

NEW PATENTS

ELECTRODEPOSITION AND SURFACE COATINGS

Metal Coated Amino Resin Polymer Particles

FRAUNHOFER GES FOERDERUNG ANGEWANDTEN

British Appl. 2,301,117A

Metallic coated amino resin polymer particles (1) are manufactured by activating the surface of hollow or solid microparticles by treatment with a solution containing ions of Pd, Au or Ag, preferably PdCl₂, H₂PdCl₄, or a tetrachloropalladate salt and H₂SO₄. The metallic coating is deposited by chemical metallisation on the activated particles in colloidal form or as an enclosed metal layer. (1) are used in catalytic processes, as finely particulate anode materials, etc.

Production of Permanent Magnets

VACUUMSCHMELZE G.m.b.H.

European Appl. 736,884A

A process for producing a permanent magnet containing rare-earth metals and protected against corrosion by an electrolytic coating is described. This involves coating the permanent magnet with a Pd alloy using an alkali Pd-containing electrolyte and a current yield > 85%. This coating avoids or minimises any surface damage which could result in loss of magnetic properties.

Forming Iridium Film Patterns on Electrodes

MITSUBISHI MATERIALS CORP.

Japanese Appl. 8/277,473

An Ir or Ir oxide film pattern is formed from a composition containing a specified amount of Ir, a cyclopentadienyl complex and an organic solvent. This is applied onto a matrix, followed by exposing the pattern to radioactive rays, removing unexposed parts by rinsing with a solvent, then heat treating in a reducing or oxidising atmosphere.

APPARATUS AND TECHNIQUE

Lead Frame for Semiconductor Devices

TEXAS INSTR. INC.

U.S. Patent 5,561,320

A lead frame for a semiconductor device consists of a metal layer of Pd or Pd/Ni plated on the lead frame, spot plating Ag on portions of the leads and Cu plating between the Ag and the Pd or Pd/Ni. It has good solderability and allows low temperature processing.

High Temperature Sensor

SIEMENS A.G.

German Appl. 1/95/23,301

A heater for a high temperature metal oxide sensor has current flowing through Pt heating wires at 600–1000°C, and measures the voltage drop across the Pt measurement wires. The heating wire tracks, measurement tracks and the heating structure all include Pt, with a thickness of 5 μm. The sensor is used in vehicle exhausts to measure the temperature of the heating element, while minimising heat loss.

HETEROGENEOUS CATALYSIS

High Selectivity Platinum Metal Catalyst

BAYER A.G.

European Appls. 736,324–25A

A catalyst carrier contains 0.01–15 (preferably 0.05–10) wt.% of a Pt group metal, compound or complex, and a co-catalyst of one or more oxides of Ti, V, Mn, Cr, Fe, Co, Ni, Cu, La, Nb, Mo, Pb, rare earth metal or actinide. Diaryl carbonates are produced with high activity and selectivity, by reacting aromatic hydroxy compounds with CO and O₂ at 30–200°C and 1–150 bar using the above catalyst carrier, in the presence of the co-catalyst, a quaternary ammonium or phosphonium salt and a base.

Production of Aromatic Carbonates

MITSUBISHI CHEM. CORP. *European Appl. 736,512A*

Aromatic carbonates, for use in polycarbonate production, are manufactured by reacting aromatic hydroxy compounds with CO and O₂ in the presence of Pd and/or Pd compounds; trivalent and/or tetravalent Ce compounds; and at least one inorganic halide which can be an alkali metal chloride or bromide, or an alkali earth metal chloride or bromide. This reaction proceeds in high yield and with good selectivity.

Alkyne Hydrogenation Catalysts

PHILLIPS PETROLEUM CO. *European Appl. 738,540A*

Alkyne hydrogenation catalysts, resistant to deactivation by S-containing impurities, contain Pd, one chemically bound alkali metal (preferably K), F and an inorganic support, preferably Al₂O₃. The atomic ratio of F:alkali metal is 1.3–4:1. The catalyst additionally contains 0.01–10 wt.% Ag in a weight ratio of Ag:Pd of 2–10:1. These catalysts are useful for the selective hydrogenation of feeds containing one 2–10C alkyne to form one alkene and find use in the conversion of small amounts of acetylene contained in ethylene streams from thermal alkane crackers.

