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Search [SP]: reivindicaciones un catalizador para la remocion selectiva de azufre de naftas producidas a partir del craqueo catalitico fluidizado, caracterizado porque comprende: a. un soporte de d-alumina pura y/o aluminosilicato amorfo (asa) b. el soporte se modifica con la inclusion de 2 a 4 percent en peso de un metal del grupo ia, preferiblemente na o k c. oxido de molibdeno (0o3) en una cantidad de desde 10 a 20 percent en peso y d. oxido de cobalto (coo), para obtener una relacion molar co/(co+mo) entre 0.3 y 0.5. el catalizador de acuerdo con la reivindicacion 1, en donde el soporte de aluminosilicatos tiene una relacion molar si/(si+ai) de desde 0.15 a 0.25. un metodo para producir el catalizador de la reivindicacion 1, caracterizado porque comprende las etapas de: a. obtener el soporte de alumina o de aluminosilicato amorfo (asa) b. dopar los soportes con un metal del grupo ia de la tabla periodica c. impregnar los soportes con sales de molibdeno y cobalto d. secar los soportes impregnados utilizando un flujo de aire seco e. calcinar los soportes impregnados y f. activar el catalizador in situ el metodo de acuerdo con la reivindicacion 3, en donde en el paso a) el soporte de asa se obtiene mediante un metodo sol-gel con hidrolisis en medio basico, de tal manera que se obtenga un solido mayoritariamente mesoporoso. el metodo de acuerdo con la reivindicacion 3, en donde el paso b) el soporte obtenido en el paso a se modifica con 2 a 4 percent en peso de un metal alcalino del grupo ia, preferentemente na o k. el dopaje se realiza mediante una impregnacion humeda incipiente con una solucion de una sal inorganica del mismo, soluble en agua. entre las sales de na que se pueden usar esta el nano3 y el kno3. luego de la impregnacion se realiza un secado en flujo de aire a un flujo de 10 nml/g de catalizador, a una temperatura de entre 70 y 120 degrees centigrade durante 2 a 12 h y una posterior calcinacion bajo el mismo flujo de aire a una temperatura de entre 400 y 600 degrees centigrade durante 4 a 12 h. el metodo de acuerdo con la reivindicacion 3, en donde el paso c) se lleva a cabo mediante la impregnacion del soporte de manera secuencial con una solucion acuosa de (?4)6??70244??2? y posteriormente con una solucion de co(n03)2-6h20. el metodo de acuerdo con la reivindicacion 3, en donde el paso d) y e) se llevan a cabo despues de la impregnacion de cada uno de los metales mo y co. el paso d) se lleva a cabo con flujo de aire seco de 10 nml/g de catalizador, a una temperatura de 70 a 120 degrees centigrade y durante 2 a 12 horas. luego del secado, en el paso e) los solidos son calcinados a entre 400 y 600 degrees centigrade durante 4 a 12 h bajo el mismo flujo de aire. el metodo de acuerdo con la reivindicacion 3, en donde los catalizadores se activan in situ previo a la etapa de reaccion. la activacion de los catalizadores se lleva a cabo utilizando una mezcla de nafta virgen con un compuesto azufrado como di-metil disulfuro, di-butil disulfuro, azufre elemental, entre otros usando una concentracion de 1 a 3 percent peso de s. la mezcla anterior se alimenta al reactor junto con h2 usando una relacion de entre 100 a 500 nli a una temperatura entre 300 y 400 degrees centigrade y presion atmosferica, durante el tiempo suficiente para garantizar la sulfuracion total de los metales activos del catalizador. a catalyst for the selective removal of sulfur daims produced from the fluidized catalytic cracking naphthas, characterized by comprising: a. a support of d-pure alumina and/or amorphous aluminosilicate (asa) b. the support is modified by the inclusion of 2 to 4 percent by weight of a group ia metal, preferably na or k c. molybdenum oxide (0o3) in an amount of from 10 to 20 weight percent and d. cobalt oxide (coo), so as to obtain a molar ratio co/(co+mo) between 0.3 and 0.5. the catalyst according to claim 1, wherein the aluminosilicate has a molar ratio si/(if+ai) of from 0.15 to 0.25. a method for producing the catalyst of claim 1, characterized in that it comprises the steps of: a. obtain the support of alumina or amorphous aluminosilicate (asa) b. dope supports with a metal of group ia of the periodic table c. smear the supports with molybdenum salts and cobalt d. drying the impregnated supports using a flow of dry air e. calcining the impregnated supports and f. activate the catalyst in situ the method according to claim 3, wherein in step a) the handle support is obtained by a sol-gel method with hydrolysis in a basic medium, in such a way as to obtain a mostly solid mesoporous. the method according to claim 3, wherein in step b) the support obtained in step a is modified with 2 to 4 percent by weight of a group ia alkali metal, preferably na or k. doping is performed by incipient wet impregnation with a solution of an inorganic salt thereof, soluble in water. na salts that can be used is the nano3 and kno3. after drying the impregnation is conducted in air flow at a flow of 10 nml/g catalyst, at a temperature of between 70 and 120 degrees centigrade for 2 to 12 h and a subsequent calcination under the same flow of air at a temperature of between 400 and 600 degrees centigrade for 4 to 12 h. the method according to claim 3, wherein step c) is carried out by impregnation of the support sequentially with an aqueous solution of (?4)6??70244??2? and then with a solution of co(n03)2-6h20. the method according to claim 3, wherein the step (d) and (e) are carried out after the impregnation of each one of the metals mo and co. step d) is carried out with dry air flow 10 nml/g catalyst, at a temperature of 70 to 120 degrees centigrade and for 2 to 12 hours. after drying, in step e) the solids are calcined at between 400 and 600 degrees centigrade for 4 to 12 h under the same flow of air. the method according to claim 3, wherein the catalysts are activated in situ before the reaction step. the activation of the catalysts is carried out using a mixture of virgin naphtha with a sulfur compound such as di-methyl disulfide, di-butyl disulfide, elemental sulfur, among others using a concentration of 1 to 3 percent by weight of s. the above mixture is fed to the reactor together with h2 using a ratio of between 100 to 500 nli at a temperature between 300 and 400 degrees centigrade and atmospheric pressure, for a time sufficient to ensure total sulfidation of the active metals of the catalyst. (Results 0)

Search [SP]: [0001] catalizadores para hidrotratamiento de nafta y metodos de fabricacion de los mismos campo de la invencion [0002] la presente invencion se encuentra relacionada con la refinacion de productos de petroleo, mas especificamente con el hidrotratamiento (hdt) de naftas producidas a partir del proceso de craqueo catalitico fluidizado (fcc por sus siglas en ingles). en particular, la presente invencion divulga catalizadores para la hidrodesulfuracion (hds) selectiva de naftas de fcc y metodos para obtener los mismos. especificamente, la invencion divulga catalizadores de cobalto y molibdeno soportados en gamma-alumina (a) y/o aluminosilicatos amorfos (asa), ambos dopados con sodio. [0003] estado de la tecnica [0004] la reduccion de los niveles de azufre en los combustibles se ha constituido en uno de los principales retos en la industria de la refinacion, debido a las cada vez mas exigentes restricciones ambientales sobre los limites de azufre permitidos en los combustibles. al dia de hoy las regulaciones mas exigentes solicitan un contenido de 10 ppm de azufre en la gasolina. para cumplir con estas restricciones, ha surgido la necesidad incluso de hidrotratar toda la nafta de fcc y no solo la nafta pesada de fcc como se hace actualmente. [0005] la gasolina comercial es una mezcla de diversas fracciones que proceden principalmente de las unidades de reformado, isomerizacion y craqueo catalitico fluidizado (fcc), siendo las corrientes provenientes del proceso fcc las que contienen la mayor cantidad de compuestos con azufre, principalmente tiofenos y sus derivados alquiliicos. de esta manera, el contenido de contaminantes en la gasolina se puede solucionar eliminando el azufre de la nafta de fcc, ya que esta aporta alrededor del 90 percent del azufre total. [0006] para la eliminacion del azufre presente en la nafta de fcc es necesaria una hidrodesulfuracion (hds) profunda de la misma. sin embargo, hay que tener una especial atencion durante este proceso, ya que esta nafta de fcc contiene una cantidad considerable de olefinas (entre 20-40 percent) que son las que contribuyen a mantener elevado el iad de la gasolina. el iad se define como el promedio de los valores de los numeros de octano ron y mon. la hidrogenacion de olefinas (hido) es casi inevitable a las condiciones a las que se lleva a cabo la reaccion de hds, lo que conlleva a una disminucion del iad debido a la saturacion de las olefinas. por lo tanto, para cumplir con las normas ambientales y a la vez mantener la calidad

