are useful for the hydroxylation and the ammination of aromatic hydrocarbons using molecular oxygen as terminal oxidant. The catalysts comprise a support selected from the group consisting of metal oxides, molecular sieves, zeolites, and clays; transition metal selected from the group consisting of vanadium, niobium, copper, palladium, nickel and silver, and combinations thereof; and at least one multidentate chelating, binucleating ligand. The catalysts may further comprise additional metal ions. The process is particularly suited, for example, to the one-step conversion of benzene to phenol and of benzene to aniline.

5986138

Process for producing alkylated aromatic amines with high selectivity using new catalyst

Satyavathi Bankupalli; Patwari Akash Narhar Rao; Bhalerao Uday Triambakraj; Hyderabad, INDIA assigned to Council of Scientific and Industrial Research

The present invention relates to a process for the preparation of alkylated aromatic amines which comprises reacting an aromatic amine selected from aniline, toludine, xylidine, *N*-methyl aniline, *N*-ethyl aniline, *m*-ethyl aniline, *p*-ethyl aniline, *o*-ethyl aniline with a primary or secondary alcohol selected from ethanol, methanol, isopropyl alcohol in the presence of attapulgite impregnated with combination of iron oxide and oxides selected from transition metals of the periodic table as a catalyst prepared by the method described and claimed in our co-pending U.S. patent application Ser. No. 09/047,718 at atmospheric pressure and at a temperature in the range of 300–400°C and recovering the desired amine by conventional methods.

5986152

Supported catalyst, process for its production as well as its use in the oxychlorination of ethylene

Muller Herbert; Bosing Stefan; Schmidhammer Ludwig; Frank Albin; Haselwarter Klaus; Altrip, Mainz-Kostheim, Haiming, Burghausen, Emmerting, GERMANY assigned to Degussa-Huls

A supported catalyst includes: (a) 0.5–15 wt.% of one or more Cu-II compounds, the quantitative amounts referring to copper metal; (b) 0.1–8 wt.% of one or more alkali metal compounds, the quantitative amounts referring to alkali metal; (c) 0.1–10 wt.% of an oxide mixture including; (c1) 80–95 mol% of oxides of cerite rare earths with atomic Nos. 57–62, except promethium, and (c2) 5–20 mol% of zirconium dioxide — where (c1) and (c2) must together total 100 mol% and the quantitative amount of (c) refers to the oxides of the mixture; and (d) the remainder up to 100 wt.% being χ- and/or α-aluminum oxide as support material; wherein (e) the support material (d) has a total pore volume in the range 0.65 –1.2 cm^3/g; and wherein (f) the supported catalyst is present in the form of cylindrical hollow bodies having at least one passage channel, the ratio of height (h) to external diameter d_e being less than 1.5 for diameters d_e of up to 6 mm, and the ratio h/d_e being less than 0.6 for diameter d_e greater than 6 mm. A process for producing the supported catalyst is also described.

5986155

Catalytic process for making high reactivity alkylating agents and products resulting therefrom

Burrington James D.; Bartley Stuart L.; Rhubright Douglas C.; Lewis Paul A.; DeTar Marvin B.; Kliever

Alicia L.; Del Greco Frank A.; Novak Lawrence T.; Mayfield Village, Wickliffe, Chardon, Mentor, Novelty, South Euclid, OH, UNITED STATES assigned to The Lubrizol Corporation

Treating low reactivity alkylating agents in the vapor phase with catalysts converts the low reactivity alkylating agents to high reactivity alkylating agents. The alkylating agents are useful in synthesis of alkyl aromatics with Lewis acid catalysts.

5990357

Process for the oxidation of isoalkylaromatic hydrocarbons, and catalyst for the execution of the process

Zawadiak Jan; Stec Zbigniew; Knips Ulrich; Zellerhoff Robert; Gilner Danuta; Orlinska Beata; Polaczek Jerzy; Gliwice, Kamen, Hamminkeln, Katowice, Warsaw, POLAND assigned to Rutgers Kureha Solvents

In a process for the catalytic oxidation of isoalkylaromatic hydrocarbons into ketones, alcohols, and peroxides the isoalkyl-aromatic hydrocarbons in fluid phase at a temperature of 60–120°C are oxidized by oxygen in the presence of a catalyst of metal salt of different valency and alkylammonium salt or alkylphosphonium salt. Further, there is a claimed catalyst for the oxidation of isoalkylaromatic hydrocarbons that contain a metal salt selected from copper salts, cobalt salts and manganese salts or their mixtures and an alkylammonium salt or alkylphosphonium salt in a ratio of metal salt to alkylammonium salt or alkylphosphonium salt of 0.5–50:1.