Purification of Crude Pentafluoroethane

ELF ATOCHEM S.A.

European Appl. 742,192A

A process for the purification of crude pentafluoroethane (F 125) containing chloropentafluoroethane (F 115) uses catalytic vapour phase hydrogenolysis over a Pd/AlF₃ catalyst. The catalyst is stable under the required conditions and can be used when the molar content of F 115 in the mixture ≤ 10%.

Preparation of 2-Pyrrolidones

BAYER A.G.

European Appl. 745,589A

2-Pyrrolidones (1) are prepared in high space-time yields by hydrogenating a mixture of maleic anhydride and a primary amine at 150–330°C and 10–300 bar in a liquid phase over a supported catalyst of 0.5–15 wt.% Pd, 0.5–10 wt.% Re, with a total Pd+Re content of 2–15.5 wt.%. Foreign solvent addition to the system is avoided. Little γ-butyrolactone by-product is formed and no over-hydrogenation to THF occurs. (1) are polar solvents for polymers, extractants, etc.

Purification of Polluted Air

BCP SRL

World Appl. 96/32,182A

An apparatus for the purification of air polluted by C, N and S oxides, ozone, unburned hydrocarbons, particulates, dust and exhaust fumes from I.C.E.s consists of several sections, active for reducing one or more pollutants, which incorporate transition metal oxides, Pt or other Pt group metals as catalysts. The apparatus can be installed on a moving transport unit or in fixed sites. This system provides negligible energy expenditure with respect to the amount of air treated and the process can be modified according to the pollutants present.

Hydroquinone Dehydrogenation Catalyst

MARATHON OIL CO.

World Appl. 96/33,015A

A catalyst system for the dehydrogenation of hydroquinones to the corresponding quinones and H₂ is manufactured by placing a rare earth metal oxide on a SiO₂ or Al₂O₃ support to reduce its acidity, and then applying a catalyst selected from Ni, Co and/or Pt group metals. The manufacture of S and H₂ from H₂S gas is also claimed. The selection of optimum system parameters, including the use of less acidic supports and pretreatment by calcination, gives this catalyst improved selectivity.

Oxidative Dehydrogenation

UNIV. MINNESOTA

World Appl. 96/33,149A

A process for the oxidative dehydrogenation of organic compounds involves reaction with a Pt, Rh, Ni or Pt-Au catalyst on a particulate support, in a fluidised bed in the presence of O₂-containing gas. A similar oxidative dehydrogenation for hydrocarbons involves feeding a saturated hydrocarbon stream and O₂-containing gas to a reactor comprising the fluidised bed and a catalyst, at a flow rate sufficient to fluidise the bed. No build-up of C was observed on the catalyst and there was no deactivation over several days.

Reduction of Nitro to Amino Groups

CIBA GEIGY A.G.

World Appl. 96/36,588A

Substituted aromatic amino compounds containing CN or CO multiple bonds, or halo atoms(s) on the aromatic ring and/or on a side chain, are prepared by the catalytic hydrogenation of the corresponding nitro compounds in the presence of a Pt catalyst. The catalyst is modified with Pb, Hg, Bi, Ge, Cd, As, Sb, Ag or Au and optionally a Fe, Ru, Co, Cu or Mn compound as a promoter, and ion pairs or salts soluble in organic solvents as co-promoters. The product is obtained with high purity and in good yields, and the reaction is accelerated by addition of the co-promoter.

Vapour-Phase Manufacture

HOECHST CELANESE CORP.

World Appl. 96/37,294A

A catalyst for the vapour-phase manufacture of vinyl acetate from acetic acid, ethylene, and O₂ comprises 2–14 g l⁻¹ Pd, 1–8 g l⁻¹ Au and at least one metal selected from 0.5–4 g l⁻¹ Zr and 1–8 g l⁻¹ Re deposited on a porous support, preferably SiO₂. The addition of alkali metal acetates is also favoured. The catalyst exhibits high activity and selectivity and has a long life.

