

TEMPERATURE MEASUREMENT

A Microfurnace for High Temperature Microscopy and X-ray Analysis up to 2150°C
W. GUTT, *J. Sci. Instrum.*, 1964, **41**, (6), 393-394
The design, calibration and testing of an Ir:60%

Ir-Rh thermocouple used as a microfurnace for microscopy and X-ray analysis to 2150°C are described. The electrically heated thermocouple acted as specimen holder, heater and thermometer. Variation was $\pm 0^\circ\text{C}$ at 2000°C over one hour and $\pm 10^\circ\text{C}$ at 1900°C over 12 hours. The cold junction had to be maintained at 0°C. Corrosion by specimens was resisted.

NEW PATENTS

Ruthenium Hydrogenation Catalyst

ENGELHARD INDUSTRIES INC.
British Patent 956,630

A catalyst of 1-5 wt.% Ru on an inert carrier is used for the hydrogenation of mono- and poly-hydroxy and alkoxy aromatics using H_2 at 25-150°C and 50-200 p.s.i.g.

Halogenated Platinum Metal Catalysts

THE BRITISH PETROLEUM CO. LTD.
British Patent 956,684

A hydrogenation catalyst of improved activity is prepared by treating an alumina-supported catalyst containing 0.01-5.0 wt.% Pt or Pd with a F compound, e.g. CF_4 , to give a product containing 1.0-5.0 wt.% F.

Platinum Metal Isomerisation Catalyst

THE BRITISH PETROLEUM CO. LTD.
British Patent 956,685

A catalyst consisting of an alumina support with a surface area of at least 300 m²/g, 0.1-2.0 wt.% of Pt or Pd, up to 1.0 wt.% Cl_2 and 1.2×10^{-4} to 3.4×10^{-4} g F_2/m^2 of Al_2O_3 surface area is used for the isomerisation of 4C and higher paraffin hydrocarbons at 250-500°C and 250-1000 p.s.i.g.

Ruthenium Hydrogenation Catalysts

C. F. BOEHRINGER & SOEHNE G.m.b.H.
British Patent 957,149

Ruthenium metal, oxide, salt or ruthenate may be used as hydrogenation catalyst in the conversion of pyridyl-(4)-ethers to piperidyl-(4)-ethers by reaction at 130-140°C and 100-200 atm. H_2 .

Semiconductor with Noble Metal Alloy Contact Element

SIGMUND COHN CORP. *British Patent 957,639*

A silicon diode semiconductor has a spring contact element made of an alloy containing, by weight, 1-10% W, 1-20% Mo and/or 1-12% Cr and balance of Rh or Pd and Pt with up to 50% Pt.

Activation of Platinum Metal Electrodes

JOHNSON, MATTHEY & CO. LTD.
British Patent 957,703

Particularly active electrodes for use in the electrolysis of brine are produced by exposing a Ti electrode plated with Pt group metal or alloy, in particular Pt, Pt-Rh or Pd-Ag, to the action of Hg vapour or alkali metal amalgam vapour, the Hg

coating being distilled off after it has been deposited to leave the surface in a highly active state.

Precious Metal Alloy Electric Switch

THE UNITED STATES TIME CORP.
British Patent 957,872

Electric switches for clocks and watches and the like have one contact made of an alloy containing 65-80% Au and 35-20% Ag, with up to 30% Ag being replaceable by Cu, and a second contact made of an alloy containing 40-60% Pd and 60-40% Ag, with up to 20% Ag replaceable by Cu.

Platinum Metal Anodes

IMPERIAL CHEMICAL INDUSTRIES LTD.
British Patent 958,413

Improved anode for the production of chlorine by brine electrolysis consists of a wire mesh supported on a pillar and strengthened by stiffeners, all parts made of Ti or its alloys, and an operative anode surface produced from Pt, Rh, Ir or an alloy of two or more of these metals applied to the wire mesh.

Palladium Plating

AUTOMATIC TELEPHONE & ELECTRIC CO. LTD.
British Patent 958,685

Pd is plated on to articles forming a cathode in a bath containing 4-100 g/l Pd, 20-160 g/l ammonium sulphate, 4-100 g/l ammonium nitrite, 0-1 g/l Ni sulphamate and NH_3 to give a pH of 6-8.

