Index to Volume 30 (2000)

The subject index has been organized into topics for easy reference.

Subject Index 2000

Corrosion and prevention

Benzotriazole as inhibitor for copper with and without corrosion products in aqueous polyethylene glycol 21

Surface microstructure and corrosion resistance of electrodeposited ternary Zn-Ni-Co alloy 55

Electrochemical behaviour of titanium in fluoride-containing saliva 95

Electrochemical properties of composite anodes for cathodic protection 333

Anodic polarization behaviour of cast iron alloys in deaerated concentrated H₃PO₄ solutions containing Cl⁻ and F⁻ ions 339

The effect of benzotriazole on mass transfer in the corrosion of a copper rotating disk electrode 379

Electrochemical investigation of the adsorption behaviour of anhydrides and imides on iron in acid medium 561

Cleaning of copper foil coated with sodium hexanoate as corrosion inhibitor 595

Application of EIS to the initial stages of atmospheric zinc corrosion 607

Copper corrosion at various pH values with and without the inhibitor 617

Electrochemical behaviour of aluminium in the presence of EDTA-containing chloride solutions 675

Electrochemical behaviour of cobalt in aqueous solutions of different pH 693

3-Mercaptopropyltrimethoxysilane as a Cu corrosion inhibitor in KCl solution 737

Dithiobiurets: a novel class of acid corrosion inhibitors for mild steel 745

Aqueous extract of Rosmarinus officinalis L. as inhibitor of Al-Mg alloy corrosion in chloride solution 823

Studies on the influence of chloride ion and pH on the corrosion and electrochemical behaviour of AZ91D magnesium alloy 865

Corrosion protection of steel in molten Li₂CO₃-K₂CO₃ and Na₂CO₃-K₂CO₃ mixtures in a hydrogen-containing atmosphere 929

Study of different triazole derivative inhibitors to protect copper against pitting corrosion 959

Inhibition of CuNi10Fe corrosion in seawater by sodium-diethyl-dithiocarbamate: an electrochemical and analytical study 973

Substitutional inhibition mechanism of mild steel hydrochloric acid corrosion by hexylamine and dodecylamine 1173

Competitive role of inhibitive and aggressive ions in the corrosion of steel in concrete 1255

Electrochemical and XPS investigations of cobalt in KOH solutions 1303

Effluent and water treatment

Removal of Zn(II) from chloride medium using a porous electrode: current penetration within the cathode 61

Electrochemical reduction of NO and O2 on Cu/CuO 193

Characterization of doped tin dioxide anodes prepared by a sol-gel technique and their application in an SPE-reactor 293

Electrochemical treatment of waste solutions containing ferrous sulfate by anodic oxidation using an undivided reactor 399

Separation of nickel from cobalt using electrodialysis in the presence of EDTA 439

An ecologically effective water treatment technique using electrochemically generated hydroxyl radicals for *in situ* destruction of organic pollutants: Application to herbicide 2,4-D 475

Destruction of aniline by mediated electrochemical oxidation with Ce(IV) and Co(III) as mediators 685

Some aspects of removal of copper and cobalt from mixed ion dilute solutions 831

Exhaustive oxidation/reduction of nitrite, nitrate and hydrazine using a square wave potential regime 859

Wet electrolytic oxidation of organic pollutants in wastewater treatment 875

Reduction of hexavalent chromium by copper 891

Hypochlorite generation on Ru-Pt binary oxide for treatment of dye wastewater 1043

Water splitting at ion-exchange membranes and potential differences in soil during electrodialytic soil remediation 1199

Oxidation of carboxylic acids at boron-doped diamond electrodes for wastewater treatment 1345

Electrocatalysis and kinetics

Performance evaluation of porous electrocatalysts via normalization of the active surface 43

Preparation and characterization of microporous Ni coatings as hydrogen evolving cathodes 107

Electrochemical behaviour of olefins: oxidation at ruthenium-titanium dioxide and iridium-titanium dioxide coated electrodes 467

Hydrogen evolving activity on nickel-molybdenum deposits using experimental strategies 499

Effect of particle size on the electrocatalytic activity of platinum dispersions in carbon matrix electrodes for phosphoric acid fuel cells 795

Electrochemical hydrogen evolution on polypyrrole from alkaline solutions 939

Cathodes for chlorate electrolysis with nanocrystalline Ti-Ru-Fe-O catalyst 1061

Electrocatalysis of oxygen evolution at stainless steel anodes by electrosynthesized cobalt hydroxide coatings 1157

Electrochemical promotion of Rh catalyst in gas-phase reduction of NO by propylene 1223