Ethyl-Benzene Preparation

KOREA KUMHO PETROCHEMICAL CO. LTD.

World Appl. 96/37,449A

The preparation of ethyl-benzene from 4-vinyl-cyclohexene, obtained from 1,3-butadiene, involves the catalytic transfer hydrogenation of 4-vinyl-cyclohexene in a H₂ donor solvent with an oxidising agent in the presence of a Pd/active C catalyst. The catalyst can be easily recovered and recycled for re-use and the solvent can be H₂O, which reduces environmental problems. Non-polluting oxidising agents and low temperatures and pressures can be used. High yields of 86% are obtained for ethylbenzene and 100% for aniline with only 13% by-products.

Exhaust Gas Treatment Catalyst

ASEC MFG. CO.

World Appl. 96/40,417A

A catalyst for treating the exhaust gas of a natural gas fuelled engine comprises a first washcoat support of Al₂O₃, a second of CeO₂ and lanthana promoted with Al₂O₃, and Pd, and optionally with Rh impregnated into the two washcoat supports. This catalyst improves the conversion of CH₄, CO and NOx in lean, stoichiometric and rich air/fuel environments.

Catalyst for Treating Diesel Exhaust Gas

ASEC MFG. CO.

World Appl. 96/40,419A

A catalyst for treating diesel exhaust gas comprises an effective amount of at least one Pt group metal selected from Pt, Pd, Rh and/or Ir dispersed on a two-part support which consists of a major amount of a zeolite and a minor amount of Al₂O₃, ZrO₂ and/or Sn oxide. A process for removing CO, hydrocarbon and NOx, while minimising production of SO_x, involves contacting the gas with the above catalyst which is washcoated onto a flow-through monolithic carrier.

Platinised Microporous Nanoparticle Catalyst

WISCONSIN ALUMNI. RES. FOUND.

World Appl. 96/40,430A

A platinised microporous nanoparticulate metal oxide ceramic catalyst is prepared by adsorbing the Pt precursor H₂PtCl₆ at ≤ 200°C without photo-illumination to achieve steady-state adsorption onto a microporous nanoparticle ceramic metal oxide with a surface area of 50–500 m²g⁻¹ and interior pores < 100 Å. The precursor is then reduced to Pt metal and dried without affecting the structure of the material. This catalyst has a very high surface area with a highly dispersed Pt coating throughout, thus avoiding the aggregation of earlier products.

Selective Destruction of Formaldehyde

MONSANTO CO.

World Appl. 96/40,592A

The selective destruction of formaldehyde and formic acid in aqueous streams involves adding O₂ to the stream and contacting with a Group VIII supported metal catalyst, preferably Pt, Pd or Rh at 50–90°C. The catalyst contains 0.1–10 wt.% Pt loaded on powdered C and the reaction is carried out in a reactor at ≤ 200 psi. The formaldehyde is converted first to formic acid, then to CO₂ and H₂O. This process is rapid and efficient, and avoids generation of bio-sludge.

Reforming a Naphtha Feed Stream

EXXON RES. & ENG. CO. U.S. Patent 5,562,817

A process for reforming a naphtha feedstream to obtain improved 5C+ liquid yields takes place in a series of reactors. The lead reactor contains a catalyst of 0.1–1 wt.% Pt and 0.02–0.07 wt.% Re on an inorganic oxide support. The tail reactor contains a catalyst comprising 0.1–1 wt.% Pt and 0.1–1 wt.% Re uniformly dispersed throughout a particulate solid support. This process provides efficient and selective naphtha reforming and is used especially to improve the octane rating of naphthas or straight run gasolines.