Electrolytic Cell Electrodes

IMPERIAL CHEMICAL INDUSTRIES OF AUSTRALIA & NEW ZEALAND LTD. *British Patent 959,498*

Electrodes for brine electrolysis cells, etc., have Ti electrodes whose anodic faces are coated with a Pt metal or its alloys.

Platinum Metal Hydrogenation Catalyst

ABBOTT LABORATORIES *British Patent 959,507*

Aminophenol is produced by passing a mixture of inert mineral acid, CH_3COOH and H_2O , containing 10% nitro-phenol, over a platinised or palladised charcoal catalyst.

Precious Metal Catalysts for Exhaust Purifiers

OXY-CATALYST INC. *British Patent 960,900*

Pt, Pd, Ru or Rh or their oxides are used in ex-

haust gas purifiers supported on metal pellets. For example, 8–66 wt. % of catalyst may operate at 550–750°F in a first chamber which is frequently replaced while the remainder of the catalyst operates at 900–1350°F in a second chamber which is rarely replaced.

Palladium-refractory Oxide-halogen Catalysts

THE BRITISH PETROLEUM CO. LTD.

British Patent 960,918

A catalyst suitable for the isomerisation of 4C and higher paraffins comprises a refractory oxide carrier, 0.01–5 wt. % Pd and 1–15 wt. % Cl₂ and is produced by impregnating the refractory oxide or its precursor with an ammoniacal solution of a Pd compound, precipitating the Pd, treating the composite product with hydrogen and contacting it with XYCl₂ where X and Y are the same or different H, halogen or SCl group and XY may be O or S.

Precious Metal Heat Detectors

J. E. LINDBERG *British Patent 961,143*

Pd is used in a novel heat detector, suitable for detecting fire or indicating the prevailing temperature. See also No. 961,149.

New Platinum Complexes for Decorative Film Production

ENGELHARD INDUSTRIES INC.

British Patent 961,315

Pt decorative coatings may be applied on refractory materials, leather, resins, laminates, paper, etc., by using chloroplatinous mercaptidethioether complexes and the usual fluxes and vehicles. For ceramic glazes the Pt complex may be combined with Au, Ag and Pd complexes.

Palladium-containing Catalysts for the Treatment of Exhaust Gases

W. R. GRACE & CO. *British Patent 962,893*

Catalysts suitable for the oxidation of exhaust gases of internal combustion engines consist of a high-surface area support, e.g. alumina, of 3–10 mesh carrying 2–20% CuO, 0.0025–0.1% Pd and 1–10% Cr. They are prepared by impregnating the support with a solution of Pd salt and complex cuprous salt which is heated for 6–16 h at 100–150°C, impregnated with a Cr solution and then calcined at 540–960°C for 2–5 h.

Improved Fuel Cells

THE CHLORIDE ELECTRICAL STORAGE CO. LTD.

British Patent 963,255

A fuel cell consists of Pt or Pd supported on Ni sintered C cathode and C supported Ag or Au anode prepared as described in British Patent No. 963,254 and separated by electrolyte. An aqueous H₂O₂ solution is fed under slight pressure to the anode to act as oxidant and gaseous H₂ or N₂H₄ or its salt solution is fed as fuel to the cathode.

Palladous Chloride Catalyst for the Production of Unsaturated Esters

IMPERIAL CHEMICAL INDUSTRIES LTD.

British Patent 964,001

Carboxylic acid esters of unsaturated alcohols are produced by contacting, at 50–180°C, PdCl₂ with an alpha-olefine under anhydrous conditions and in the presence of carboxylic acid carboxylate ions, O₂ and a redox system comprising a salt of Cu and/or Fe.

Palladium Hydrogenation Catalyst

METALLGESELLSCHAFT A. G. *British Patent 964,152*

Aromatic hydrocarbons are separated from hydrocarbon mixtures by hydrogenation over a 2% Pd catalyst on a clay support followed by extraction with a mixture of pyrrolidine or its derivatives and H₂O.

Platinum Hydrogenation Catalyst in the Preparation of Halogen Substituted Aromatic Amines

E. I. DU PONT DE NEMOURS & CO.

British Patent 964,166

Halogen substituted aromatic amines are produced by catalytic hydrogenation of halogen-substituted nitro-monocarbocyclic aromatic hydrocarbons at 30–150°C, at least 7 atm. H₂ pressure and in the presence of 1 part Pt catalyst for every 10,000 to 100,000 parts nitro compound and 0.01–1.0 mole cycloaliphatic nitrogen base per 1 mole nitro compound.