In situ controlled electrochemical promotion of catalyst surfaces: Pd-catalysed ethylene oxidation 1277

Electrochemical engineering

Durability testing for the recovery of sodium hydroxide from alkaline waste solutions 13

Dynamic simulation of a parallel-plate electrochemical fluorination reactor 85

Three-dimensional numerical simulation of straight channel PEM fuel cells 135

Prediction of electrode shape change involving convection, diffusion and migration by the boundary element method 575

Regeneration of zinc particles for zinc-air fuel cells in a spouted-bed electrode 647

An experimental investigation of bubble-induced free convection in a small electrochemical cell 767

Design equations for optimized PEM fuel cell electrodes 777

On gas bubbles in industrial aluminium cells with prebaked anodes and their influence on the current distribution 787

A new technique for two-dimensional current distribution measurements in electrochemical cells 803

Two-dimensional numerical modelling of a direct methanol fuel cell 1005

On modelling molten carbonate fuel-cell cathodes by electrochemical potentials 1015

Simulation of influences of layer thicknesses in an alkaline fuel cell 1023

A mathematical model for the internal cathodic protection of cylindrical structures by wire anodes 1053

A primary, secondary and pseudo-tertiary mathematical model of a chlor-alkali membrane cell 1361

Mathematical model of the PEMFC 1377

Electrochemical synthesis and production

Electrochemical preparation and properties of composite films with polypyrrole/poly(styrene sulfonate): polyviologen multilayers 49

Electrochemically prepared acrylamide/N,N'-methylene bisacrylamide gels 71

Pt/Ti electrode preparation methods: application to the electrooxidation of isopropanol 147

Electrosynthesis of hydrogen peroxide by partial reduction of oxygen in alkaline media. Part II: Wall-jet ring disc electrode for electroreduction of dissolved oxygen on graphite and glassy carbon 187

Electrochemical processes for nuclear fuel reprocessing 201

Desalting of phenylalanine solutions by electrodialysis with ion-exchange membranes 259

Effect of oxygen and titanium contents on the stability of nanocrystalline Ti-Ru-Fe-O cathode materials for chlorate electrolysis 491

Electrochemical oxidation of benzene at a glassy carbon electrode 543

Biomass conversion: attempted electrooxidation of lignin for vanillin production 727

Cathodic reduction of 4-nitroso-N,N-dimethylaniline at various electrode materials 733

Mediated reduction of oxygen at poly(phenosafranine) modified electrodes 757

Electrosynthesis of conducting polymer films from the azo dye methoxy red 945

Electrochemical reduction of derivatives and isomers of ethylpicolinate 967

Electrosynthesis of dehydrocholic acid from cholic acid 995

Electrochemical synthesis of Cr(11) at carbon electrodes in acidic aqueous solutions 1109

A novel electrocatalytic polyaniline electrode for methanol oxidation 1137

Electrosynthesis of dimethylsulfone from dimethylsulfoxide at a dimensionally stable anode 1299

Electrochemical machining

Theoretical analysis of chronoamperometric transients in electrochemical machining and characterization of titanium 6/4 and inconel 718 alloys 447

Electrochromism

Impedance spectroscopy study of electrochromism in sputtered iridium oxide films 35

Energy conversion, batteries and fuel cells

Impedance spectroscopic study for the initiation of passive film on carbon electrodes in lithium ion batteries 29

Changes in positive lead/acid battery plates during charge/discharge cycling 77

Bipolar plate materials for solid polymer fuel cells 101

Characteristics of a mercury substituent inhibitor in alkaline manganese dioxide/zinc batteries 113

Electrode/matrix interfacial characteristics in a phosphoric acid fuel cell 121

Electrode materials for intermediate temperature proton-conducting fuel cells 153

Synthesis of ternary Li-Mn-O phase at a temperature of 260 °C and electrochemical lithium insertion into the oxide 159

Mass transport in lithium-battery solvents 269

Modelling the capacitance of d.c. etched aluminium electrolytic capacitor foil 285

Hydrogen fired PAFCs: an experimental investigation into the optimal utilization of impure, recycled hydrogen 323

Analysis of PEM fuel cell stacks using an empirical current-voltage equation 365

AC impedance and state-of-charge analysis of alkaline zinc/manganese dioxide primary cells 371

Safety and capacity retention of lithium ion cells after long periods of storage $\,405$

Durability test of SOFC cathodes 411

2-Nitrophenylpyruvic acid as a cathode material in a magnesium/zinc-based primary battery 483