4-Hydroxyphenyl-Methyl-Carbinol

HOECHST CELANESE CORP. U.S. Patent 5,563,300

A process for preparing 4-hydroxyphenyl-methyl-carbinol (4-HPMC) involves the hydrogenation of 4-hydroxyacetophenone in the presence of a Pd catalyst, such as 5%Pd/C, Pd/Al₂O₃, Pd/SiO₂ and Pd/CaCO₃, and ≥ 25 ppm of a base. Also claimed is the manufacture of a carbinol from a ketone or a substituted ketone under the above conditions. 4-HPMC is an intermediate in the production of polyhydroxystyrene which is used in adhesives, coating compositions, photoresists, etc.

Vinyl Acetate Production

HOECHST CELANESE CORP. U.S. Patent 5,576,457

Vinyl acetates are prepared by the vapour phase reaction of ethylene, acetic acid and O₂ or O₂-containing gases in the presence of a supported catalyst containing Pd, Cd and alkali metal compounds and, at most, one Ru and/or Zr compound. Higher space-time yields are obtained at the same or higher selectivity (such as 98.4%) with slower deactivation (such as 0.7:1) compared with catalysts without Ru or Zr.

Arylamine Compounds

MASSACHUSETTS INST. TECHNOLOGY U.S. Patent 5,576,460

Arylamine compounds are prepared by reacting an amine with an activated aromatic compound at < 120°C in the presence of a catalyst selected from complexes of Pt, Pd, Fe, Ni, Ru and Rh, and a base. The catalyst complexes may include chelating ligands, alkyl and aryl derivatives of phosphines and bisphosphines, etc., such as PdCl₂(P(*o*-tolyl))₂. Mixtures of arylamines can be used in screening for pharmaceutical and biological activity and to prepare polyanilines.

Glyphosate Production

MONSANTO CO. U.S. Patent 5,578,190

The herbicide *N*-phosphonomethylglycine (1) is produced by the one-pot condensation of aminomethylphosphonic acid in an aqueous medium at pH 5–11 with glyoxylic acid, or its hemiacetals, acetals or hydrate, followed by electrochemical reduction (A), or catalytic hydrogenation (B), at 20–90°C. Process (B) uses a catalyst selected from Pt, Pd, Os, Ir, Rh, Ni and/or Co and their salts or oxides, especially Pt or Pd. (1) is obtained with a 35% current efficiency from method (A) and in yields of 90–96% from (B).

Alkylmethyl Siloxanes

DOW CORNING CORP. U.S. Patent 5,578,692

Triorganosiloxy end-capped alkylmethyl siloxanes (1) are produced by reacting a linear triorganosiloxy end-capped methylhydrogen polysiloxane containing < 0.2% branch sites with an α -olefin in the presence of a Pt catalyst, such as 5%Pt/C, until (1), containing < 200 ppm H as residual \equiv SiH, is formed. (1) have high molecular weights and very few branching sites.

Uniformly Plated Microsphere Catalysts

J. A. PATTERSON U.S. Patent 5,580,838

Uniformly plated microsphere catalysts with increased H₂ occlusion, for use in catalytic and electrical applications, comprise non-conductive cores with successive uniform layers of Cu, Ni, Pd and Ni. Pd-plated microspheres exhibit a marked improvement in both the speed and amount of H₂ absorbed. The uniform size and density of the microspheres result in a plating of uniform thickness. The layer of Ni over the Pd layer stabilises the Pd without inhibiting diffusion of H₂ to the Pd.

Decomposition of Nitrogen Oxide

ICT K.K. Japanese Appl. 8/229,350

A catalyst for the decomposition of NO consists of a fireproof three-dimensional structure coated with a catalyst consisting of a Pt holding fireproof inorganic oxide powder and a second fireproof inorganic oxide powder. The content of Pt in the inorganic oxide powder is 5–50 wt.%. CO can be burned and removed.

Exhaust Gas Purification

NISSAN MOTOR CO. LTD. Japanese Appl. 8/229,355

A catalyst for the purification of exhaust gases contains at least one metal selected from Pt, Rh and Pd, and a perovskite oxide of La_xA_{1-x}BO₃, where 0 < x < 1; A = Ca or Ba; and B = Co, F, Mn or Ni, held on a fireproof inorganic carrier. NO_x purification under a lean atmosphere can be improved over this catalyst.