Precious Metals in the Separation and Purification of Hydrogen

KABUSHIKI KAISHA YAMAMOTO KINZOKU KENKYUSHO

British Patent 964,532

H₂ is separated or purified by contacting the gas mixture with a heated H₂-permeable wall made from an alloy of 2–40 wt. % Ag or Au, 0.1–20 wt. % Pt group metal and balance Pd.

Electrode for Electrolytic Processes

DEUTSCHE GOLD- UND SILBER-SCHNEIDANSTALT

British Patent 964,631

An electrode for electrolytic processes comprises Zr, Ta or Ti as the foundation metal and a surface layer of less than 1 μ of a Pt group metal or metals, which surface layer also contains 0.1–0.7 wt. % C.

Use of Poisoned Palladium Catalysts in the Reduction of Gibberellic Acid and its Derivatives

IMPERIAL CHEMICAL INDUSTRIES LTD.

British Patent 964,987

Gibberellin A and its derivatives are produced by the reduction with H₂ of gibberellic acid and its derivatives, this being done in ethyl acetate or tetrahydrofuran solvent containing 1–5 vol. % tertiary organic base as catalyst poison, whilst 2–10% Pd supported on C, BaSO₄, BaCO₃ or CaCO₃ is used as catalyst.

Supported Palladium Hydrogenation Catalyst

THE DOW CHEMICAL CO. *U.S. Patent 3,124,614*

C-supported Pd catalysts containing 1-10 wt.% metal are used to give 0.05-0.1 wt.% of active metal in the hydrogenation of *o*-alkyl monohydric phenols with H₂, at 100-300°C and 3 atm pressure, to the corresponding 2-alkyl cyclohexanones.

Desulphurisation Process for Hydrocarbons

THE BRITISH PETROLEUM CO. LTD.

U.S. Patent 3,125,510

Hydrocarbon fractions with boiling points over 150°C are treated at 700-910°F with H₂, and in the presence of 0.001-1.0 wt.% halogen, over a catalyst comprising 0.01-5.0 wt.% Pt or Pd on Al₂O₃ support to reduce their pour point by at least 5°F.

Ceramic Catalyst Flame Sprayed with a Platinum Group Metal

NORTON CO. *U.S. Patent 3,125,539*

Inactive fired ceramic pellets containing at least 80% Al₂O₃ are flame sprayed with a Pt metal to give a 0.0001 in. to 0.010 in. thick film. Such a catalyst remains active for a longer time and is less prone to poisoning.

Purification of Vinyl Chloride on a Platinum Metal Catalyst

MONSANTO CHEMICAL CO. *U.S. Patent 3,125,608*

Vinyl chloride is passed with H₂ over an inert support carrying 0.05-5.0 wt.% Pd or Pt at temperatures of 150-200°C which results in the removal of butadiene and formation of pure vinyl chloride.

Platinum Metal Butane Dehydrogenation Catalyst

SINCLAIR RESEARCH INC. *U.S. Patent 3,126,426*

Butane is dehydrogenated to butene by passing it at 900-1200°F over a calcined catalyst consisting of 75-99 wt.% Al₂O₃ base, 0.01-5.0 wt.% Pt, Pd, Rh or Ir or their mixtures and 1-20 wt.% of an alkali metal having an atomic number of 3 to 55.

Platinum Oxidation Catalyst

GENERAL ELECTRIC CO., NEW YORK

U.S. Patent 3,127,243

Potable water is recovered from human wastes by volatilising the volatile constituents, oxidising the contaminants present in the vapour by passing it over a Pt catalyst held at 400-1200°C together with air, and finally condensing the vapour.

Platinum Metal Hydrogenation Catalysts

E. I. DU PONT DE NEMOURS & CO.

U.S. Patent 3,127,356

Hydrogenation catalysts of improved activity are obtained by depositing 0.5-2.0 wt.% Pt or Pd on

an inert support mixing it with 25 wt.%, based on dry weight of catalyst, of oleophilic C with at least 290 oil absorption factor, and subsequently reducing the deposited metal with H₂.

Active Carbon-supported Palladium Catalyst

SOCIETA ITALIANA RESINE *U.S. Patent 3,127,452*

Alpha-methylstyrene is hydrogenated to cumene by passing it, together with elemental H₂, at 20-200°C and 1-10 atm. pressure through a catalyst bed consisting of 1-5 wt.% Pd/c.