5990361

Process for producing ethyl tertiary butyl ether by catalytic distillation

Frey Stanley J.; Davis Scott P.; Krupa Steven L.; Cottrell Paul R.; Palatine, Mount Prospect, Fox River Grove, Arlington Heights, IL, UNITED STATES assigned to UOP LLC

A low pressure catalytic distillation process for producing high purity ethyl tertiary butyl ether that contains less than 0.6 wt.% ethanol, and preferably less than 0.07 wt.% ethanol, has been developed. The high-purity ethyl tertiary butyl ether is withdrawn directly from a catalytic distillation column. No downstream processing is necessary to remove excess ethanol from the ether product. A stream containing a significant amount of one or more inert azeotropic agents such as normal butane, isopentane, and isobutane is introduced along with the isobutylene and ethanol reactants into an etherification zone containing a catalytic distillation column. The catalytic distillation column is operated under low pressure conditions which result in the reaction of the ethanol with the isobutylene to form ethyl tertiary butyl ether. The inert azeotropic agent must be present at the inlet to the catalytic distillation column in an amount sufficient to azeotrope excess ethanol and cause the excess ethanol to distill into an overhead stream under the conditions of operation. The preferred azeotropic agent is isopentane. Excess ethanol forms an azeotrope with the azeotropic agent and is distilled with other hydrocarbons into an overhead stream. The ethyl tertiary butyl ether and no more than 0.6 wt.% ethanol are distilled into a bottoms stream and withdrawn directly from the catalytic distillation column.

5981685

Organotin sulfonate catalysts and their manufacture

Seshadri Sri R.; Honnick William D.; Gitlitz Melvin H.; Newtown, Exton, Berwyn, PA, UNITED STATES assigned to ELF Atochem North America

Dual cure organotin salts of strong organic acids, the use of such salts as catalysts and an improved process for producing the catalysts are provided. The catalysts are capable of effectively catalyzing esterification and transesterification reactions and urethane, silicone, melamine, ester, and acrylic forming reactions and can simultaneously catalyze more than one reaction in a mixture of urethane, silicone, amino, ester, and acrylic polymer forming reactants to produce a polymer mixture.

5981783

Chiral ligand system for main group and transition metal catalysts

Polt Robin L.; Tucson, AZ, UNITED STATES assigned to Polt Hill Institute

A chiral ligand system for transition or main group metal catalysts is disclosed. These ligands can be readily synthesized using inexpensive amino acids and diamines as starting materials. Several different transition or main group metals have been inserted into the ligands. The ligands have been shown to have a tetrahedral distortion that may contribute to enhanced chiral transfer from the catalyst to the substrate in chemical modifications of olefins and other reactive substrates. These catalysts have been demonstrated to be effective in catalyzing the epoxidation of a variety of substrates.

5952261

Double metal cyanide complex catalysts modified with group IIA compounds

Combs George; Downingtown, PA, UNITED STATES assigned to Arco Chemical Technology

Highly active double metal cyanide complex catalysts useful for epoxide polymerization are prepared by reacting zinc chloride or other metal salt with potassium hexacyanocobaltate or other metal cyanide salt in the presence of a Group IIA compound such as calcium chloride.

5973084

Method for polymerizing olefins using a novel catalyst

Suga Yoshinori; Uehara Yumito; Maruyama Yasuo; Isobe Eiji; Ishihama Yoshiyuki; Sagae Takehiro; Yokohama, Yokkaichi, JAPAN assigned to Mitsubishi Chemical

A method for polymerizing olefins which comprises using a catalyst which comprises, as the essential components, (A) a metallocene-type transition metal compound and (B) at least one member selected from the group consisting of (1) an ion-exchanging layered compound other than a silicate, and (2) an inorganic silicate, which is obtained by salt-treatment and/or acid-treatment and which has a water content of not higher than 1% by weight.