Recovery Mesh for Ammonia Oxidation

W. C. HERAEUS G.m.b.H. German Appl. 1/95/43,102

A Au-free mesh, used especially as a recovery mesh for NH₃ oxidation to HNO₃, consists of a wire mesh made of Pd and other Pt group metals with preferably 10–20 wt.% Pt, and possibly also ≤ 5 wt.% Rh. The mesh has high mechanical stability and good catalytic activity, and is effective both as a recovery and a catalytic mesh for the oxidation of NH₃.

Exhaust Gas Purification Catalyst

MAZDA MOTOR CORP. German Appl. 1/96/17,123

An exhaust gas purification catalyst consists of a support with an undercoat containing Ba and/or La, a top coat containing an adsorbent for H₂O in the gas and a catalyst, containing a Pt group metal, in one or both coats. The weight ratio of top coat:both coats is 3:40–34:40. The catalyst can reduce NO_x, hydrocarbons and CO into N₂, H₂O and CO₂. The catalyst also inhibits poisoning of La and Ba by S and/or H₂O, so that efficient emission control is maintained.

HOMOGENEOUS CATALYSIS

2-Hydroxy-4-methyltetrahydrofuran

KURARAY CO. LTD. *European Appl.* 747,373A

2-Hydroxy-4-methyltetrahydrofuran (1), a useful intermediate in the production of various fine chemicals, is produced by reacting 2-methyl-2-propen-1-ol with H₂ and CO in the presence of a Rh compound and a tris(substituted aryl) phosphite with an electronic parameter (ν -value) of 2080–2090 cm⁻¹ and a steric parameter (θ -value) of 135–190°. This process produces (1) economically, with 110–1000 moles of phosphite used per gram atom of Rh, and in high yield.

Production of Acetic Acid

BP CHEM. LTD. *European Appl.* 752,406A

The production of acetic acid by carbonylation of MeOH and/or reactive derivatives uses a liquid reaction composition containing an Ir carbonylation catalyst, methyl iodide co-catalyst, H₂O, acetic acid, methyl acetate and promoters, preferably Ru or Os. The concentration of H₂O is maintained at \leq 6.5 wt.%, methyl acetate at 1–35 wt.% and methyl iodide at 4–20 wt.%. The increased carbonylation rate at this low H₂O concentration allows the use of a lower concentration of Ir catalyst. The production of by-products is also reduced.

Aralkanoic Acid or Ester Preparation

ALBEMARLE CORP. *World Appl.* 96/37,453A

The preparation of an aralkanoic acid or ester involves reacting an aralkene and an alcohol with CO at 25–200°C and a pressure of \geq 1 atm, in the absence of O₂ and in the presence of a Pd catalyst mixture. An acidic medium is not required for the process and the acid or ester products are obtained in good yield. This method is useful in the preparation of ibuprofen or naproxen derivatives.

Hydrosilation of Alkynes

DOW CORNING CORP.

U.S. Patents 5,563,287 and 5,565,596

A process for the hydrosilation of alkynes involves contacting the alkyne at 40–150°C with a hydrosilane in the presence of a Pt catalyst and a 6–20C cycloalkadiene in the ratio 0.1–5 mol (6–20C) per g-atom of Pt. A related process using hydrosilanes and a 6–20C cycloalkene is also described. The Pt catalyst is selected from Pt halides and their reaction products with organosilicon compounds containing terminal aliphatic unsaturation. The cycloalkadiene and cycloalkene reduce formation of bis-silylated and bis-silicated adducts, respectively.

Formation of Monosilanes

DOW CORNING CORP.

U.S. Patent 5,567,837

Monosilanes are formed by reacting a mixture of a disilane, preferably hexamethyldisilane, with an organic halide, such as allyl chloride, over a disubstituted Pd catalyst, such as PdCl₂ or bis-acetoacetyl Pd. This process gives monosilanes with alkenyl substitution and can convert the high boiling disilane-containing fraction from the direct process into monosilanes.