Precious Metal Coated Anodes

UNION CARBIDE CORP. *U.S. Patent 3,129,163*

Anodes particularly suitable for electrolytic production of Cl₂ are prepared by heat treating a Ti alloy containing 4-30 wt.% W at 1325-1950°F, shaping it, ageing at 1100-1300°F and subsequently plating it in a hot Pfanhauser bath with Ru, Rh, Pd, Os, Ir, Pt or Au to give a deposit of about 4 μ in. thick.

Silver-Palladium Immersion Plating Composition

SEL-REX CORP. *U.S. Patent 3,130,072*

Ag is deposited chemically from aqueous solutions containing 0.5-30 g/l alkali AgCN, up to 300 g/l alkali salt of a weak acid, up to 100 g/l weak acid, 0.01-30 g/l palladous salt and sufficient NH₃ to give pH 8-10. The use of (NH₃)₂Pd(NO₂)₂ and immersion temperatures of 50-100°C are preferred.

Dual-function Noble Metal Catalysts

SOCONY MOBIL OIL CO. *U.S. Patent 3,130,147*

An acidic catalytic composite based on Al-Zr-P, if combined with Pt or Pd, may be used for the desulphurization of hydrocarbon fractions under mild hydrogenating conditions.

Platinum Group Metal Catalyst in the Production of Aldehydes and Ketones

CONSORTIUM FÜR ELEKTROCHEMISCHE INDUSTRIE G.m.b.H. *U.S. Patent 3,131,223*

Aldehydes and ketones may be produced from olefines by passing them and a mixture of O₂ and water vapour at 0-300°C and 20 mm Hg to 100 atm. over a catalyst comprising a Pt group metal salt and a transition metal salt in a 1:1 to 1:20 ratio.

Platinum Group Metal Hydrocracking Catalysts

UNION OIL COMPANY OF CALIFORNIA

U.S. Patent 3,132,086

Hydrocracking of high boiling hydrocarbons is carried out in two stages; in the first, the feedstock is conditioned to maximum catalyst efficiency and, in the second, subjected to hydrogenation at 400-725°F and 500-3000 p.s.i.g. over a

0.05–1.5% Pt, Pd, Rh or Ir catalyst. See also 3,132,087; 3,132,089; 3,132,090.

Nickel and Rhodium Plating of Refractory Metals

U.S. SECRETARY OF THE NAVY
U.S. Patent 3,132,928

Objects made of refractory metals are rendered resistant to corrosion and high temperatures by electroplating 0.0001 to 0.001 in. Ni followed by 0.0001 in. Rh and heat treatment at 2500°F in a protective non-reactive environment.

Platinum Hydrogenation Catalysts

HOFFMAN-LA ROCHE INC. *U.S. Patent* 3,133,077

The reductive amination of an appropriate ketone using H₂ and Pt group metal catalyst as the reducing agent produces 2-pyridyl-alkylamines which may be transformed to lower alkanoyl amides.

Platinum Hydrogenation Catalysts in the Production of Hydroxyl Ammonium Salts

BADISCHE ANILIN-& SODA-FABRIK A.G.

U.S. Patent 3,133,790

Hydroxyl ammonium salts are produced by the catalytic hydrogenation of NO in an aqueous solution of strong mineral acid containing a suspension of any convenient type of Pt catalyst. The catalyst may be used repeatedly, if, prior to passing of H₂ and NO, an inert gas is used to displace H₂/NO mixture and the solution is gassed with NO before the production mixture is passed through it.

Stabilised Platinum Group Metal Hydrides

IMPERIAL CHEMICAL INDUSTRIES LTD.

U.S. Patent 3,133,943

Stable organometallic hydrides suitable as oxidation, reduction, etc., catalysts are prepared by the reaction of a suitable ligand, a metal salt and H₂ in organic solvents and have general formula [X(DR₂)Zr₂]_nE where E is Rh₂HA or MHA; where M is a Pt group metal; A is H, halogen, alkyl, aryl or thiocyanate; X is alkylene or phenylene; D and Z are group VA elements, usually As or P; R is lower alkyl or aryl and n is 1–3.

Noble Metal Alloys Containing Gallium

NOBILIUM PRODUCTS, INC. *U.S. Patent* 3,134,671

Alloys suitable for dentistry, jewellery, etc., contain in wt. %: 40–62 Pd, 40–10 Au, 2.0–5.0 Ru, 2.0–15 Ga and 10–25 of Cu or Ag or their mixtures.

