TEMPERATURE MEASUREMENT

Thermocouples for Measurement of High Temperatures


Thermocouple materials and sheaths are reviewed. Pt metal combinations are Pt: 10% Rh-Pt, 20% Rh-Pt: 40% Pt, 60% Rh-Pt: 30% Rh-Pt, Rh: 40% Rh-Pt, Rh: 30% Rh-Pt, Rh: 60% Rh-Ir, and Ir: 60% Rh-Ir.

NEW PATENTS

METALS AND ALLOYS

Palladium or Palladium Alloy Diffusion Tube for the Separation of Hydrogen from Gaseous Mixtures

JOHNSON, MATTHEY & CO LTD.
British Patent 966,122

A diffusion tube used for the separation of H₂ from gaseous mixtures made of pure Pd or 75 wt.% Pd-25 wt.% Ag alloy, is made more robust and its life is prolonged by the incorporation of stainless steel or Ni coil springs or metal or ceramic rods as stiffening members, which prevent flattening of the tube walls yet permit free passage of gas.

Rhodium-containing Magnetic Alloys

E. I. DU PONT DE NEMOURS & CO.
U.S. Patent 3,144,324

Ferromagnetic materials exhibiting very good saturation magnetisation values and high Curie temperatures comprise in at.% 0.8-1.2 Fe, 0.8-1.2 Rh and 0.01-0.2 of at least one metal of Group II A atomic no. 4-12 or Group III A, IV A, VA or VIA atomic no. 13-83, e.g. Al, Mg, Ge, Si, Sb, S, Ga, etc. See also 3,144,325.

Gold-Platinum Spinneret Alloy

DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT
German Patent 1,175,886

The material used for spinnerets, especially for viscose, is unhardened and homogeneous and consists of 68-88% Au and 12-32% Pt. See also 1,177,350.

Easily Worked Ruthenium

INTERNATIONAL NICKEL CO. (MOND) LTD.
German Patent 1,177,349

Ru which is easily formed is obtained by melting Ru in the presence of one or more of the metals Zn, Cd, Bi, Ti, Ge, Ba, Hf, Ce, Er, Gd, Hm, La, Pr, Sm, Yb and Y. Zn is preferred.

Results Obtained from Measurements on Platinum Resistance Thermometers at the Thermometry Section of the Kamerlingh Onnes Laboratorium, Leiden

H. VAN DIJK, Physica, 1964, 30, (8), 1498-1512

Tests on 27 Pt resistance thermometers at 1.5-4.3 K, 9-20.3 K and 54-90 K gave the temperature dependence of reduced resistance ω = R/RO'C for the range 1.5-90 K. Calibration at more than a few temperatures is needed, particularly for 4.2-10 K. ω = ω₀ + AT² + BT³ for 1.5-4.2 K, where ω₀, A and B varied accordingly to the origin and purity of the Pt.

ELECTROCHEMISTRY

Platinum Group Metal Coated Electrode for Electrochemical Processes

DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT
British Patent 965,958

An electrode particularly suitable for alkali-metal chloride electrolysis consists of a large flat area formed by many separate elements, each of which consists of a Cu core surrounded by a layer of Ti coated with a Pt group metal.

Electrolytic Production of Hydrogen

JOHNSON, MATTHEY & CO. LTD.
British Patent 973,810

Extremely pure H₂ is produced efficiently by electrolysis using 1% H₂SO₄ solution as electrolyte and a membrane, diaphragm or tube cathode made of an alloy containing 5-30 wt.% Ag and the balance Pd.

Method of Separating Hydrogen Isotopes

JOHNSON, MATTHEY & CO. LTD.
British Patent 973,820

H isotopes for the manufacture of deuterium as "heavy water" are separated by electrolysis or by electrolytic migration using a membrane, diaphragm or tube diffusion element made of an alloy containing 5-30 wt.% Ag and the balance Pd.

Palladium and its Alloys in the Manufacture of Platinised Noble Metal Electrodes

INSTITUT FRANCAIS DU PETROLE, DES CARBURANTS ET LUBRIFIANTS. French Patent 1,354,804

Platinised electrodes of improved activity are
produced by immersing an Au, Pt or Pd metal electrode in an electrolyte containing haloplatinic acid and 50–200 mg/l of a dissociated Pb salt and applying 150–350 mV at 25°C.