de la gasolina, existe el desafio de lograr una desulfuración profunda de la nafta con la menor perdida en el iad posible. [0007] el hidrotratamiento (hdt) es la tecnología mas usada para remover el azufre de los derivados del petroleo. este consiste en poner en contacto una fracción de petroleo con hidrogeno, en presencia de un catalizador, a alta temperatura y presión. mediante este proceso es posible llevar a cabo la remoción de heteroátomos como s, n y metales. es por esto que el hdt de la nafta de fcc es actualmente la opción preferida en la industria de la refinación para llevar a cabo una disminución significativa del azufre en las gasolinas. [0008] los catalizadores convencionales de hdt están compuestos por fases activas que tienen como base un sulfuro de metales del grupo vi (mo o w) principalmente el mo, esta fase activa es promovida por sulfuras de metales del grupo vi ii (co o ni) debido a un efecto de sinergia entre estos sulfuras se aumenta la actividad en el hdt, pero no solo se promueve la reacción de hds, también se promueve la hido. se ha buscado la forma de desarrollar catalizadores que promuevan la reacción de hds y no promuevan la de hido, conservando las olefinas y por consiguiente la calidad del combustible. se ha observado que dependiendo del promotor usado, se promueve una reacción mas que la otra. al utilizar catalizadores convencionales co(ni)mo(w)/a 03, el ni y co promueven de manera similar la reacción de hds, sin embargo, el ni promueve mas la hido que el co. esto muestra una mejor eficiencia de los catalizadores promovidos por co que los promovidos por ni, así como también explica porque la fase activa como es la mas utilizada para la hds profunda de nafta de fcc. [0009] existen en el estado de la técnica catalizadores que contienen cobalto y molibdeno, utilizados para remover los niveles de azufre en una variedad de tipos de corrientes, como se puede ver a continuación: [0010] la solicitud de patente us 8,288,305 divulga una fase de como que es impregnada sobre sílice o sílice modificada en presencia de un aditivo organico para producir un catalizador que luego se utiliza para la hidrodesulfuración de nafta. el contenido de cobalto es de 2-8 percent en peso y el contenido de molibdeno es de 8-30 percent en peso, el soporte contiene un 85 percent en peso de sílice (ejemplo mcm-41), algunos de los aditivos organicos utilizados para modificar el soporte son fenantrolina, quinolinol, ácido salicílico, ácido acético, ácido etilendiaminetetraacético (edta), ácido cyclohexanediaminetetraacético (cydta), alanina, arginina, trietanolamina (tea), glicerol, histidina, acetilacetato, guanidina, y ácido nitrilotriacético (nta), ácido cítrico y la urea. estos aditivos son usados con el fin de obtener una mejor dispersión de la fase activa sobre el soporte. la patente us 5,423,976 se refiere a la hidrodesulfuración selectiva de nafta de craqueo, incluyendo nafta ligera, nafta completa y nafta pesada, que contienen componentes olefinicos y azufre, minimizando la saturación de olefinas este proceso se efectúa sobre un catalizador sulfurado soportado en carbon, como fase activa se uso tungsteno o molibdeno entre 0.1 - 40 percent en peso, y también se uso níquel o cobalto entre 0.1-15 percent en peso. [0011] el documento de patente ru2169042 divulga catalizadores que cuentan con las siguientes funciones: a) remueven selectivamente la n-parafina del petroleo, reduciendo el punto de fluidez del crudo y b) remueven compuestos de azufre de las fracciones de petroleo y gas condensado. los catalizadores mencionados en este documento cuentan con: 20-80 percent en peso de zeolitas del grupo de los pentasilos con una relación $\text{si}_{0.2}\text{ai}_{2.03}$ entre 20 y 150 y con una cantidad residual de oxido de sodio no mayor al 0.2 percent 0.5-5 percent en peso oxido de cobalto 5-20 percent en peso de trióxido de molibdeno el balance en gamma-alumina puede adicionalmente contener dos oxidos seleccionados de oxido ferrico, oxido de magnesio y oxido de calcio en una concentración de cada uno entre 0.01 a 3 percent en peso. las zeolitas son aluminosilicatos cristalinos que funcionan como catalizadores de ruptura e isomerización. los sulfuras de co y mo proporcionan una función de hidrogenación y simultaneamente llevan a cabo la función de hds. la gamma-alumina proporciona fuerza mecanica y tiene influencia en la formación de la estructura porosa del catalizador. este documento también divulga el metodo para la preparación de los catalizadores que comprende los siguientes pasos: 1) adicionar zeolita del grupo de los pentasilos a una estructura de hidroxido de aluminio 2) agitar la mezcla 3) agregar $(\text{??})6\text{??}7\text{??}24\text{ h}_2\text{O}$ y $\text{co(n}_3\text{)}_2\text{6h}_2\text{O}$, se completa el porcentaje con gamma- alumina 4) opcionalmente agregar una solución de nitrato de hierro, nitrato de magnesio y nitrato de calcio 5) se agita la mezcla vigorosamente durante 1 h 6) se concentra hasta un estado plastico y 7) se granula en pellets de 3mm a una longitud de 0.5-1.5cm 8) los granulos resultantes se secan a una temperatura de 110 degrees centigrade durante 8 a 10 h 9) los granulos se calcinan a 550 degrees centigrade durante 6 h. [0012] por otra parte, el documento gb1330487a, se refiere a un catalizador que comprende oxidos de cobalto y molibdeno, para remover el azufre de una mezcla de gases que contiene ácido sulfhídrico y oxido de azufre. el catalizador puede estar soportado en un portador tal como bauxita, corundo, alumina activa, sílice, caolin, ladrillo pulverizado, un oxido de metal alcalinoterreo, o mezclas de los mismos. el coo se encuentra preferentemente en cantidades de 1 a 4 percent y el moO_3 en cantidades de 11 a 16 percent, ambos en peso total del catalizador. las trazas de dióxido de azufre pueden ser removidas mediante el lavado con una solución de carbonato de sodio. [0013] el documento us20030134745 divulga catalizadores para remover nox de gases de escape, que comprenden un material de soporte de oxidos, los metales de dopaje molibdeno y cobalto que se incluyen en el soporte de oxidos, donde el soporte es preferentemente gamma-alumina pero puede ser igualmente cualquiera de aluminofosfatos, hexaluminatos, aluminosilicatos, entre otros. el soporte de gamma- alumina contiene sodio en una cantidad menor al 0.1 percent en peso. igualmente, este documento se refiere al metodo para producir los catalizadores que se reivindican que consta de: 1) preparar el soporte de gamma-alumina mediante un metodo de sol-gel, 2) impregnar el soporte de gamma-alumina en polvo con una solución del metal apropiado (co y mo). sin embargo, no existe en el estado de la técnica un catalizador que contenga oxidos de mo y co (por ejemplo: moO_3 y coo) como precursores de fases activas y que contenga gamma-alumina o aluminosilicatos amorfos (asa) como soporte, que se encuentren dopados con sodio, como los catalizadores de la presente invención. los catalizadores de la presente solicitud surgen como respuesta a la necesidad de mejorar los procesos existentes de hdt de nafta de fcc, con el fin de permitir realizar una hds profunda, sin degradar la calidad del combustible, específicamente el iad. nunca antes en el estado de la técnica se habia estudiado el efecto de la variación de co y mo sobre soportes acidos como los a (Results 3)