Gaseous Fuel Batteries

GENERAL ELECTRIC CO. *U.S. Patent* 3,134,696

A battery consists of two or more cells each of which has a hydrated ion exchange resin membrane which has integrally bonded Pt group metal, preferably Pt or Pd black, on opposite sides to form an anode and cathode, a supply of fuel gas to the anode compartment and of an oxidant gas to the cathode compartment and an electrically conduc-

tive grid of Pt or Pd wire on which Pt or Pd black has been deposited which acts as a barrier between two adjoining cells and has projections connecting an anode of one cell with a cathode of another cell. See also 3,134,697.

Platinum Metal Catalysts for Gas-turbine Engines

ROLLS-ROYCE LTD. *U.S. Patent* 3,136,125

An ignition device for gas turbine engines consists of a mass of refractory material which has a passage for the combustion-supporting gas/fuel mixture and this passage is lined with Pt, Rh or Pt-Rh and has also placed across it a flat piece and a wire helix made of the same catalytic material.

Noble Metal Alloys

DEUTSCHE GOLD- UND SILBER-SCHNEIDANSTALT

U.S. Patent 3,136,634

Noble metal alloys of high specific electrical resistance, low temperature coefficient and low thermoelectric potential against Cu contain 18–75 wt. % Au, 75–20 wt. % Pd, 2–15 wt. % Fe and 0.4–5 wt. % of Al, Ga, In or B.

Platinum Coated Refractories

OWENS-ILLINOIS GLASS CO. *U.S. Patent* 3,136,658

Refractories of alumina, zircon, mullite, etc., used as resistance elements and heaters, in particular in glass furnaces are protected by spraying them with molten Pt or with alloys containing 80 or more wt. % Pt at a rate of at least 100 ft/sec.

Palladium Base Alloys

J. B. COOPER & SONS INC. *U.S. Patent* 3,137,571

New alloys useful as electrical contacts and characterized by resilience, hardness and resistance to fatigue contain 0.5–15 wt. % Ga, and, preferably 1–2 wt. % Ga, and balance Pd.

Hydrogen Separation Membranes

UNIVERSAL OIL PRODUCTS CO.

Dutch Application 225,218

New device for the separation of hydrogen from gas mixtures uses a Group VIII metal, e.g. a Pd foil, supported by a sintered steel plate.

Mixed Metal Hydrogenation Catalyst

GENERAL ANILINE & FILM CORP.

Dutch Application 230,040

A metal hydrogenation catalyst of a more selective nature is obtained by chemically depositing Cu on Pd particles which are optionally on a support.

Noble Metal Coatings on Titanium Electrodes

MAGNETO-CHEMIE N.V.

Dutch Application 235,848

Ti electrodes are oxidised in some way to provide a surface oxide film and then coated with a porous layer of a noble metal, e.g. a Pt-Pd alloy

Titanium-Platinum Electrode

IMPERIAL CHEMICAL INDUSTRIES LTD.

Dutch Application 247,771

A Ti alloy electrode with improved polarisation properties consists of a Ti-Nb or Ta base coated wholly or partly with a Pt group metal or metals.

New Hydrogenation Catalyst

STE. USINES CHIMIQUES RHONE-POULENC

Dutch Application 247,951

A catalyst for the hydrogenation of acetylenic compounds to olefinic compounds is obtained by depositing a Pd salt on a support, reducing it to metal and treating it with stannous salt, e.g. SnCl_2 .

Selective Acetylene Hydrogenation Catalyst

IMPERIAL CHEMICAL INDUSTRIES LTD.

Dutch Application 248,691

The catalyst is formed by depositing Pd in known manner on a support having an average pore diameter of at least 100 and preferably 200–700 Å.

Coating Titanium Electrodes

IMPERIAL CHEMICAL INDUSTRIES LTD.

Dutch Application 250,923

Ti or its alloys for use in electrodes are coated with a Pt metal by applying a suitable compound in organic medium, drying and heating above 500°C.

Platinum Metal Dehydrogenation Catalysts

PROGIL S. A. *French Patent* 1,344,298

Higher phenols are prepared by the dehydrogenation of cycloaliphatic oxygenated compounds using a Pt group metal on a CaO , MgO , CuO , ZnO or kieselguhr support as catalyst. A fixed bed catalyst is used at 1–5 atm. and 200–350°C and an inert gas is passed through during the reaction.