Preparation of 3-Aryl-1-butene

HOECHST A.G.

German Appl. 1/95/49,334

The production of 3-aryl-1-butenes (1) involves codimerising an optically substituted styrene with ethene in the presence of a Pd complex catalyst containing a monodentate P-chiral phosphinite ligand, preferably the menthyl ester of a *t*-butyl-phenyl-, methyl-phenyl-, etc., phosphinic acid. The preferred complex catalyst is (C₃H₄R)Pd(*t*-butylphenyl-*o*-menthyl)PSbF₆ (where R = H or 1–4C alkyl). (1) are obtained in an optically active form with high selectivity and are used as precursors for 2-aryl-propionic acids, used as non-steroidal anti-inflammatories.

FUEL CELLS

Fuel Cell Electrodes

BALLARD POWER SYSTEMS INC.

European Appl. 736,921A

An anode or cathode electrode (1) has a first and second catalyst component active at gas phase and electrochemical reaction sites, respectively. For an anode, the first and second components are in physical contact. The electrode is formed by mixing a catalyst, such as 20 wt.% Pt/C black, with Nafion solution, and then coating it onto a C fibre substrate. When used in fuel cells (1) have better tolerance to poisons, such as CO and CO₂, in the reactant fuel and oxidant streams and have high activity and durability.

Platinum-Aluminium Alloy Catalyst

DEGUSSA A.G.

European Appl. 743,092A

A Pt-Al alloy catalyst on a conducting C carrier, where the atomic ratio of Pt:Al is 80–60:20–40, is described. The alloy particles are present in a carbided form, Pt₃AlC_{0.5}. This catalyst is used in phosphoric acid and polymer electrolyte membrane fuel cells and has higher activity and improved ageing stability.

Lowering Carbon Monoxide and Methanol

TOYOTA JIDOSHA K.K.

European Appl. 743,694A

An apparatus for lowering CO and MeOH levels in H₂-rich gases is incorporated into a fuel reforming system. It has an O₂ introduction device and selective oxidising units, for both CO and MeOH, containing a Pt-Ru alloy catalyst. The reformed gas, containing H₂ and very low concentrations of MeOH and CO, is then fed to a polymer electrolyte fuel cell stack or to a phosphate fuel cell.

Cathodic Current Collector

MTU FRIEDRICHSHAFEN G.m.b.H.

German Appl. 1/95/32,791

A cathodic current collector, for a fused carbonate fuel cell, has a base material of a highly corrosion resistant metal or its alloy (preferably a high Cr or Al-containing alloy). This is covered with thin layers of a highly conductive inert metal, such as Pt, Au or Ag, at the contact points between the collector and the cathode. A separator is optionally included when the collector is assembled in the cell. The collector has high corrosion resistance with low junction electrical resistance at the contact faces with the cathode.

CHEMICAL TECHNOLOGY

Hydrogen Preparation

KANSAI NETSUKAGAKU K.K. *Japanese Appl.* 8/239,201
H₂ is produced from reforming CH₄ by reacting CH₄ with O₂ over a highly active Rh modified (Ni-CeO₂)Pt catalyst to give H₂ and CO. Heat produced from the combustion of CH₄ is partially used in the reforming reaction on the catalyst along with extra heat needed to maintain CH₄ reforming. The combustion products CO₂ and H₂O can also be used for the production of H₂ and CO.

ELECTRICAL AND ELECTRONIC ENGINEERING

Magneto-Optical Recording Medium

MITSUBISHI DENKI K.K. *European Appl.* 750,295A
A recording medium capable of direct overwriting by light intensity modulation comprises a number of adjacent magnetic layers, where each has vertical magnetic anisotropy and any two adjacent layers are bound by an exchange force between them. A zeroth magnetic layer adjacent to the first, into which a light beam is first admitted, contains a Nd-containing rare earth element/transition metal alloy film or alternate films of Pt or Pd and Co in superposition. This medium has good reproduction output at 400 nm, which is half the currently used operating wavelength.