Search [SP]: reivindicaciones un catalizador para la remoción selectiva de azufre de naftas producidas a partir del craqueo catalítico fluidizado, caracterizado porque comprende: a. un soporte de d-alumina pura y/o aluminosilicato amorfo (asa) b. el soporte se modifica con la inclusión de 2 a 4 percent en peso de un metal del grupo ia, preferiblemente na o k c. oxido de molibdeno (Oo_3) en una cantidad de desde 10 a 20 percent en peso y d. oxido de cobalto (coo), para obtener una relación molar $\text{co}/(\text{co}+\text{mo})$ entre 0.3 y 0.5. el catalizador de acuerdo con la reivindicación 1, en donde el soporte de aluminosilicatos tiene una relación molar $\text{si}/(\text{si}+\text{ai})$ de desde 0.15 a 0.25. un metodo para producir el catalizador de la reivindicación 1, caracterizado porque comprende las etapas de: a. obtener el soporte de alumina o de aluminosilicato amorfo (asa) b. dopar los soportes con un metal del grupo ia de la tabla periodica c. impregnar los soportes con sales de molibdeno y cobalto d. secar los soportes impregnados utilizando un flujo de aire seco e. calcinar los soportes impregnados y f. activar el catalizador in situ el metodo de acuerdo con la reivindicación 3, en donde en el paso a) el soporte de asa se obtiene mediante un metodo sol-gel con hidrolisis en medio basico, de tal manera que se obtenga un solido mayoritariamente mesoporoso. el metodo de acuerdo con la reivindicación 3, donde en el paso b) el soporte obtenido en el paso a se modifica con 2 a 4 percent en peso de un metal alcalino del grupo ia, preferentemente na o k. el dopaje se realiza mediante una impregnación humeda incipiente con una solución de una sal inorganica del mismo, soluble en agua. entre las sales de na que se pueden usar esta el nano_3 y el kno_3 . luego de la impregnación se realiza un secado en flujo de aire a un flujo de 10 nml/g de catalizador, a una temperatura de entre 70 y 120 degrees centigrade durante 2 a 12 h y una posterior calcinación bajo el mismo flujo de aire a una temperatura de entre 400 y 600 degrees centigrade durante 4 a 12 h. el metodo de acuerdo con la reivindicación 3, en donde el paso c) se lleva a cabo mediante la impregnación del soporte de manera secuencial con una solución acuosa de $(\text{?})6\text{??}7\text{??}0244\text{??}$ y posteriormente con una solución de $\text{co(n}_3\text{)}_2\text{-6h}_2\text{O}$. el metodo de acuerdo con la reivindicación 3, en donde el paso d) y e) se llevan a cabo despues de la impregnación de cada uno de los metales mo y co. el paso d) se lleva a cabo con flujo de aire seco de 10 nml/g de catalizador, a una temperatura de 70 a 120 degrees centigrade y durante 2 a 12 horas. luego del secado, en el paso e) los solidos son calcinados a entre 400 y 600 degrees centigrade durante 4 a 12 h bajo el mismo flujo de aire. el metodo de acuerdo con la reivindicación 3, en donde los catalizadores se activan in situ previo a la etapa de reacción. la activación de los catalizadores se lleva a cabo utilizando una mezcla de nafta virgen con un compuesto azufrado como di-metil disulfuro, di-butil disulfuro, azufre elemental, entre otros usando una concentración de 1 a 3 percent peso de s. la mezcla anterior se alimenta al reactor junto con h_2 usando una relación de entre 100 a 500 nli a una temperatura entre 300 y 400 degrees centigrade y presión atmosferica, durante el tiempo suficiente para garantizar la sulfuración total de los metales activos del catalizador. a catalyst for the selective removal of sulfur claims produced from the fluidized catalytic cracking naphthas, characterized by comprising: a. a support of d-pure alumina and/or amorphous aluminosilicate (asa) b. the support is modified by the inclusion of 2 to 4 percent by weight of a group ia metal, preferably na or k c. molybdenum oxide (Oo_3) in an amount of from 10 to 20 weight percent and d. cobalt oxide (coo), so as to obtain a molar ratio $\text{co}/(\text{co}+\text{mo})$ between 0.3 and 0.5. the catalyst according to claim 1, wherein the aluminosilicate has a molar ratio $\text{si}/(\text{if}+\text{ai})$ of from 0.15 to 0.25. a method for producing the catalyst of claim 1, characterized in that it comprises the steps of: a. obtain the support of alumina or amorphous aluminosilicate (asa) b. dope supports with a metal of group ia of the periodic table c. smear the supports with molybdenum salts and cobalt d. drying the impregnated supports using a flow of dry air e. calcining the impregnated supports and f. activate the catalyst in situ the method according to claim 3, wherein in step a) the handle support is obtained by a sol-gel method with hydrolysis in a basic medium, in such a way as to obtain a mostly solid mesoporous. the method according to claim 3, wherein in step b) the support obtained in step a is modified with 2 to 4 percent by weight of a group ia alkali metal, preferably na or k. doping is performed by incipient wet impregnation with a solution of an inorganic salt thereof, soluble in water. na salts that can be used is the nano_3 and kno_3 . after drying the impregnation is conducted in air flow at a flow of 10 nml/g catalyst, at a temperature of between 70 and 120 degrees centigrade for 2 to 12 h and a subsequent calcination under the same flow of air at a temperature of between 400 and 600 degrees centigrade for 4 to 12 h. the method according to claim 3, wherein step c) is carried out by impregnation of the support sequentially with an aqueous solution of $(\text{?})6\text{??}4\text{ 70242})$? and then with a solution of $\text{co(n}_3\text{)}_2\text{-6h}_2\text{O}$. the method according to claim 3, wherein the step (d) and (e) are carried out after the impregnation of each one of the metals mo and co. step d) is carried out with dry air flow 10 nml/g catalyst, at a temperature of 70 to 120 degrees centigrade and for 2 to 12 hours. after drying, in step e) the solids are calcined at between 400 and 600 degrees centigrade for 4 to 12 h under the same flow of air. the method according to claim 3, wherein the catalysts are activated in situ before the reaction step. the activation of the catalysts is carried out using a mixture of virgin naphtha with a sulfur compound such as di-methyl disulfide, di-butyli disulfide, elemental sulfur, among others using a concentration of 1 to 3 percent by weight of s. the above mixture is fed to the reactor together with h_2 using a ratio of between 100 to 500 nli a una temperatura between 300 and 400 degrees centigrade and atmospheric pressure, for a time sufficient to ensure total sulfidation of the active metals of the catalyst. (Results 0)

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1) Family number: 42933011 (US2011139677A)

PatBase

Title: CATALYTIC SYSTEM AND PROCESS FOR THE HYDROCONVERSION OF HEAVY OIL PRODUCTS

Abstract: Catalytic system which can be used in processes for the hydroconversion of heavy oils by means of hydrotreatment in slurry phase, characterized in that it comprises: a catalyst, having the function of hydrogenating agent, containing MoS₂ or WS₂ or mixtures thereof in lamellar form or an oil-soluble precursor thereof; a co-catalyst, having nanometric or micronic particle-sizes, selected from cracking and/or denitrogenation catalysts. The co-catalyst preferably consists of zeolites having small-sized crystals and with a low aggregation degree between the primary particles, and/or oxides or sulfides or precursors of sulfides of Ni and/or Co in a mixture with Mo and/or W.