Platinum Electrodes for Electrolytic Cells
PITTSBURGH PLATE GLASS CO.
French Patent 1,360,905
The electrolytic cells used for the production of Cl₂ and alkali metal derivatives are provided with an anode whose active surface is platinised and whose support may be Ti or Ta. If desired other Pt group metals may be used, the thickness of the active film being varied and the performance of the anode improved by a "cationic" treatment.

Combined Electrolysis Electrode
MAGNETO-CHEMIE N.V.
Dutch Application 289,280
An electrode combined with a diaphragm consists of a perforated massive plate of Ti, covered on one side with a barrier layer of TiO₂ and on the other side with a thin porous layer of noble metal or alloy, e.g. a 70:30 Pt-Ir alloy.

ELECTROPLATING
Platinum Electroplating Electrolyte
COMPTOIR LYON-ALLEMAND, LOUYOT & Cie
French Patent 1,356,353
The electrolyte is a solution containing Pt (II) diamminodinitrate to which 5–40 g/l of fluoborate ions have been added as a hot aqueous solution.

BRAZING
Gold-Palladium-Nickel Brazing Alloys
AEROJET-GENERAL CORP.
U.S. Patent 3,148,053
Improved brazing alloys suitable for use in a vacuum furnace comprise 1–77 wt.% Au, 1–99 wt.% Pd and 20–61 wt.% Ni, Cr or their mixtures.

Platinyre group Metal Reforming Process Catalyst
UNIVERSAL OIL PRODUCTS CO.
British Patent 969,789
A hydrocarbon reforming catalyst is produced by calcining a hydrous refractory inorganic oxide followed by compounding to give 0.01–2.0 wt.% Pt group metal and 0.75–1.5 wt.% Cl₂, and subsequently oxidising at 204–310°C for at least one hour, followed by treatment at 371–538°C to give a volatile matter content of <2.0 wt.%.
Production of Organic Bases

IMPERIAL CHEMICAL INDUSTRIES LTD. British Patent 969,812
Organic bases are prepared by contacting a mixture of tetrahydrofurfuryl alcohol and NH₃ at elevated temperature with a catalyst of finely divided Pd preferably supported on Al₂O₃.

Production of Porous Electrodes

BROWN, BOVERI & CO. LTD. British Patent 970,576
The porous catalyst electrodes for electrochemical devices may be produced by mixing a powder of one or more of Pt, Ir, Rh and Pd with a powder of one or more of Al, Zr, Mg, W, Mo and Fe, in a 30-95 wt.% to 5-70 wt.% ratio, shaping under pressure, sintering at 350-800°C and treating with an alkaline or acidic solution to dissolve out the second metal.

Palladium and Platinum Catalysts in the Production of Acetic Acid

HALCON INTERNATIONAL INC. British Patent 971,100
CH₃COOH is produced by contacting a gaseous mixture of C₂H₄ and O₂ at 150-300°C and 1-1000 atm. with a catalyst comprising a ceramically bonded α-Al₂O₃ supporting 0.1-5 wt.% Pt or Pd salt or oxide and giving a 1-20 wt.% C₂H₄/C₂H₆ ratio.

Catalytic Treatment of Automobile Exhaust Gases

W. R. GRACE & CO. British Patent 971,994
Pollutants in automobile exhaust gases are oxidised catalytically by mixing them with an O₂-containing gas and contacting with an activated mixture of (1) 10-100% particle size Al₂O₃, SiO₂-Al₂O₃ or MgO or acid-treated clay containing Pt and Pd in a 0.125-2.0 Pt:Pd wt. ratio and (2) finely divided, porous Al₂O₃, Al₂O₃-B₂O₃, TiO₂ or ZrO₂ diluted providing a 5-250 dilution ratio and giving a 0.005-0.2 wt.% final content each of Pt and Pd.

Platinum Catalyst in the Production of Fuel Gas and Synthesis Gases

In the production of fuel and synthesis gases by the catalytic cracking of hydrocarbons in a fluidised bed comprising a refractory oxide support carrying Pt as the active metal, the catalyst is replenished by introducing into the bed a decomposable compound of the active metal, e.g. a carbonyl.

Hydrocarbon Isomerisation Catalysts

UNION CARBIDE CORP. British Patent 972,832
An isomerisation catalyst comprises a partially decactionised zeolitic metal aluminosilicate molecular sieve supporting 0.05-2.0 wt.% Group VIII metal, in particular Pt or Pd.