Magnetic Recording Medium

HOYA CORP. *European Appl.* 751,501A
A magnetic recording medium comprises non-magnetic underlayer(s), a CoPt magnetic layer and a substrate. The non-magnetic layer, in contact with the magnetic layer, contains Cr and Mo. A medium where at least the non-magnetic layer containing Cr and Mo and the CoPt layer are formed by sputtering at 250–425°C and 0.5–10 mTorr Ar is claimed. The media are used in magnetic disks and have high magnetic coercive force, squareness ratio and low noise.

Piezoelectric Element

PHILIPS ELECTRONICS N.V. *World Appl.* 97/538A
A piezoelectric element, useful as an actuator or a sensor for detecting mechanical or acoustic signals, has a number of piezoelectric layers of ceramic alternately stacked with Ag/Pd electrode layers with external electrical connections. A piezoelectric multilayer is made by screen-printing electrode layers on a ceramic foil using a Ag/Pd paste. The piezoelectric elements can be sintered at a lower temperature, < 1150°C, and have a relatively high Curie temperature, > 250°C.

Multilayer Magneto-Optic Recording Medium

EASTMAN KODAK CO. *U.S. Patent* 5,563,000
A magneto-optical recording medium consists of a substrate, a seed layer structure including a first layer of ITO or ZTO 0.2–20 nm thick, a metal layer 0.2–3.2 nm thick and a recording multilayer of alternate layers of Pt and Co or Pd. The seed layer improves the squareness and coercivity of the recording layer.

High Density Magnetic Recording

HITACHI LTD. *Japanese Appl.* 8/221,714
A high density magnetic recording and reproducing apparatus is composed of an antiferromagnetic film configured from an alloy of Mn, Co and Pt. This apparatus has a magnetic head with magnetoresistive properties which is made to traverse the upper surface of the magnetic disc medium to detect magnetic field leaks. This technology reduces noise while achieving sufficient reproduction and increased operational reliability.

Opto-Magnetic Recording Medium

SANYO ELECTRIC CO. LTD. *Japanese Appl.* 8/227,541
This medium has, as the recording layer, a magnetic layer made of alternate Pt and Co layers formed on a substrate. The thickness of the Pt layer is 0.86–1.73 nm, while the Co layer is 0.27–0.55 nm. A foundation layer made of SiN has a thickness of 0.44–0.55 nm, and is formed between the recording layer and the substrate. C:N characteristics of the layered Pt and Co layers are saturated with sufficient low magnetic field, of ~ 280 oersteds.

Conductive Paste

SUMITOMO METAL CERAMICS INC. *German Appl.* 1/96/11,239
A conductive paste for connections in ceramic electronic devices, which can be fired at 800–1000°C, comprises by weight: 100 pts. flake-like and/or spherical Ag-based powder; 0.1–2 pts. of Sb₂O₃ (or sufficient material combustible to give the required amount of Sb₂O₃) and/or Rh powder; and at least 3 pts. of 2-tetradecanol. This composition shows little viscosity change when under pressure and is suitable for use with glass substrates also containing Al oxide.

MEDICAL USES

Dental Impression Composition

DENTSPLY INT. INC. *World Appl.* 96/32,088A
A dental impression material consists of a vinyl group containing resin, linear vinyl-terminated polydimethylsiloxane fluid, organo Pt catalyst, polymerisation retarder, filler and surfactant. The contact angle of the composition with H₂O after 3 minutes is < 50°. Compared with prior polyorganosiloxane materials, tear strength and wettability are improved, while adequate working time is provided.

Treatment of Tumours

NEXSTAR PHARM. INC. *World Appl.* 96/38,460A
Modification of nucleosides is performed by reacting a nucleoside containing a leaving group with a nucleophile and CO, in the presence of a Pd catalyst. The resulting compounds inhibit viral activity and are useful for treating virus disease, especially cytomegalovirus, as well as acting as antiviral, antibacterial, antifungal and antineoplastic agents.

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