Platinum Metal Catalysts in the Production of Alkylene-halohydrins

FARBWERKE HOECHST A.G. *French Patent* 1,344,652

Alkylene-halohydrins are produced by reacting olefines and oxygen at 0–25°C in an aqueous solution containing a Pt or Pd salt as catalyst, a Cu or Fe salt as a redox system and also with appropriate halogen ions present.

Selective Organic Hydroperoxide Hydrogenation Catalyst

THE BRITISH PETROLEUM CO. LTD.

French Patent 1,345,953

Hydroperoxides are selectively hydrogenated in admixture with other hydrocarbons and in particular with methylpentenes, over a Pt metal catalyst which has been poisoned with 100–300 wt.% of a metal from groups IB, IIB, IIIB or IVB; the use of CaCO_3 as poison is quoted.

Finely Divided Platinum Metal Catalysts

H. C. BROWN, C. A. BROWN

French Patent 1,346,159

Catalytic Pt, Pd, Rh and Ru of extreme activity

and in a finely divided state, particularly suitable for hydrogenation or reduction reactions, are obtained by immersing a support of high specific area in a solution of appropriate Pt metal to which has been added an alkali or alkaline earth metal borohydride.

Noble Metal Alloys of High Specific Electrical Resistance

DEUTSCHE GOLD- UND SILBER-SCHNEIDANSTALT

French Patent 1,346,215

Alloys comprising 18–75% Au, 75–20% Pd, 2–15% Fe and 0.4–5% Al, B, Ga or In (with the content of these latter metals being at least 5% less than the Pd content) are characterised by high specific electrical resistance.

Palladium Catalyst for the Production of Organic Acetates

FARBENFABRIKEN BAYER A.G.

French Patent 1,346,219

A catalyst comprising about 2.0 wt.% Pd on an inert support with a specific area of less than 50 m^2/g is used in the production of organic acetates by the reaction of alkyl benzenes, O_2 and CH_3COOH at 50–250°C and 2–200 atm.

Platinum-plated Forehearth or Dipping Plunger

CORNING GLASS WORKS *French Patent* 1,346,922

A plunger suitable for use with melted glass at 1300–1600°C, has a Mo core containing less than 0.01% C and a 30–100 mil thick plating of Pt or 7:3 Pt:Rh alloy.

Platinum and Palladium Oxidation Catalyst

W. R. GRACE & CO. *French Patent* 1,347,318

An inert inorganic support of 10–100 microns particle size, e.g. $\text{SiO}_2\text{-Al}_2\text{O}_3$, carrying 0.5–10 wt.% Pt and Pd in a 0.125–2.0 wt. ratio is diluted with 5–250 wt.% of a fine inorganic compound to give 0.005–0.2 wt.% of each metal and, after activation by calcining, is used as an oxidising catalyst for combustion engine exhaust gases to eliminate air pollution.

Precious Metal Coated Titanium Electrode

CANADIAN INDUSTRIES LTD. *French Patent* 1,347,529

An anode for the electrolysis of brine has a central Ti core and a 0.254 to 5.08 micron thick electrolytically deposited film of Pt alloy containing 35–60 wt.% Rh, preferably about 50 wt.% Rh.

Cracking Catalyst

THE BRITISH PETROLEUM CO. LTD.

French Patent 1,347,559

A catalyst for the cracking of hydrocarbons at 400–550°C for 10 mins.–24 hrs. consists of an inert support containing at least 50 wt.% Al_2O_3 and 0.01–5 wt.% Pt metal, preferably Pt, 1–2.5 wt.% halogen and 0.20–0.40 wt.% H_2 .

Platinum Metal Dealkylation Catalyst

THE BRITISH PETROLEUM CO. LTD.

French Patent 1,347,632

Alkyl-substituted aromatic hydrocarbons are dealkylated by using Al_2O_3 impregnated with 0.1–2.0 wt.% Pt metal, 3–10 wt.% fluoride as catalyst and by passing H_2 through with a gas mixture held at 400–500°C and 14–17 kg/cm².

Platinum Group Metal Catalysts

INSTITUT FRANCAIS DU PETROLE, DES CARBURANTS ET LUBRIFIANTS *French Patent 1,349,145*

Heavy petroleum fractions and naphthas may be converted to 3–5C hydrocarbons by treating them with H_2 at 375–450°C and 30–150 atm. in the presence of an alumina support carrying 0.05–5.0 wt.% Pt, Pd or Rh, 0.1–10 wt.% F_2 and 0.02–3.0 wt.% B. See also 1,349,146; 1,349,147.