Portable I.R. Spot Heater

UNIVERSAL OIL PRODUCTS CO. British Patent 972,942
A portable I.R. spot heater utilising liquefied gases uses a perforate diffusion screen made of "Nichrome" or other Cr/Ni alloy and catalytically activated by a coating of Pt, Pd or other Pt group metal, which may be used in conjunction with smaller amounts of Th, Ru, W or Cs.

Cycloheptylamine Production

ABBOTT LABORATORIES. U.S. Patent 3,139,454
The hydrogenation of cycloheptanone oxide to cycloheptylamine is catalysed by 0.3-3.0% Rh when low hydrogen pressures and temperatures of 0-100°C are used.

Benzoic Acid Hydrogenation

ALLIED CHEMICAL CORP. U.S. Patent 3,141,036
Molten benzoic acid may be hydrogenated to cyclohexene carboxylic acid by treatment with H₂ at 1-40 atm. in the presence of a catalyst composed of palladised charcoal.

Platinum Catalysts in the Production of Lubricating Oils

SOCONY MOBIL OIL CO. INC. U.S. Patent 3,142,635
Catalysts consisting of 0.5-1.0 wt.% Pt supported on SiO₂/Al₂O₃ are used in the production of high viscosity-index lubricating oils by the hydrocracking of 750-850°F b.p. straight run fractions.

Platinum Hydrocracking Catalysts

ESSO RESEARCH & ENGINEERING CO. U.S. Patent 3,143,511
An improved paraffin hydrocracking catalyst is produced by contacting Al₂O₃ impregnated with 0.1-5 wt.% Pt with FeCl₃ vapour at 500-950°F and moist air to effect hydrolysis, this being followed by reduction to obtain a 0.1-5 wt.% Fe content on the catalyst.

Platinum or Palladium Series Hydrocracking Catalysts

SOCONY MOBIL OIL CO. INC. U.S. Patent 3,144,401
Hydrocarbon fractions are advantageously hydrocracked by contacting them and hydrogen with 0.05-10 wt.% Pt or Pd series metal deposited on a refractory oxide and adding S compounds so as continuously to maintain a 0.5-5 wt.% S content during the hydrocracking process.

Noble Metal Catalysts for the Polymerisation of Olefinically Unsaturated Compounds

WACKER-CHERIE G.m.b.H. U.S. Patent 3,145,194
Copolymers and polymers of olefinically unsaturated compounds are produced by contacting them at -80 to +50°C with 0.001-0.5 wt.% inorganic per-compound, organic peroxide or
hydroperoxide, H₂ at 0.1–10 atm. partial pressure and 0.0001–0.1 wt.% aqueous colloidal sol of a Pt group metal.

Platinum Hydrogenation Catalysts
E. I. DU PONT DE NEMOURS & CO.
U.S. Patent 3,145,231
Halogen-substituted aromatic amines are produced by the hydrogenation of nitro-mono-carbocyclic aromatic hydrocarbons at 30–150°C and 200–600 p.s.i.g. H₂ pressure in the presence of 1 part Pt per 1000–3000 parts nitro compound and 0.01–1.5 moles cycloaliphatic base per 1 mole nitro compound.

Platinum Group Metal Catalysts in the Production of Carboxyl Compounds
THE PURE OIL CO.
U.S. Patent 3,147,203
Carbonyl compounds are produced by oxidation of at least one olefine at c–200°C in the presence of an aqueous catalytic solution of a Pt group metal halide and by an electrochemical process involving regeneration of the catalyst and utilising Raney Ag, Pt, Cu, Ni, etc., electrodes.

Platinum Group Metal Hydro-refining Catalysts
ESSO RESEARCH & ENGINEERING CO.
U.S. Patent 3,147,429
Pt group metal catalysts of improved activity and of longer life are produced by (1) activation of Al₂O₃ by calcining to give a surface area of 230 ± 20 m²/g (2) impregnating with Pt, Pd or Rh and activating the catalyst by calcining above 1000°C and (3) halogen-treating the product under conditions giving an active metal surface of 200 ± 20 m²/g Pt or 380 ± 38 m²/g Pd or Rh.

Platinum Catalyst for the Oxidation of Exhaust Gases
UNIVERSAL OIL PRODUCTS CO.
U.S. Patent 3,148,036
An improved arrangement of an exhaust gas converter uses, as the oxidation catalyst, Al₂O₃ spheres supporting 0.1 wt.% Pt.