Classifications:

International (IPC 8-9): B01J21/18 B01J23/16 B01J23/22 B01J23/28 B01J23/30 B01J23/88 B01J23/882 B01J23/883 B01J23/888 B01J27/047 B01J27/049 B01J27/051 B01J29/04 B01J29/06 B01J29/072 B01J29/076 B01J29/16 B01J29/70 B01J29/76 B01J35/00 B01J37/20 B82B1/00 C10C3/02 C10G35/04 C10G45/04 C10G45/08 C10G45/12 C10G45/14 C10G45/16 C10G45/46 C10G45/50 C10G45/54 C10G47/02 C10G47/20 C10G47/26 (Advanced/Invention); B82Y30/00 (Advanced/Non-invention);

B01J23/16 B01J23/76 B01J29/00 C10G45/02 (Core/Invention)

CPC: B01J23/882 B01J23/883 B01J27/051 B01J29/041 B01J29/061 B01J29/072 B01J29/166 B01J29/7007 B01J29/7615 B01J35/0006 B01J37/20 C10G45/04 C10G45/08 C10G45/12 C10G45/46 C10G45/50 C10G45/54 C10G47/20 C10G2300/1003 C10G2300/1011 C10G2300/1033 C10G2300/1074 Y02P30/20

European: B01J23/882 B01J23/883 B01J27/051 B01J29/04A B01J29/06D B01J29/072 B01J29/16Y B01J29/70B B01J29/76B B01J35/00B B01J37/20 C10G45/04 C10G45/08 C10G45/12 C10G45/46 C10G45/50 C10G45/54 C10G47/20

US: 208/134 208/134S 208/44 208/44P 208/95 208/95S 502/185 502/185S 502/219 502/219S 502/220 502/220S 502/221 502/221S 502/60 502/60S 502/79 502/79S 977/773 977/773S

Family:

Publication number	Publication date	Application number	Application date
CA2726904 AA	20091217	CA20092726904	20090608
CA2726904 C	20180213	CA20092726904	20090608
EP2291238 A1	20110309	EP20090761486	20090608
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RU2010150300 A	20120720	RU20100150300	20090608
RU2525470 C2	20140820	RU20100150300	20090608
US2011139677 AA	20110616	US20090996782	20090608
US9765266 BB	20170919	US20090996782	20090608
WO09149923 A1	20091217	WO2009EP04193	20090608

Priority:

IT2008MI01061 20080611 WO2009EP04193 20090608

Probable Assignee: ENI SPA

Assignee(s): (std): BELLUSSI GIUSEPPE ; CARATI ANGELA ; EHNI S P A ; EHNI SPA ; ENI SPA ; RISPOLI GIACOMO

Assignee(s): ENI S P A

Inventor(s): (std): RISPOLI GIACOMO ; CARATI ANGELA ; BELLUSSI GIUSEPPE ; RISPOLI DZHAKOMO ; KARATI ANDZHELA ; BELLUSSI DZHUZEPPE

Agent(s): ROBIC ; COLETTI RAIMONDO; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; BARZANO AND ZANARDO MILANO S P A

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LR LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

2) Family number: 60604021 (US2015303449A)

PatBase

Title: METHOD FOR MANUFACTURING OF METAL OXIDE NANOPARTICLES AND METAL OXIDE NANOPARTICLES THEREBY

Abstract: The present invention relates to a method for preparing metal oxide nanoparticles and metal oxide nanoparticles prepared thereby, and more particularly, to a method for preparing metal oxide nanoparticles, the method including: dipping a cathode and an anode formed of a metal for forming oxide, in an inorganic electrolyte solution containing halogen salt (step 1); and applying voltage to the anode and the cathode to form, on the anode, metal oxide forming an anode surface (step 2). According to a method for preparing metal oxide nanoparticles of the present invention, disadvantages of typical nanoparticle synthesizing methods may be solved to cheaply and rapidly manufacture nanoparticles having various structures through a simple and single process without using a surfactant. Since an anodizing method requires only a power supply device having a low voltage of 30 V or less and an electrolyte, and is performed at room temperature, the anodizing method does not require an additional device or installation. Also, from just after the power supply device is turned on, metal oxide nanoparticles may be rapidly formed, nanoparticles having excellent crystallinity may be produced, and factors of the anodizing method, such as

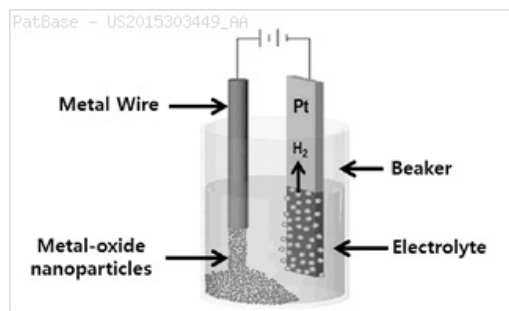
voltage, temperature, an electrolyte, and an electrolyte concentration may be changed to simply adjust a shape of the nanoparticles. Therefore, the present technology is expected to improve economical efficiency of the metal oxide nanoparticles to also contribute to the mass production of the metal oxide nanoparticles.

Classifications:

International (IPC 8-9): A61K9/51 B01J21/04 B01J21/06 B01J23/06 B01J23/08 B01J23/14 B01J23/72 B01J23/74 B01J23/745 B01J23/75 B01J23/755 B01J35/00 B01J35/02 B01J37/03 B01J37/34 B82B3/00 B82Y40/00 C01F7/02 C01F7/42 C01G15/00 C01G19/02 C01G23/047 C01G25/02 C01G3/02 C01G49/06 C01G51/00 C01G53/00 C01G53/04 C01G9/02 C25B1/00 C25C5/02 C25D11/08 C25D11/16 C25D11/26 C25D11/34 C25D5/34 C25D5/50 C25D7/06 C25D9/04 H01M10/0525 H01M4/131 H01M4/485 (Advanced/Invention); A61K9/51 B82Y40/00 (Advanced/Non-invention)

CPC: H01M4/131 H01M10/0525 H01M4/485 C01G15/00 C01G19/02 C01G9/02 C01G25/02 C01F7/02 C01G23/047 C01G53/04 C01G49/06 C01G3/02 C01G53/00 B01J23/08 B01J23/14 B01J23/06 B01J21/066 B01J21/04 B01J21/063 B01J23/755 B01J23/745 B01J23/72 B01J23/75 C01G51/00 C01G51/006 A61K9/5115 C25C5/02 B82B3/00 B82Y40/00 B01J23/74 B01J35/0013 B01J35/002 B01J35/023 B01J37/031 B01J37/348 C01F7/428 C01P2002/72 C01P2002/85 C01P2004/02 C01P2004/03 C01P2004/04 C01P2004/51 C01P2004/64 C25B1/00 C25D11/08 C25D11/16 C25D11/26 C25D11/34

US: 205/333 205/57 205/60 205/64 205/66 428/402 429/218.1 502/300



Family:

Publication number	Publication date	Application number	Application date
KR20150120552 A	20151028	KR20140045884	20140417
US2015303449 AA	20151022	US20150685864	20150414
US10193133 BB	20190129	US20150685864	20150414

Priority:

KR20140045884 20140417

Probable Assignee: KOREA ADVANCED INST SCI AND TECH

Assignee(s): (std): KOREA ADVANCED INST OF SCIENCE AND TECHNOLOGY ; KOREA ADVANCED INST SCI AND TECH

Assignee(s): KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY ; KOREA ADVANCED INST OF SCIENCE AND TECHNOLOGY

Inventor(s): (std): CHO SUNG OH ; PARK YANG JEONG ; GHAFAR ALI

Agent(s): FREDRIKSON AND BYRON PA

3) Family number: 44336029 (US2011192765A)

© PatBase

Title: IZM-2 ZEOLITE-BASED CATALYST AND PROCESS FOR HYDROCONVERSION/HYDROCRACKING OF HYDROCARBONATED FEEDSTOCKS

Abstract: The present invention relates to a catalyst comprising at least one IZM-2 zeolite, at least one amorphous matrix, at least one hydro-dehydrogenating element selected from the group formed by the elements from group VIB and from group VIII of the periodic table and excluding platinum and palladium. The catalyst also optionally contains a controlled quantity of at least one doping element selected from phosphorus, boron and silicon, optionally at least one element from group VB of the periodic table of the elements, and optionally a group VIIA element. The invention also relates to hydrocracking and hydrotreatment processes implementing this catalyst.