5973098

Polymerizable compositions for making thio containing resins including a thiocyanate salt catalyst and process for making thio containing resin articles

Keita Gabriel; McClimans Pamela Anne; Weber Steve; Turshani Yassin; Oldsmar, Safety Harbor, Clearwater, Largo, FL, UNITED STATES assigned to Essilor International-Compagnie Generale D'Optique

The polymerizable compositions comprise (a) at least one polyiso(thio)cyanate monomer, and at least one polythiol monomer; or at least one episulfide compound and optionally one or more compounds having two or more functional groups capable of reacting with episulfide groups; and (b) an effective amount of a thiocyanate salt as a polymerization catalyst. Application to the fabrication of optical articles, such as lenses.

5977270

Process using a rare earth metal catalyst for olefin polymerization

Wenzel Timothy Todd; Charleston, WV, UNITED STATES assigned to Union Carbide Chemicals and Plastics Technology Corporation

There is provided a polymerization process for the production of olefin polymers using a catalyst composition comprising: [a] (i) a catalyst containing at least one cycloalkadienyl ligand substituted with at least one electron donor residue and coordinated with a metal selected from the group consisting of scandium, yttrium, and lanthanide metals; or (ii) a catalyst containing two cycloalkadienyl ligands coordinated with a metal selected from the group consisting of scandium, yttrium, and lanthanide metals, said cycloalkadienyl ligands connected by a bridging group comprising of at least one Group IVA element and at least one electron donor residue; and [b] an activating cocatalyst of the formula R_xM', wherein R is alkyl, aryl, or hydride; M′ is a Group I, II, or IIIA metal or a Group I, II, or IIIA metal complexed with oxygen, nitrogen, or a halide; and x is equal to the valence of M′.

5981240

Enzyme-catalyzed synthesis of macromolecules in organic solvents

Akkara Joseph A.; Bruno Ferdinando F.; Holliston, Andover, MA, UNITED STATES assigned to The United States of America as represented by the Secretary of the Army

A method is described for a simple, fast, and efficient synthesis of homopolymers and copolymers by the enzymatic ring opening polymerization of lactones and lactides. The enzyme used is an ion paired protease. The advantage of this enzymatic system is in using small amount of enzyme per monomer and lower reaction time. Homopolymers and copolymers are synthesized with molecular weights between 1000 and 4600 Da, and dispersity as low as 1.1. The monomer conversion after 4 days, for reactions catalyzed by protease S, has reached 100%. Different initiators are used to control the rate and degree of polymerization. Teh synthesis of block copolymers with defined block size and crystallinity are described in this invention. These biodegradable and bioerodable polyesters and copolyesters with controlled molecular weight, dispersity, and crystallinity have applications in medical, drug, cosmetic and food industries.

5985783

Prepolymerized catalyst and use thereof

Mitchell Kent E.; Bartlesville, OK, UNITED STATES assigned to Phillips Petroleum

A prepolymerized olefin polymerization catalyst, its preparation, and use are disclosed. The catalyst is prepared by contacting a solid particulate transition metal-containing olefin polymerization catalyst with an olefin in a confined zone under suitable conditions wherein the prepolymerization is conducted under conditions such that the olefin is added to the confined zone at a rate such that the pressure in the confined zone increases no more than about 0.5 psig/s during the olefin addition.

5985784

Catalyst and process for the polymerization and copolymerization of olefins

Winter Andreas; Dolle Volker; Spaleck Walter; Glashutten-Taunus, Kelkheim, Liederbach, GERMANY assigned to Targor GmbH

A highly effective catalyst system for the polymerization or copolymerization of olefins comprises at least one metallocene as transition-metal compound and at least one aluminum compound of the formula II [Figure] and/or of the formula (III) [Figure] where, in the formulae (II) and (III), the radicals R^{14} may be identical or different and are an alkyl group, an aryl group, benzyl or hydrogen, and p is an integer from 2 to 50, and at least one aluminum compound of the formula IV [Figure] where R^{15}, R^{16}, and R^{17} are identical or different and are a hydrogen atom, an alkyl group, an alkylsilyl group, an alkoxy group, an aryl group, an aryloxy group, an alkenyl group, an arylalkyl group, an alkylaryl group, an arylalkenyl group, a halogen atom or a radical of the formula —$OSiR^{15}R^{16}R^{17}$ where R^{15}, R^{16}, and R^{17} are as defined in the description.