Palladium Hydrogenation Catalyst in the Production of Aminophenols
UNIVERSAL OIL PRODUCTS CO.
French Patent 1,355,109
Aminophenols are produced by the hydrogenation of corresponding nitrophenols with H₂ in the presence of Pd/C catalysts at 25–100°C, 1–35 atm.

Precious Metal Catalysts in the Production of Olefinic Esters
UNION CARBIDE CORP.
French Patent 1,355,109
Olefine esters are produced by the reaction in an inert solvent at 70–130°C of an olefine and a mono-carboxylic acid in the presence of a Pt group metal as catalyst.

Alumina-supported Palladium Hydrocracking Catalysts
GULF RESEARCH & DEVELOPMENT CO.
French Patent 1,355,210
Low b.p. hydrocarbons are produced by the hydrocracking of hydrocarbon distillates in the presence of a catalyst consisting of an active Al₂O₃ support, obtained by precipitation of Al(OH)₃ at pH 7–8.5, carrying up to 16 wt.% Mo or W oxide and/or sulphide and about 1 wt.% Pd sulphide or oxide. The use of Pt in the place of Pd compounds is possible.

Hydrocracking Process and Catalyst for Hydrocarbon Oils
SHELL INTERNATIONALE RESEARCH MIJ. N.V.
French Patent 1,356,567
Improved supported Pt or Pd catalysts are obtained by co-precipitating the support oxides as a hydrogel in the presence of compounds of the catalyst metals and then processing the product to a catalyst in the usual way.

Cycloalkanone Oxime Production
SICEDISON S.P.A.
French Patent 1,357,233
2-Halocycloalkanone oximes are dehalogenated in organic solution with a strong acid by using H₂ with a palladised charcoal catalyst.

Platinum and Palladium in the Production of Acetic Acid
SCIENTIFIC DESIGN CO. INC.
French Patent 1,358,382
CH₃COOH is produced by the catalytic gaseous phase oxidation of C₂H₄ with O₂ at 200–250°C in the presence of a catalyst comprising Al₂O₃ supporting 0.1–5 wt.% Pd or Pt and 5–20 wt.% V, Co, Mo or Mn, preferably in the form of their halides and oxides respectively.

Platinum Dehydrogenation Catalyst
SCIENTIFIC DESIGN CO. INC.
French Patent 1,358,386
A catalyst consisting of active C, which has been treated with 0.1–19% HCl and has been washed and impregnated with up to 5% Pt is used in the production of phenol by the dehydrogenation of the heavy fraction arising from the oxidation of cyclohexane.

Precious Metal Hydrodealkylation Catalysts
UNION CARBIDE CORP.
French Patent 1,358,439
Alkyl-substituted aromatic hydrocarbons are hydrodealkylated by contacting them at 400–650°C in a H₂ atmosphere with a molecular sieve constituted by zeolitic aluminosilicate and carrying a small proportion of, inter alia, Pt or Pd.

Precious Metal Halogenation Catalysts
UNION CARBIDE CORP.
French Patent 1,359,016
Halogenated hydrocarbons are produced by...
contacting an olefine, HX and a source of \( \text{O}_2 \) at 200–600°C with a catalyst comprised by an inert support and a Pt group metal, preferably Pt or Pd.

**Rhodium Catalyst for Reduction of Organonitro Compounds**

**ABBOTT LABORATORIES**  
*French Patent 1,359,438*

The hydrogenation of nitro-aromatic compounds at 20–150°C and 1 atm. to 10.5 kg/cm\(^2\) \( \text{H}_2 \) in the presence of 0.01–2.0 wt.% Rh catalyst results in the formation of the corresponding aromatic amines.

**Palladium-containing Catalyst for the Oxidation of Exhaust Fumes**

**W. R. GRACE & CO.**  
*French Patent 1,359,988*

A catalyst suitable for incorporation into filters for the exhaust systems of internal combustion engines comprises a high specific area refractory oxide support carrying 2–20 wt.% CuO, 0.0025–0.1 wt.% Pd and 1–10 wt.% \( \text{Cr}_2\text{O}_3 \).

**Platinum Oxide Catalyst in the Production of Ornithine**

**SHELL INTERNATIONALE RESEARCH MIJ. N.V.**  
*French Patent 1,360,750*

In the production of ornithine from acrolein and cyanuric hydride the hydrogenation step is carried out in the presence of a PtO catalyst.