Classifications:

International (IPC 8-9): B01J29/035 B01J29/04 B01J29/06 B01J29/072 B01J29/076 B01J29/70 B01J29/76 B01J29/78 B01J37/00 B01J37/20 C01B33/26 C01B39/02 C01B39/46 C01B39/48 C07C4/02 C07C7/00 C10G45/00 C10G45/08 C10G45/12 C10G47/02 C10G47/06 C10G47/12 C10G47/16 C10G47/20 C10G49/04 C10G49/08 C10G65/00 (Advanced/Invention); B01J21/04 B01J21/12 B01J29/04 B01J29/76 C01B39/46 C10G45/12 (Advanced/Non-invention); B01J29/00 C01B39/00 C10G45/02 C10G47/00 (Core/Invention)

CPC: B01J21/04 B01J21/12 B01J29/78 B01J37/0009 B01J37/20 B01J2229/20 B01J2229/42 C01B39/48 C10G47/16 C10G47/20 C10G2300/107 C10G2300/1074 C10G2300/1077 C10G2300/4018 B01J29/76

European: B01J29/76 B01J29/78 B01J37/00B B01J37/20 C01B39/48 C10G47/16 C10G47/20 L01J21/04 L01J21/12 L01J2229/20 L01J229/42

US: 208/108 208/110 208/143 208/143S 208/264 208/264S 208/59 208/59S 502/60 502/74 502/74S 502/77 502/87 502/87S 585/319 585/319S 585/324 585/324S 585/400 585/400S 585/653 585/653S

Family:

Publication number	Publication date	Application number	Application date
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CN102176970 A	20110907	CN200980139757	20090729
CN102176970 B	20130619	CN200980139757	20090729
DE602009006838 D1	20120705	DE200960006838T	20090729
DK2313195 T3	20120827	DK20090784314T	20090729
EP2313195 A1	20110427	EP20090784314	20090729
EP2313195 B1	20120509	EP20090784314	20090729
ES2387864 T3	20121003	ES20090784314T	20090729
FR2934796 A1	20100212	FR20080004562	20080808
FR2934796 B1	20100903	FR20080004562	20080808
IN01479CN2011 A	20111202	IN2011CN01479	20110303
IN295659 B	20180413	IN2011CN01479	20110303
JP2011530397 T2	20111222	JP20110521610T	20090729
JP5577339 B2	20140820	JP20110521610T	20090729
KR101581983 B1	20151231	KR20117005372	20090729
KR20110042347 A	20110426	KR20117005372	20090729
RU2011108384 A	20120920	RU20110108384	20090729

■	RU2487755 C2	20130720	RU20110108384	20090729
■	US2011192765 AA	20110811	US20090057781	20090729
■	US8936717 BB	20150120	US20090057781	20090729
■	WO10015736 A1	20100211	WO2009FR00942	20090729

Priority:

FR20080004562 20080808 EP20090784314 20090729 WO2009FR00942 20090729

Probable Assignee: IFP ENERGIES NOUVELLES

Assignee(s): (std): IFP EHNERZHI NUVELL ; IFP ENERGIES NOUVELLES ; INST FRANCAIS DU PETROLE ; SIMON LAURENT ; GUILLON EMMANUELLE

Assignee(s): IFP

Inventor(s): (std): GUILLON EMMANUELLE ; SIMON LAURENT ; EMMANUELLE GUILLON ; LAURENT SIMON ; GIJON EHMANNJUEHLL ; SIMON LORAN

Agent(s): VONNEMANN KLOIBER AND KOLLEGEN; IFP; IFP ENERGIES NOUVELLES; HIBI NORIHIKO; KISHIMOTO EINOSUKE; WATANABE AKIRA; MATSUMURA NAOTO; MILLEN WHITE ZELANO AND BRANIGAN PC; ELMALEH ALFRED

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 43214031 (US2010239478A)

© PatBase

Title: FILTER

Abstract: A filter for filtering particulate matter (PM) from exhaust gas emitted from a positive ignition engine, which filter comprising a porous substrate having inlet surfaces and outlet surfaces, wherein the inlet surfaces are separated from the outlet surfaces by a porous structure containing pores of a first mean pore size, wherein the porous substrate is coated with a washcoat comprising a plurality of solid particles wherein the porous structure of the washcoated porous substrate contains pores of a second mean pore size, and wherein the second mean pore size is less than the first mean pore size.

Classifications:

International (IPC 8-9): B01D24/00 B01D37/00 B01D37/02 B01D39/00 B01D39/06 B01D39/14 B01D39/20 B01D46/00 B01D46/10 B01D46/24 B01D46/42 B01D46/54 B01D50/00 B01D53/00 B01D53/34 B01D53/56 B01D53/86 B01D53/94 B01J23/10 B01J23/40 B01J23/42 B01J23/44 B01J23/46 B01J23/72 B01J23/745 B01J29/00 B01J29/04 B01J29/06 B01J29/08 B01J29/10 B01J29/12 B01J29/14 B01J29/16 B01J29/40 B01J29/44 B01J29/46 B01J29/50 B01J29/54 B01J29/56 B01J29/70 B01J29/72 B01J29/74 B01J29/76 B01J29/78 B01J29/80 B01J35/00 B01J35/02 B01J35/04 B01J35/10 B01J37/00 B01J37/02 B01J37/03 B01J39/08 F01N1/02 F01N13/00 F01N3/02 F01N3/021 F01N3/022 F01N3/023 F01N3/025 F01N3/029 F01N3/035 F01N3/08 F01N3/10 F01N3/20 F01N3/28 (Advanced/Invention); F01N3/08 (Advanced/Non-invention); B01D46/24 B01D46/42 B01D53/34 B01D53/56 B01D53/94 B01J29/00 B01J35/00 F01N3/021 F01N3/022 F01N3/035 (Core/Invention)

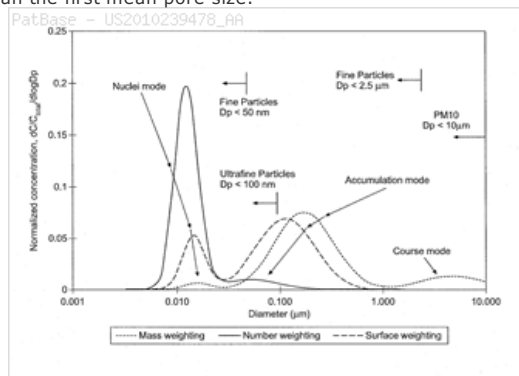
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European: B01D53/94H B01D53/94L4 B01D53/94M2L B01D53/94M4 B01J23/40 B01J23/46D B01J29/06 B01J29/06D B01J29/08W B01J29/08Z2 B01J29/12Y B01J29/14Y B01J29/16Y B01J29/40Z B01J29/44 B01J29/46 B01J29/50Z B01J29/54 B01J29/56 B01J29/70B B01J29/70Z4 B01J29/72B B01J29/74B B01J29/76B B01J29/78B B01J35/02B B01J35/04 B01J35/10 B01J37/00B4B B01J37/02C2 B01J37/02M6 B01J37/03D F01N3/035 F01N3/10A L01D255/102A L01D255/102B L01D255/102C L01D255/206 L01D255/206N L01D255/207E L01D255/207H L01D255/50 L01D255/502 L01D255/504 L01D255/912 L01D255/915 L01D255/915W L01D255/920 L01D258/01D L01D258/01G L01D275/30 L01D279/30 L01D53/94F2C2 L01D53/94F2C4 L01D53/94L2 R01N13/02 R01N3/035 R01N3/08B6D R01N3/20E R01N310/06 R01N510/06 R01N510/068 R01N510/0682

US: 1/1 422/169 422/170 422/171 422/172 422/173 422/174 422/175 422/176 422/177 422/178 422/179 422/180 422/180S 422/181 422/182 423/212 423/212P 423/213.2 423/213.200P 423/213.200S 423/213.5 423/213.500P 423/213.7 423/215.5 502/178 55/486 55/486S 55/522 55/523 55/523S 55/524 55/524S 55/529 55/DIG.3 55/DIG.30 60/272 60/299 60/301 95/273 95/285 95/285P

Family:

Publication number	Publication date	Application number	Application date
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■ BRPI1013401 A2	20160405	BR2010PI13401	20100226
■ CN102333579 A	20120125	CN201080009348	20100226
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■ CN102762283 A	20121031	CN201080064672	20101223
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■ CN105642116 B	20190507	CN201610103865	20100226
■ CN105909349 A	20160831	CN201610283758	20100226
■ CN107654273 A	20180202	CN201710913398	20100226