5986025

Metallocene compound and method for producing polymer by using it as polymerization catalyst

Huh Wan-soo; Lee Dong-ho; Noh Seok-kyun; Seoul, Daegu, SOUTH KOREA assigned to Korea Academy of Industrial Technology

A novel metallocene compound and a method for producing a polymer by using the metallocene as a polymerization catalyst. The present catalyst includes a neutral metallocene compound, a cationic metallocene compound, and the compound supported catalyst. The present catalyst can be used to produce a polymer having a characteristic structure and physical properties.

5986027

Olefin polymerization using a catalyst comprising a group VIIIB metal, and acid, and a bidentate chelating compound

Lippert Ferdinand; Hohn Arthur; Schauss Eckard; Bad Durkheim, Kirchheim, Heuchelheim, GERMANY assigned to BASF Aktiengesellschaft

Polymers are obtainable by polymerizing olefinically unsaturated monomers in the presence of a catalyst system that comprises as active constituents (a) a salt of a metal of group VIII B of the Periodic Table of Elements, (b) one or more compounds selected from the group consisting of protic acids and Lewis acids, (c) a chelating compound of the formula (I) where the substituents and indices have the following meanings: E^1, E^2 are each an element from group VA of the Periodic Table of Elements, Z is a bridging structural unit comprising one, two or three substructural units of elements of groups IVA, VA and VIA of the Periodic Table of Elements, R^1 to R^4 are substituents selected from the group consisting of C_1–C_{20}–organic and C_3–C_{30}–organosilicon radicals, where the radicals may contain one or more elements of groups IVA, VA, VIA and VIIA of the Periodic Table of Elements.

5986029

Catalyst composition and process for the polymerization of an olefin

van Beek Johannes A.M.; van Doremaele Gerardus H.J.; Gruter Gerardus J.M.; Arts Henricus J.; Eggels Guillaume H.M.R.; Mountain View, Sittard, Maastricht, Roggel en Neer, UNITED STATES/NETHERLANDS assigned to DSM N.V.

The invention relates to a new catalyst composition, which is suitable for the polymerization of an olefin and which comprises a reduced transition metal complex and a co-catalyst. The invention is characterized in that the transition metal complex consists of a reduced transition metal, chosen from groups 4–6 of the Periodic Table of Elements, with a multidentate monoanionic ligand and with two monoanionic ligands. In particular the reduced transition metal is titanium (Ti).

5990034

Olefin polymerization catalyst

Nozaki Takashi; Kibi-gun, JAPAN assigned to Asahi Kasei Kogyo Kabushiki Kaisha

An olefin polymerization catalyst comprising of (A) a solid catalyst component and (B) an organometallic compound component. The solid catalyst component (A) is prepared by a process comprising the steps of: (I) obtaining a solid (A-1) by reacting: (i) an organomagnesium component soluble in a hydrocarbon solvent and represented by the formula $(M^1)_\alpha(Mg)_\beta(R^1)_p$-$(R^2)_q(OR^3)_r$; and (ii) an Si—H bond-containing chlorosilane compound represented by the formula: $H_a SiCl_b R^4_4 - (a + b)$, in a ratio of from 0.01 to 100 mol (ii) per mol (i); (II) reacting the solid (A-1) with an alcohol (A-2) in a ratio of from 0.05 to 20 mol of the alcohol per mol of C—Mg bonds contained in the solid (A-1), to form a reaction product; and (III) reacting the reaction product with a titanium compound (A-4). The solid catalyst component (A) is adjusted to have an alkoxy group/titanium molar ratio of 2.4 or lower and an alkoxy group/magnesium molar ratio of 0.15 or lower.

5990035

Polymerization catalyst systems, their preparation, and use

Koppl Alexander; Alt Helmut G.; Palackal Syriac J.; Welch M. Bruce; Bayreuth, Bartlesville, GERMANY/UNITED STATES

A solid cocatalyst is prepared by combining (1) a first material capable of affixing an organoaluminum compound with (2) an organic liquid and then adding an organoaluminum compound and then contacting that product with water dispersed in an inert gas. Further catalyst compositions prepared from that cocatalyst and the use of such catalyst compositions to polymerize olefins is disclosed.