**Platinum Alloy or Mixture Catalysts in the Production of Hydroxylamine**

**INVENTA A. G.**  
*French Patent 1,360,983*

Hydroxylamine is produced by reduction of nitrogen oxide in acid solution at pH 0.5–2.5, at 65–80°C and in the presence of 0.4–1.0 mole hydroxylamine salt and Pt, Ag, NO\(_3\)-impregnated Pt or a Pt alloy with Ag, Hg, Au, Ir or Pd as catalyst supported on a suitable material.

**Rhodium Catalyst in the Production of Alpha-acyloxy-propionaldehydes**

**AJINOMOTO CO. INC.**  
*French Patent 1,361,797*

The reaction in a liquid phase at elevated temperatures and pressures between a vinyl ester of fatty acids and \( \text{H}_2 \) and CO in the presence of a Rh catalyst yields \( \alpha \)-acyloxy-propionaldehydes.

**Precious Metal Hydrogenation Catalysts**

**SHIONOGI & CO. LTD.**  
*French Patent 1,361,980*

Unsaturated morphinanes may be hydrogenated with \( \text{H}_2 \) in the presence of a Pt or Pd catalyst.

**Production of Hydrogen Cyanide**

**IMPERIAL CHEMICAL INDUSTRIES LTD.**  
*German Patent 1,173,444*

The \( \text{NH}_3/\text{CH}_4 \) reaction of this process is catalysed by a Pt metal or alloy catalyst which has been activated by pretreatment with reaction mixture to which S has been added.

**Lubricating Oil Production**

**UNIVERSAL OIL PRODUCTS CO.**  
*German Patent 1,174,007*

A crude oil fraction with at least 95% of its components, including condensed ring naphthenes, boiling above 285°C is hydrogenated in the presence of a Pt metal catalyst, supported on a non-acidic carrier, to provide a lubricant feedstock.

**Tetrafluorodichloroisopropanol Production**

**ALLIED CHEMICAL CORP.**  
*German Patent 1,176,118*

Symmetrical tetrafluorodichloroisopropanol is produced from the corresponding ketone by hydrogenation over a Pt catalyst in the liquid phase.

**Production of Organic Carbonyl Compounds**

**CONSORTIUM FUR ELEKTROCHEMISCHE INDUSTRIE**  
*German Patent 1,176,141*

The C=C double bond of olefins is converted to CHO or CO by reaction with aqueous Pt metal salts, e.g. PdCl\(_2\).

**Hydrocarbon Conversion Process**

**STANDARD OIL CO.**  
*German Patent 1,176,306*

The hydroforming of hydrocarbons is carried out in the presence of a Pt/Al\(_2\)O\(_3\) catalyst which is regenerated in cycles to restore its HF-soluble content to < 40 wt.% of the Pt.

**Uranium Nitrate Solution Production**

**COMITATO NAZIONALE PER L’ENERGIA NUCLEARE**  
*German Patent 1,176,631*

Uranyl nitrate solutions are reduced to uranium nitrate solutions by means of gaseous hydrogen in the presence of a Pt catalyst. See also 1,176,632.

**Continuous Vinyl Ester Production**

**CONSORTIUM FUR ELEKTROCHEMISCHE INDUSTRIE**  
*German Patent 1,176,645*

Olefines are reacted with a carboxylic acid and a supported Pt catalyst. The catalyst is reoxidised after the vinyl ester has been removed.

**Catalyst for Organic Compound Hydrogenation**

**ENGELHARD INDUSTRIES INC.**  
*German Patent 1,176,656*

A catalyst especially active for aldehyde and ketone reduction consists of Ru promoted by another Pt metal on a support containing 0.1–10% total catalyst metal of which at least 20 wt.% is Ru.

**Production of Alkyl Aromatic Compounds**

**BATAAFSCHE PETROLEUM MIJ. N.V.**  
*German Patent 1,178,065*

Diaryl alkanes are converted to alkyl aromatic...
compounds by heating at 300–600°C in the presence of a refractory metal oxide catalyst and also a Pt or Pd dehydrogenation catalyst.

Aldehyde and Ketone Production
FARBEWERKE HOECHST A. G.
Dutch Application 249,648

Alkenes with 3 or more C atoms are reacted with O\textsubscript{2} in the presence of H\textsubscript{2}O, a redox system and a noble metal catalyst, preferably at least 0.25 mol/l of a Pd compound such as PdCl\textsubscript{2}.