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JP2017006904 A2	20170112	JP20160063917	20160328
JP2018159380 A2	20181011	JP20180092881	20180514
JP5717654 B2	20150513	JP20110551532T	20100226
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KR101718574 B1	20170404	KR20127019411	20101223
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KR20110119748 A	20111102	KR20117019710	20100226
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KR20120113234 A	20121012	KR20127019411	20101223
KR20180021243 A	20180228	KR20187004972	20100226
KR20180104189 A	20180919	KR20187026406	20100226
RU2011139081 A	20130410	RU20110139081	20100226
RU2011139134 A	20130410	RU20110139134	20100226
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RU2527462 C2	20140827	RU20110139081	20100226
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RU2548997 C2	20150420	RU20120131517	20101223
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US2011158871 AA	20110630	US20100977728	20101223
US2012097033 AA	20120426	US20100203631	20100226
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US2014186228 AA	20140703	US20130107607	20131216
US2015093300 AA	20150402	US20140564999	20141209

US2016193594 AA	20160707	US20160006319	20160126
US2018361364 AA	20181220	US20180101710	20180813
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US8211393 BB	20120703	US20100977728	20101223
US8512657 BB	20130820	US20110222929	20110831
US8608820 BB	20131217	US20100203631	20100226
US8919110 BB	20141230	US20130970109	20130819
US9261004 BB	20160216	US20130107607	20131216
US9415344 BB	20160816	US20140564999	20141209
WO10097634 A1	20100902	WO2010GB50334	20100226
WO10097638 A1	20100902	WO2010GB50347	20100226
WO11077168 A1	20110630	WO2010GB52209	20101223
WO13030584 A1	20130307	WO2012GB52136	20120831

Priority:

GB20090003262	20090226	GB20090003263	20090226	GB20090022612	20091224
US20100712681	20100225	CN201080009348	20100226	CN201080019272	20100226
EP20100706346	20100226	EP20130153896	20100226	GB20100003244	20100226
WO2010GB50334	20100226	WO2010GB50347	20100226	GB20100014027	20100823
EP20100801695	20101223	CN201080064672	20101223	JP20120545454T	20101223
JP20160063917	20101223	WO2010GB52209	20101223	US20110203631	20110826
US20110222929	20110831	US20120203631	20120106	WO2012GB52136	20120831
EP20130153896	20130204	US20130970109	20130819	US20130107607	20131216
US20140564999	20141209	US20160006319	20160126	JP20160063917	20160328
JP20180092881	20180514	US20180101710	20180813		

Probable Assignee: JOHNSON MATTHEY PUBLIC CO LTD

Assignee(s): (std): ARNOLD LOUISE ; ARNOLD LOUISE CLARE ; BRISLEY ROBERT ; CHIFFEY ANDREW FRANCIS ; CHANDLER GUY RICHARD ; BRISLEY ROBERT JAMES ; COLLINS NEIL ROBERT ; DZHONSON MEHTTEJ PABLIK LTD KOMPANI ; GREENWELL DAVID ; FLANAGAN KEITH ANTHONY ; GREENWELL DAVID ROBERT ; JOHNSON MATTHEY PLC ; DZHONSON MEHTTI PABLIK LTD KOMPANI ; JOHNSON MATTHEY ; DZHONSON MEHTTI PLS ; JOHNSON MATTHEY PUBLIC LTD CO ; MORGAN CHRISTOPHER ; MORGAN CHRISTOPHER GOUGH

Assignee(s): JOHNSON MATTHEY PUBLIC LTD ; DZHONSON MEHTTI PABLIK KOMPANI LTD ; JOHNSON MATTHEY PUBLIC LIMITED COMPANY ; JOHNSON MATTHEY PUBLIC CO LTD ; DZHONSON MEHTTEJ PABLIK KOMPANI LTD

Inventor(s): (std): CHRISTOPHER GOUGH MORGAN ; MORGAN CHRISTOPHER GOUGH ; FLANAGAN KEITH ANTHONY ; GREENWELL DAVID ; CHIFFEY ANDREW FRANCIS ; BRISLEY ROBERT ; ARNOLD LOUISE ; CHANDLER GUY RICHARD ; FLANAGAN KIT EHNTONI ; CHIFFI EHND RJU FREHNSIS ; GRINVELL DEJVID ; MORGAN KRISTOFER ; BRISLI ROBERT ; ARNOL D LUIZ ; CHANDLER GAJ RICHARD ; ROBERT COLLINS NEIL ; JAMES BRISLEY ROBERT ; CLARE ARNOLD LOUISE ; ROBERT GREENWELL DAVID ; GOUGH MORGAN CHRISTOPHER ; DAVID GREENWELL ; FRANCIS CHIFFEY ANDREW ; CHRISTOPHER MORGAN ; RICHARD CHANDLER GUY ; ROBERT BRISLEY ; ANTHONY FLANAGAN KEITH ; LOUISE ARNOLD ; LOUISE CLARE ARNOLD ; ROBERT JAMES BRISLEY ; DAVID ROBERT GREENWELL ; BRISLEY ROBERT JAMES ; GREENWELL DAVID ROBERT ; MORGAN CHRISTOPHER ; ARNOLD LOUISE CLARE ; KOLLINZ NIL ROBERT ; BRISLI ROBERT DZHEJMS ; MORGAN KRISTOFER GOF ; ARNOL D LUIZ KLER ; GRINVEHLL DEHVID ROBERT ; COLLINS NEIL ROBERT

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Agent(s): NUNN ANDREW DOMINIC ; SONODA AND KOBAYASHI INTELLECTUAL PROPERTY LAW ; RATNERPRESTIA ; JIMMIE D ; GARY D ; NUNN ANDREW

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

5) Family number: 65763033 (US2018280948A)

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Title: SELECTIVE CATALYTIC REDUCTION CATALYST

Abstract: A selective catalytic reduction catalyst composition for converting oxides of nitrogen (NO_x) in an exhaust gas using a nitrogenous reductant comprises a mixture of a first component and a second component, wherein the first component is an admixture of the H-form of an aluminosilicate mordenite zeolite (MOR) and an iron-promoted aluminosilicate MFI zeolite; and the second component is a vanadium oxide supported on a metal oxide support, which is titania, silica-stabilized titania or a mixture of both titania and silica-stabilized titania, wherein the weight ratio of the first component to the second component is 10:90 to 25:75.

Classifications:

International (IPC 8-9): B01D53/94 B01J21/04 B01J21/06 B01J21/08 B01J21/16 B01J23/22 B01J23/30 B01J23/847 B01J29/18 B01J29/46 B01J29/48 B01J29/76 B01J29/80 B01J35/00 B01J35/04 B01J35/06 B01J37/00 B01J37/02 F01N3/10 F01N3/20 F01N3/28 (Advanced/Invention);

B01J29/06 (Advanced/Non-invention)

CPC: B01D53/9418 B01D53/9436 B01D2255/20707 B01D2255/20723 B01D2255/20738 B01D2255/50 B01D2255/911 B01J23/22 B01J23/30 B01J23/8472 B01J29/18 B01J29/46 B01J29/48 B01J29/80 B01J35/0006 B01J35/04 B01J37/0009 B01J37/0246 B01J2229/186 B01J2229/42 Y02C20/10 B01D53/94 B01D2255/504 B01D2255/902 B01J21/063 B01J21/08 B01J2523/55 C07C2529/18 C07C2529/40 C07C2529/80 C07C2529/89 F01N3/20 B01D53/9459 B01J21/04 B01J21/16 B01J29/76 B01J35/06 B01J37/0215 B01J2029/062 F01N3/2066 F01N3/2825 F01N2330/06 F01N2330/14 F01N2370/04 F01N2510/0684 F01N2610/02

US: 1/1 423/239.2

Family:

Publication number	Publication date	Application number	Application date
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DE102018204688 A1	20181004	DE201810204688	20180327
GB201705289 A0	20170517	GB20170005289	20170331

GB201804747 A0	20180509	GB20180004747	20180323
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IN201947043445 A	20191101	IN201947043445	20191025
US2018280948 AA	20181004	US20180935082	20180326
US10500575 BB	20191210	US20180935082	20180326
WO18178643 A1	20181004	WO2018GB50777	20180323

Priority:

GB20170005289 20170331 WO2018GB50777 20180323

Probable Assignee: JOHNSON MATTHEY CATALYSTS GERMANY GMBH

Assignee(s): (std): JOHNSON MATTHEY CATALYSTS GERMANY GMBH ; NUNN ANDREW DOMINIC

Inventor(s): (std): MUENCH JOERG WERNER ; IRENE PIRAS ; DIANA BISKUPSKI ; JOERG WERNER MUENCH ; MUENCH JOERG ; PIRAS IRENE ; BISKUPSKI DIANA

Agent(s): NUNN ANDREW DOMINIC

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

6) Family number: 63740047 (US2018133651A)

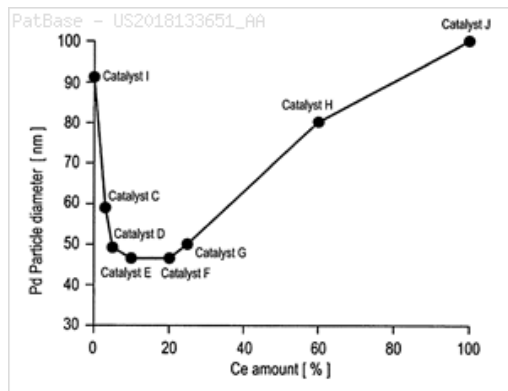
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Title: CATALYST FOR PURIFICATION OF EXHAUST GAS FROM INTERNAL COMBUSTION ENGINE AND EXHAUST GAS PURIFYING METHOD USING THE CATALYST

Abstract: An object is to provide a means for suppressing a deterioration in catalytic performance even after being exposed to high temperature exhaust gas containing a phosphorus compound for a long period of time. An exhaust gas purifying catalyst including palladium supported on cerium-aluminum composite oxide containing cerium at from 3 to 60 percent by mass in terms of cerium oxide.

Classifications:

International (IPC 8-9): B01D53/94 B01J21/04 B01J23/06 B01J23/10 B01J23/63 F01N3/10 (Advanced/Invention)
CPC: B01D53/945 B01D2255/1023 B01D2255/2065 B01D2255/2092 B01D2258/01 B01J21/04 B01J23/002 B01J23/02 B01J23/63 B01J35/0006 B01J35/002 B01J35/023 B01J35/04 B01J35/1014 B01J35/1019 B01J37/038 B01D53/94 F01N3/10 Y02T10/22 B01D53/9445 B01J23/06 B01J23/10
US: 1/1 502/326



Family:

Publication number	Publication date	Application number	Application date
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EP3281697 A1	20180214	EP20160776654	20160407
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US2018133651 AA	20180517	US20160564085	20160407
WO16163488 A1	20161013	WO2016JP61462	20160407

Priority:

JP20150078742 20150407 WO2016JP61462 20160407

Probable Assignee: UMICORE NV

Assignee(s): (std): UMICORE NV ; UMICORE SHOKUBAI JAPAN CO LTD

Assignee(s): UMICORE SHOKUBAI JAPAN CO

Inventor(s): (std): AKASAKA YUTA ; HISANO HIROTAKA ; GOTO HIDEKI ; MINAMI SHIGEKAZU ; IKEDA MASANORI ; KUNO HIROTAKA

Agent(s): COPSEY TIMOTHY GRAHAM; HATTA AND ASSOCIATES

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

7) Family number: 54155049 (US2013165316A)

© PatBase

Title: PROCESS FOR THE PREPARATION OF A CATALYST WHICH CAN BE USED IN HYDROTREATMENT AND HYDROCONVERSION

Abstract: A process for the preparation of a catalyst from a catalytic precursor comprising a support based on alumina and/or

silica-alumina and/or zeolite and comprising at least one element of group VIB and optionally at least one element of group VIII, by impregnation of said precursor with a solution of a C1-C4 dialkyl succinate. An impregnation step for impregnation of said precursor which is dried, calcined or regenerated, with at least one solution containing at least one carboxylic acid other than acetic acid, then maturing and drying at a temperature less than or equal to 200 degrees centigrade, optionally a heat treatment at a temperature lower than 350 degrees centigrade, followed by an impregnation step with a solution containing at least one C1-C4 dialkyl succinate followed by maturing and drying at a temperature less than 200 degrees centigrade without subsequent calcination step. The catalyst is used in hydrotreatment and/or hydroconversion.

Classifications:

International (IPC 8-9): B01J B01J21/04 B01J23/28 B01J23/40 B01J23/74 B01J23/75 B01J23/85 B01J23/882 B01J27/14 B01J27/19 B01J29/06 B01J29/90 B01J31/02 B01J31/04 B01J31/34 B01J37/02 B01J37/08 B01J37/20 B01J37/28 B01J38/52 B01J38/62 C07C C07C13/18 C07C5/00 C07C5/10 C10G45/08 C10G45/12 C10G45/38 C10G45/50 C10G45/54 C10G47/12 (Advanced/Invention)

CPC: C10G45/08 B01J21/04 B01J23/85 B01J23/90 B01J31/0201 B01J31/0209 B01J35/002 B01J37/0205 B01J23/28 B01J37/0203 B01J37/20 B01J38/52 C10G45/12 C10G45/50 B01J23/24 B01J27/14 B01J29/076 Y02P20/584 C07C2601/14 B01J23/882 B01J27/19 B01J37/28 B01J38/62 C07C5/10

US: 208/111.3 208/143 208/216R 208/253 208/254H 502/150 585/266

PatBase - US2013165316_AA

Patent Application Publication Jun. 27, 2013 US 2013/0165316 A1

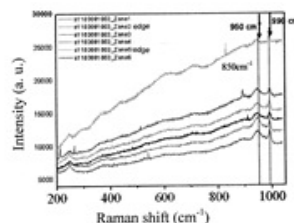


Fig. 1

Family:

Publication number	Publication date	Application number	Application date
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BR112014015330 A8	20170627	BR20141115330	20121127
CN104203407 A	20141210	CN201280063895	20121127
CN104203407 B	20170517	CN201280063895	20121127
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FR2984764 B1	20140117	FR20110004026	20111222
GC5155 A	20170313	GC2012P023119	20121219
IN05522CN2014 A	20160304	IN2014CN05522	20140717
JP2015506827 T2	20150305	JP20140548128T	20121127
JP6134736 B2	20170524	JP20140548128T	20121127
KR20140123937 A	20141023	KR20147020507	20121127
MX2014007366 A1	20141121	MX20140007366	20121127
MX353535 B	20180118	MX20140007366	20121127
RU2014130016 A	20160210	RU20140130016	20121127
RU2627362 C2	20170807	RU20140130016	20121127
US2013165316 AA	20130627	US20120720026	20121219
WO13093228 A1	20130627	WO2012FR00487	20121127
ZA201404018 A	20160629	ZA20140004018	20140602

Priority:

FR20110004026 20111222 WO2012FR00487 20121127

Probable Assignee: IFP ENERGIES NOUVELLES

Assignee(s): (std): IFP ENERGIES NOW ; IFP ENERZHI NUVELL ; TOTAL RAFFINAGE MARKETING ; TOTAL REFFINAGE FRANCE ; TOTAL RAFFINAGE FRANCE ; IFP ENERGIES NOUVELLES

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Inventor(s): VALENTINA DE GRANDI

Agent(s): LUZ CLEMENCIA DE PAEZ ; RUIS ALAIN ; IFP ENERGIES NOUVELLES ; KADASA LAW FIRM ; KISHIMOTO EINOSUKE ; WATANABE AKIRA ; MATSUMURA NAOTO ; NGUYEN JEAN PAUL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: CATALYST BASED ON CATECHOLAMINE AND ITS USE IN A HYDROTREATMENT AND/OR HYDROCRACKING PROCESS

Abstract: The invention concerns a catalyst comprising a support based on alumina or silica or silica-alumina, at least one element selected from group VIII and/or group VIB, and at least one catecholamine. The invention also concerns the process for the preparation of said catalyst and its use in a hydrotreatment and/or hydrocracking process.