5990251

Process for polymerising olefin with a Ziegler–Natta catalyst

Gelus Emmanuel; Lavera, FRANCE assigned to BP Chemicals

The present invention relates to a process for (co-)polymerizing olefin(s) comprising introducing into a polymerization medium the olefin(s), a titanium-based catalyst of Ziegler–Natta type, an organometallic cocatalyst and a halogenated hydrocarbon compound in an amount effective for increasing the catalyst activity in the (co-)polymerization, the amount being such that the molar ratio of the quantity of the halogenated hydrocarbon compound to that of titanium is comprised between 0.01 and 0.1, or between 0.001 and 0.15 when the (co-)polymerization is carried out continuously. The process is particularly useful in a continuous gas-phase (co-)polymerisation of olefin(s).

5990253

Indenyl compounds and catalyst components for the polymerization of olefins

van Beek Johannus A.M.; de Vries Johannes G.; Arts Henricus J.; Persad Radjindrakumar; van Doremaele Gerardus H.J.; Maastricht, Sittard, Wessem, NETHERLANDS assigned to DSM N.V.

The invention relates to an indenyl compound of the general formula in which the symbols have the following meanings — Ind: an indenyl group; R′: a substituent, other than hydrogen, to the Ind group; Cp: a cyclopentadienyl group; M: a transition metal from groups 3, 4, 5 or 6 of the Periodic System of Elements; Q: a ligand to M; and *k* is an integer linked to the valence of M. The invention is characterized in that the R′ group is bound to the Ind group at the 2-position. The indenyl compound is a catalyst component for the polymerization of olefins. The invention also relates to polymers obtainable with such indenyl compounds.

5972203

Hydrocarbon conversion catalyst and its use

Smith Robert Scott; Mohr Gary D.; Houston, League City, TX, UNITED STATES assigned to Exxon Chemical Patents

There is provided catalysts and conversion processes for converting hydrocarbons using the catalysts. The catalysts comprises a first alumino-phosphospho-molecular sieves and a binder comprising a second aluminophopho-molecular sieves. Exemplary conversion processes include the conversion of oxygenates to olefins, dewaxing, reforming, dealkylation, dehydrogenation, transalkylation, alkylation, and isomerization.

5972208

FFC metals passivation additives applied to catalyst

Goolsby Terry L.; Kowalczyk Dennis C.; Moore Howard F.; Katy, Gibsonia, Catlettsburg, UNITED STATES assigned to The M.W. Kellogg Company

A process and apparatus for incorporating additives into a circulating inventory of equilibrium catalyst in a fluid catalyst cracking (FCC) unit are disclosed. Hot regenerated catalyst is removed from the FCC regenerator, cooled, optionally subjected to magnetic catalyst separation, and, at least, a portion of the cooled catalyst is contacted with a solution of an additive material without forming a separated liquid phase. Additive treated catalyst is recycled to the FCC unit, preferably directly into the regenerator.

5972832

Distillate hydrocracking catalyst and process for the preparation of the same

Shi Jianwen; Nie Hong; Shi Yahua; Shi Yulin; Zhang Yanping; Li Dadong; Beijing, CHINA assigned to Research Institute of Petroleum Proc., China Petrochemical

The present invention relates to a hydrocracking catalyst containing nickel, tungsten, fluorine, zeolite as well as alumina, said catalyst is composed of, based on the total weight of the catalyst, 0.5–5.0 wt.% fluorine, 2.5–6.0 wt.% nickel oxide, 10–38 wt.% tungsten oxide, and a catalyst carrier. Said carrier is composed of 20–90 wt.% alumina and 10–90 wt.% zeolite wherein the zeolite is mesopore or macropore zeolite of an acidity strength value 1.0–2.0 mmol/g determined by NH_3–TPD, the alumina is the alumina of an acidity strength value 0.5–0.8 mmol/g determined by NH_3–TPD. Said catalyst possesses good desulfurization activity, denitrogenation activity, and higher selectivity with respect to middle distillates than that of the prior art.