Selective Hydrogenation of Ethynes
IMPERIAL CHEMICAL INDUSTRIES LTD.
Dutch Application 253,280

In a first phase a gas mixture with excess H\textsubscript{2} is used over a catalyst consisting of Pd on large pore size Al\textsubscript{2}O\textsubscript{3} while in a second phase hydrogenation is catalysed by Pd on active Al\textsubscript{2}O\textsubscript{3}.

Catalyst
UNIVERSAL OIL PRODUCTS CO.
Dutch Application 254,008

Long life Friedel-Crafts catalyst consists of a known metal halide deposited on an inorganic oxide support impregnated with a lower valency Pt metal, e.g. Pd reduced with H\textsubscript{2}.

Production of 2-Ethyl-pyridine
V.E.B. LEuna-Werke "WALTER ULBRIGHT"
Dutch Application 262,794

Pyridine-2-ethanol is reduced to 2-ethyl-pyridine by H\textsubscript{2} in the presence of a Ni/Al\textsubscript{2}O\textsubscript{3} base impregnated with a Pd or Pt oxide catalyst.

FUEL CELLS

Improved Fuel Cell Systems
THE ELECTRIC STORAGE BATTERY CO.
British Patent 970,420

In an improved fuel cell system, both the electrodes are porous conductive bodies and Ag is used as catalyst for the O\textsubscript{2} electrode and Pd or Pt group metals act as catalysts for the H\textsubscript{2} electrode.

Improved Fuel Cells
SHELL RESEARCH LTD.
British Patent 971,454

Electricity is generated in fuel cells which have a circular O\textsubscript{2} electrode consisting of microporous PVC on which a Ag layer and 5 mg/On\textsuperscript{2} Pd black have been deposited and a central fuel electrode of exactly the same type to which a fuel comprising a mixture of 1–4 C monohydric alcohol and formaldehyde polymer or HCOOH is supplied.

Precious Metal Hydrogen Diffusion Electrodes
LEESONA CORP.
U.S. Patent 3,148,089

Fuel cells utilise fuel electrodes in the form of H\textsubscript{2} diffusion tubes constructed of Pd or Pd/Ag alloys containing 5–40 wt.% Ag.

Fuel Cell Electrode
LEESONA CORP.
French Patent 1,354,465

Electrodes for fuel cells are constructed of 0.025–1.27 mm thick foil of hydrophobic or hydrophilic polymer with 40–90% porosity which act as supports for catalytically active porous and conducting metal films, e.g. Pt, Pd, Rh, Ru.

Precious Metals in the Production of Fuel Cell Electrodes
LEESONA CORP.
French Patent 1,354,685

An electrode suitable for a fuel cell and non-porous to H\textsubscript{2} diffusion is made of a 5–40% Ag and 95–60% Pd alloy and one of its faces is coated with Pd black. This electrode is used advantageously as an anode in conjunction with a Ni cathode activated by Co or Ni and the Pd black face is turned towards the combustible gas used in the fuel cell.

Palladium and its Alloys in the Manufacture of Hydrogen Electrodes
ELECTRICITE DE FRANCE
French Patent 1,359,656

The electrode membrane of H\textsubscript{2} combustion electric cells, operated at 200–800°C, and having fused salts or oxides as electrolyte, is formed by Pd or its alloys and may be made more rigid by a special framework.

Platinised Electrodes for Fuel Cells
AMERICAN CYANAMID CO.
French Patent 1,361,225

Electrodes for fuel cells consist of C into which has been incorporated 0.1–40 wt.% Pt and on which 0.1–10 wt.% Pt group metal, preferably Pt, has been electrodeposited.

GLASS TECHNOLOGY

Apparatus for Spinning Molten Glass
DEEGLAS FIBRES LTD.
British Patent 969,905

The apparatus comprises a casing of Rh or Pt in which is a chamber for molten glass and at its bottom a number of tubes leading to spinning nozzles, the tubes being heat-insulated.

TEMPERATURE MEASUREMENT

Resistance Thermometers
DEUTSCHE GOLD- und SILBER-SCHEIDEANSTALT
British Patent 973,256

In a resistance thermometer, the temperature-sensitive measuring wire consists of a base metal, e.g. Ni, which is coated with a thin layer of 30–70 wt.% Ag/70–30 wt.% Pd alloy.