Classifications:

International (IPC 8-9): B01J21/04 B01J21/08 B01J23/85 B01J23/882 B01J27/19 B01J31/02 B01J31/34 B01J37/02 B01J37/20 C07C5/10 C10G45/04 C10G45/08 C10G47/20 (Advanced/Invention)

CPC: B01J23/882 B01J31/0238 B01J31/0269 B01J37/0203 B01J37/20 C10G47/12 B01J23/883 B01J23/888 B01J23/8885 B01J27/188 B01J35/023 B01J35/026 B01J35/08 B01J37/0205 B01J31/34 C07C2527/186 B01J31/0271 B01J21/04 B01J21/08 C07C5/10 B01J2531/002 B01J2231/646 C07C2523/75 C07C2531/02 C07C2521/04 C07C2521/08 C10G2300/104 C10G2300/207 C10G2400/02 C07C2523/84 B01J27/19 B01J31/0237 C10G45/08

US: 1/1

Family:

Publication number	Publication date	Application number	Application date
■ CN108883404 A	20181123	CN201780020626	20170301
■ EP3436190 A1	20190206	EP20170707877	20170301
■ FR3049475 A1	20171006	FR20160052743	20160330
■ FR3049475 B1	20180406	FR20160052743	20160330
■ JP2019515781 T2	20190613	JP20180550444T	20170301
■ US2019105648 AA	20190411	US20170089250	20170301
■ WO17167522 A1	20171005	WO2017EP54687	20170301

Priority:

FR20160052743 20160330 WO2017EP54687 20170301

Probable Assignee: IFP ENERGIES NOUVELLES

Assignee(s): (std): IFP ENERGIES NOW

Assignee(s): IFP ENERGIES NOUVELLES

Inventor(s): (std): MUNIRATHINAM RAJESH ; PIRNGRUBER GERHARD ; LAURENTI DOROTHEE ; UZIO DENIS

Inventor(s): RAJESH MUNIRATHINAM ; DENIS UZIO ; DOROTHEE LAURENTI ; GERHARD PIRNGRUBER

Agent(s): IFP ENERGIES NOUVELLES; MATSUMURA NAOTO; WATANABE AKIRA; KISHIMOTO EINOSUKE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: MESOPOROUS COMPOSITE OF MOLECULAR SIEVES FOR HYDROCRACKING OF HEAVY CRUDE OILS AND RESIDUES

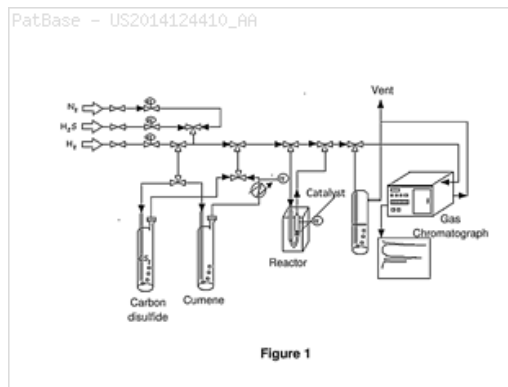
Abstract: A hydrocracking catalyst having a support of a composite of mesoporous materials, molecular sieves and alumina, is used in the last bed of a multi-bed system for treating heavy crude oils and residues and is designed to increase the production of intermediate distillates having boiling points in a temperature range of 204 degrees centigrade to 538 degrees centigrade, decrease the production of the heavy fraction (>538 degrees centigrade), and increase the production of gasoline fraction (<204 degrees centigrade). The feedstock to be processed in the last bed contains low amounts of metals and is lighter than the feedstock that is fed to the first catalytic bed.

Classifications:

International (IPC 8-9): B01J20/18 B01J21/12 B01J23/883 B01J29/03 B01J29/035 B01J29/04 B01J29/06 B01J29/08 B01J29/10 B01J29/14 B01J29/16 B01J29/80 B01J35/02 B01J35/10 B01J37/02 B01J37/08 C01B33/02 C01B33/46 C01B39/02 C10G45/08 C10G45/10 C10G45/12 C10G47/14 C10G47/16 C10G47/18 C10G47/20 (Advanced/Invention); B01J35/10 B01J37/00 (Advanced/Non-invention)

CPC: C10G47/20 B01J29/80 B01J29/0308 B01J29/0356 B01J29/0358 B01J29/044 B01J29/045 B01J29/146 B01J29/166 B01J35/1057 B01J35/109 B01J21/12 B01J23/883 B01J29/041 B01J29/084 B01J29/106 B01J35/026 B01J35/1019 B01J35/1038 B01J35/1042 B01J35/1061 B01J37/0018 B01J37/0201 B01J37/08 B01J2229/186 C10G45/08 C10G45/12 C10G45/10 C10G47/14 C10G47/16 C10G47/18

US: 1/1 208/111.01 208/111.3 208/111.35 502/64 502/66



Family:

Publication number	Publication date	Application number	Application date
■ MX2012012877 A1	20131016	MX20120012877	20121106
■ MX352582 B	20171107	MX20120012877	20121106
■ US2014124410 AA	20140508	US20130073505	20131106
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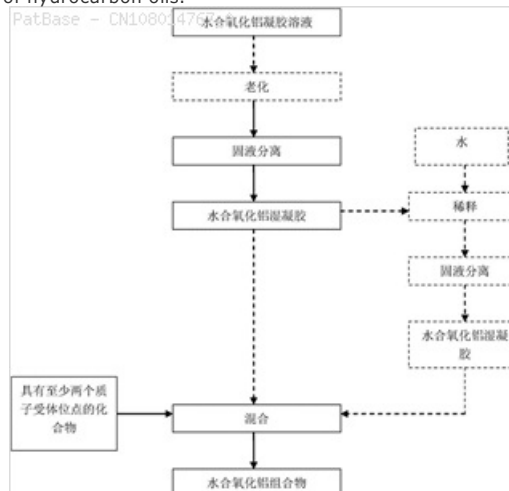
Priority:

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Title: HYDRATED ALUMINA COMPOSITION AND PREPARATION METHOD THEREOF, MOLDING BODY AND PREPARATION METHOD THEREOF, AND CATALYST AND PREPARATION METHOD THEREOF

Abstract: The invention discloses a hydrated alumina composition and a preparation method thereof, a molding body, a preparation method and applications thereof, and a production molding system. The hydrated alumina composition contains hydrated alumina and a compound having at least two proton acceptor sites, wherein the $[\phi]$ value of the composition is 1.8-5. The present invention further discloses a catalyst using a molding body formed from the hydrated alumina composition as a carrier and having hydrogenation catalysis effect, and a preparation method thereof, and a hydrotreating method. According to the present invention, the high-strength molding body is prepared by using the hydrated alumina wet gel as the starting raw material, such that the hydrated alumina wet gel drying step is eliminated; during the preparation of the molding raw material, the pseudoboehmite dry glue powder is blended into the moldable material without the adding of water, such that the total process is simplified, the operation energy consumption is reduced, and the dust pollution caused by the application of the pseudoboehmite dry glue powder as the raw material is avoided; and the catalyst using the molding body prepared from the hydrated alumina composition as the carrier has high catalytic activity in the hydrogenation of hydrocarbon oils.

Classifications:**International (IPC 8-9):** B01J20/08 B01J20/32 B01J21/04 B01J23/882 B01J23/883 B01J31/26 B01J31/34 B01J32/00 B01J35/10 C10G45/04 C10G45/08 (Advanced/Invention)**CPC:** B01J21/04 B01J20/08 B01J20/3204 B01J20/3234 B01J23/882 B01J23/883 B01J31/26 B01J31/34 B01J35/1061 C10G45/04 C10G45/08 C10G2300/201 C10G2300/202**Family:**

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Probable Assignee: SINOPEC CORP RES INST PETROLEUM PROCESSING**Assignee(s):** (std): CHINA PETROLEUM AND CHEM CORP ; CHINA PETROLEUM AND CHEMICAL CORP ; SINOPEC CORP RES INST PETROLEUM PROCESSING ; SINOPEC RESEARCH INST OF PETROLEUM PROCESSING**Assignee(s):** SINOPEC CORP**Inventor(s):** (std): JIA YANZI ; LIU TAO ; NIE HONG ; YANG QINGHE ; ZHAO XINQIANG