Palladium Catalysts for the Hydrogenation of Benzoic Acid

SNIA VISCOSA S.p.A. *French Patent 1,349,763*

A hydrogenation catalyst is prepared by treating C with a solution of Pd salt containing a theoretical excess of alkali metal hydroxide, followed by reduction of Pd metal with HCHO at 50–100°C.

Hydrogenation of Unsaturated Aldehydes to Alkanols

THE DISTILLERS CO. LTD. *French Patent 1,349,816*

An unsaturated aldehyde is reacted in the vapour phase with H_2 in the presence of a Kieselguhr-supported catalyst containing 25–90 wt.% Cu and the vapours are then reacted further with H_2 in the presence of a carbon supported catalyst containing 0.1–10.0 wt.% Pd to yield the appropriate alkanol.

Platinum Group Metals in Coating Graphite with Refractories

SOCIETE NATIONALE D'ETUDE ET DE CONSTRUCTION DE MOTEURS D'AVIATION *French Patent 1,350,772*

Graphite and similar materials may be made to withstand high temperatures by coating with a refractory material containing 1–50 wt.% Pt group metal and then applying a thicker coating of Ta, Hf, Mo, Nb, Ti or W or their carbides, nitrides or borides. The use of an intermediate film of Pt metal alloy improves the adhesion between the graphite and the refractory material.

Platinum Group Metal Hydrocarbon Conversion Catalysts

SOCONY MOBIL OIL CO. INC.

French Patent 1,350,947

A catalyst suitable for hydrocarbon conversion reactions, e.g. hydrogenation, cyclisation, etc., consists of an inert support carrying 0.05–5 wt.% Pt group metal and 0.1–40 wt.% rare earth oxide in a relative metal ratio of 0.1–0.9.

Brazing of Metals

CIE. FRANCAISE THOMSON-HOUSTON

French Patent 1,351,406

Metals or alloys which contain components volatile at high temperatures are brazed advantageously in an atmosphere of H_2 , N_2 or cracked NH_3 , after they have first been coated with Rh.

Use of Palladium-nickel Alloys in High Temperature Brazing

UNITED STATES ATOMIC ENERGY COMMISSION

French Patent 1,352,021

High temperature brazing resistant to oxidation is obtained by using brazing alloys containing, in wt.%, 30–35 Cr, 16–19 Pd, 4–6 Si, 1.1–3 Ti and 1–2.5 Al, the rest being Ni and impurities.

Palladium and its Alloys in the Separation of Hydrogen from Gaseous Mixtures

JOHNSON, MATTHEY & CO. LTD.

French Patent 1,352,751

The construction of hydrogen diffusion tubes made of Pd or 25% Ag-Pd alloy is improved and the service life is prolonged by incorporating in it a steel or Ni alloy strengthening spiral.

Palladium Chloride in the Oxidation Catalyst System

IMPERIAL CHEMICAL INDUSTRIES LTD.

French Patent 1,353,157

Olefinic hydrocarbons are oxidised in the course of the production of glycol diesters at 0.1–10 atm. and 50–160°C using a catalyst comprising PdCl_2 , an ionised carboxylate, carboxylic acid and a convenient redox system.

Direct Conversion of Thermal Energy to Electrical Energy

SIEMENS-SCHUCKERTWERKE A.G.

German Patent 1,166,306

Thermionic converter using an emitter electrode or carrier plate encloses the electrode in a housing permeable to H_2 at high temperature, e.g. Pt or Pd.

Activated Platinised Titanium Anode

UNIVERSAL OIL PRODUCTS CO.

German Patent 1,170,378

Electrodes for alkali chloride electrolysis are produced by coating a Ti part with amorphous Pt and then activating by heating the coating to a temperature above 316°C in the presence of an air stream containing a hydrocarbon vapour.

Removal of Acetylenes and Dienes from Hydrocarbons

GIRDLER-SUDCHEMIE KATALYSATOR G.m.b.H.

German Patent 1,171,901

Small amounts of acetylenes and dienes are removed from mono-olefines by selective hydrogenation over a Pd catalyst supported on Al_2O_3 with a pore size of not more than 0.4 cc/g, a pore diameter of less than 800 Å and 0.01–0.09 wt.% Pd.