5976351

Wax hydroisomerization process employing a boron-free catalyst

Apelian Minas Robert; Borghard William S.; Degnan Jr. Thomas Francis; Hanlon Robert Tryon; Rubin Mae Koenig; Vincentown, Yardley, Moorestown, Glen Mills, Bala Cynwyd, UNITED STATES assigned to Mobil Oil

This invention discloses a process for producing a high Viscosity Index lubricant having a VI of at least 125 from a waxy hydrocarbon feed having a wax content of at least 40 wt.%. The process comprises catalytically dewaxing waxy paraffins present in the feed by isomerization in the presence of hydrogen and in the presence of a low acidity large pore zeolite isomerization catalyst. This catalyst has a ratio of SiO_2/Al_2O_3, as synthesized, of at least 50:1, and an alpha value of not greater than 20, wherein the catalyst is prepared in the absence of boron. The catalyst further comprises a noble metal hydrogenation component. The feed may be hydrocracked prior to dewaxing with the large pore zeolite. The feed may be solvent dewaxed prior to isomerization. The effluent of the isomerization step may also be further dewaxed by either solvent or catalytic means in order to achieve target pour point.

5980731

Naptha-reforming catalyst and process

Kao Jar-Lin; Ramsey Scott A.; Houston, TX, UNITED STATES assigned to Exxon Chemical Patents

The invention provides a crystalline type L zeolite reforming catalyst comprising cylindrically shaped crystals having a length of 0.6 μm or less and an average length: diameter ratio of less than about 0.5, the catalyst containing at least one Group VIII metal and from about 0.1–2 wt.% halogen, e.g., chlorine. Also provided is a method for activating or regenerating the catalyst wherein a fresh or de-coked catalyst is oxychlorinated, purged to remove excess chlorine and reduced. The catalysts are particularly useful for the reforming of C_6 to C_{11} naphthas to produce reformates having a high content of C_6 to C_8 light aromatics and a reduced content of heavier C_9 and C_{10} aromatics.

5981419

Difunctional catalyst effective in wax hydroisomerization and process for preparing it

Carati Angela; Flego Cristina; Calemma Vincenzo; San Giuliano Milanese, Trieste, San Donato ITALY assigned to Eniricerche, Agip Petroli

Process for the hydroisomerization of *n*-paraffins in the presence of a difunctional catalyst which comprises: (a) a porous crystalline material isostructural with beta-zeolite selected from boro-silicate (BOR-B) and boro-alumino-silicate (AL-BOR-B) in which the molar $SiO_2:Al_2O_3$ ratio is higher than 300:1; (b) one or more metal(s) belonging to Group VIIIA, selected from platinum and palladium, in an amount comprised within the range of 0.05–5% by weight.

5981421

Catalyst system for selective hydrogenation of heteroaromatic sulfur-containing and nitrogen-containing compounds, and process for preparing and using the same

Paez Daniel E.; Andriollo Antida; Sanchez-Delgado Roberto A.; Valencia Norma del V.; Galiasso Roberto E.; Lopez Francisco A. Edo. Miranda, Caracas, VENEZUELA assigned to Intevep

A catalyst system for selective hydrogenation of sulfur-containing and nitrogen-containing compounds of a heteroaromatic organic phase includes a mixture of a noble metal selected from Group VIII of the Periodic Table of Elements and a water-soluble ligand. A process for preparing the catalyst system and hydrogenation process using the catalyst system are also provided.

5986156

Zeolite-based catalyst of modified mazzite structure type and its use for the dismutation and/or transalkylation of alkylaromatic hydrocarbons

Benazzi Eric; Alario Fabio; Montesson, Neuilly sur Seine, FRANCE assigned to Institut Francais du Petrole

The invention concerns a catalyst comprising at least one matrix and at least one zeolite of structure type mazzite, preferably omega zeolite, comprising of silicon and aluminium, at least partially, preferably practically completely in its acid form, said zeolite having been prepared by dealuminization of the framework, by means of at least one treatment using at least one solution of a fluorosilicate of a cation in a proportion of 0.05–5 mol per mol of aluminium contained in the dry zeolite, said catalyst optionally comprising at least one element selected from groups IB and VIII of the periodic classification of the elements. The invention also concerns the use of said catalyst for the dismutation of alkylaromatic hydrocarbons, and preferably for the dismutation of toluene to produce benzene and xylenes, and/or for the transalkylation of alkylaromatic hydrocarbons, preferably for the transalkylation of toluene and trimethylbenzenes to produce xylenes.

5989410

Process for improving the pour point of paraffin feedstocks with a catalyst containing an IM-5 zeolite base

Benazzi Eric; George-Marchal Nathalie; Gueret Christophe; Briot Patrick; Billon Alain; Marion Pierre; Chatou, Paris, Vienne, Le Vesinet, FRANCE assigned to Institut Francais du Petrole

The invention relates to a process for improving the pour point of a feedstock that comprises paraffins of more than 10 carbon atoms, in which the feedstock that is to be treated is brought into contact with a catalyst that comprises the IM-5 zeolite and at least one hydro-dehydrogenating element, at a temperature of between 170 and 500°C, a pressure of between 1 and 250 bar, and an hourly volume velocity of between 0.05 and 100 h^{-1}, in the presence of hydrogen at a ratio of 50:2000 l/l of feedstock. The oils that are obtained have good pour points and high viscosity indices (VI). The process can also be applied to gas–oils and other feedstocks whose pour points need to be lowered.

5989412

Hydrodemetallizing catalyst for hydrocarbon oil and process of hydrometallizing hydrocarbon oil therewith

Okagami Akio; Furuta Akio; Tsuchiya Fujio; Suhara Shinichiro; Yokohama, Chita-gun, Handa, JAPAN Assigned to Catalysts and Chemicals Industries

A hydrodemetallizing catalyst for a hydrocarbon oil comprising of a support and a catalytic component carried on the support, this catalyst bears a surface, part of which has a coating layer composed of an inert substance having substantially no demetallizing activity — this coating layer allowing substantially no reaction fluid to permeate through. This catalyst preferably has a reaction flow path through which a reaction fluid flows inside and is preferred to be, e.g., in the form of a honeycomb structure or cylinder having one or a plurality of through holes. In the hydrodemetallization of heavy oils using the above hydrodemetallizing catalyst for a hydrocarbon oil, the sticking of the catalyst can be prevented and the spacing between catalyst particles can be maintained to prevent a rapid increase of differential pressure, so that a continuous operation can be performed for a prolonged period of time.

5990031

Zeolite catalyst with enhanced dealkylation activity and method for producing same

Ghosh Ashim Kumar; Houston, TX, UNITED STATES assigned to Fina Technology

An improved zeolite catalyst having enhanced dealkylation activity is provided. The catalyst is prepared by incorporating fluorine into the zeolite structure. In another embodiment, a transition element such as nickel is additionally incorporated into the zeolite structure. The process for producing the catalyst also includes ion-exchange and calcining steps. A mordenite type catalyst has been found to be particularly effective. The catalyst of the present invention demonstrates improved activity for the dealkylation of polyalkylaromatic compounds found in residue from the alkylation process and in heavy reformate streams from refineries. A dealkylation process using the catalyst of the present invention is provided. The dealkylation process shows good selectivity for benzene and monoalkylated aromatic products, and catalyst stability, particularly at high reaction temperatures.

5990032

Hydrocarbon conversion catalyst composition and processes therefor and therewith

Wu An-hsiang; Drake Charles A.; Bartlesville, Nowata, OK, UNITED STATES assigned to Phillips Petroleum

A catalyst composition, a process for producing the catalyst composition, and a hydroconversion process for converting a fluid stream comprising at least one saturated hydrocarbon to C_6 to C_8 aromatic hydrocarbons such as benzene, toluene, and xylenes are disclosed. The catalyst composition comprises a zeolite and a promoter. The process for producing the composition comprises the steps of: (1) combining a zeolite with a complexing ligand and a promoter compound under a condition sufficient to produce a modified zeolite; and (2) heating the modified zeolite to produce a promoted zeolite. The hydroconversion process comprises contacting a fluid stream with the catalyst composition under a condition sufficient to effect the conversion of a saturated hydrocarbon to a C_6 to C_8 aromatic hydrocarbon.

5990365

Catalyst comprising ZSM-5, rhenium and a selectivating agent

Chang Clarence D.; DiGuiseppi Frank T.; Han Scott; Princeton, Yardville, Lawrenceville, NJ, UNITED STATES assigned to Mobil Oil C07C 522

There is provided a catalyst comprising ZSM-5, rhenium which is impregnated onto the catalyst, and a selectivating agent. The selectivating agent may be coke and/or a siliceous material. The catalyst is particularly useful for catalyzing toluene disproportionation reactions. Methods for making this catalyst and processes for using this catalyst in toluene disproportionation are also provided.