Steady-state operation of a compressor for a proton exchange membrane fuel cell system 551

Negative plate discharge in lead acid batteries. Part I: General analysis, utilization and energetic coefficients 585

Effect of diffusion-layer morphology on the performance of polymer electrolyte fuel cells operating at atmospheric pressure 641 Stabilization of platinized carbon catalysts for PAFC 723

RRDE study of oxygen reduction on Pt nanoparticles inside Nafion®: H₂O₂ production in PEMFC cathode conditions 839

Electrochemical and thermal behaviour of $LiNi_{0.8}Co_{0.2}O_2$ cathode in sealed 18650 Li-ion cells 1119

Platinum-tin alloy electrodes for direct methanol fuel cells 1151

 $Preparation \ of \ Li-Mn-O \ thin \ films \ by \ r.f.-sputtering \ method \ and \ its \ application \ to \ rechargeable \ batteries \ 1179$

Effect of sodium iodide additive on the electrochemical performance of sodium/nickel chloride cells 1229

Concentration and potential distributions in the active layer of proton exchange membrane fuel cell electrodes 1369

Instruments, methods

Tungsten carbide-based electrochemical sensors for hydrogen determination in gas mixtures 705

Characterization of capacitive humidity sensors based on doped poly(propargyl-alcohol) 753

On the determination of limiting current density from uncertain data 1087

Application of a hydrogen reference electrode to a solid state water removal device 1235

Mass transfer and hydrodynamics

Study of mixing in an axisymmetric coflowing liquid jet by coupling L.D.A. to an electrochemical method 209

Mass transfer between a liquid and an array of discs in a cylindrical container. Part II: Combined pumped flow and rotation 303

A new technique for the visualization of the concentration boundary layer in an electrodialysis cell 809

Hydrodynamic modelling of direct methanol liquid feed fuel cell stacks 899

Electrochemical cleaning of microporous metallic filters fouled with bovine serum albumin and phosphate under low cross-flow velocities 915 Mass transfer behaviour of a flow-by fixed bed electrochemical reactor composed of a vertical stack of screens under single and upward two phase flow 1269

Mass transfer in fluidized beds of inert particles. Part I: The role of collision currents in mass transfer to the electrode 1285

Mass transfer in fluidized beds of inert particles Part II: Effect of particle size and density 1293

LES of turbulent channel flow of a binary electrolyte 1335

Effects of baffle length on mass transfer in a parallel plate rectangular electrochemical cell 1439

Materials electrochemistry

Durability and thermal cycling of Ni/YSZ cermet anodes for solid oxide fuel cells 247

Effect of morphology on the performance of metal-hydride electrodes 347

Preparation of $Bi_{1-x}Sb_x$ films by electrodeposition 385

Texture prediction of Bi₂Te₃ electroplated layers using Hartman's theory of crystal growth 419

Electrochemical investigation of the codeposition of SiC and SiO₂ particles with nickel 429

Polarization behaviour and lifetime of IrO₂-Ta₂O₅-SnO₂/Ti anodes in p-phenolsulfonic acid solutions for tin plating 511

A study of the deactivation and service life of Ir oxide anodes supported on Al substrates 523

Electrochemical preparation and surface properties of gold nanowire arrays formed by the template technique 533

An investigation into the electrodeposition of AuCu-matrix particulate composites. Part II: Baths not containing free cyanide 591

Faradaic impedance investigation of the deactivation mechanism of Ir-based ceramic oxides containing TiO2 and SnO2 625

Electrochemical properties of a new V₂O₅ xerogel 657

Effect of heat treatment on the anodic oxidation of Ti-0.2 Pd alloys in chloride solutions 717

Zinc impregnation of the anodic oxidation layer of 1050 and 2024 aluminium alloys 845

Preparation and electrochemical characterization of LiCoO₂ by the emulsion drying method 1081

Effect of chromate additive on the kinetics and mechanism of skeletal copper formation 1097

Kinetics and mechanism of the formation of doped skeletal copper catalysts: the effect of zincate compared to undoped and chromate-doped systems 1103

Induced effect of Mn_3O_4 on formation of MnO_2 crystals favourable to catalysis of oxygen reduction 1133

Preparation on iron of a polypyrrole (PPy) electrode modified with copper by the electrochemical cementation process 1143

Relationship between apparent electrical-conductivity and preparation conditions for nickel foam 1183

Improvement of the high energy ball-milling preparation procedure of CO tolerant Pt and Ru containing catalysts for polymer electrolyte fuel cells 1243

TiCN and metallic coatings for corrosion protection of separator plates in MCFCs 1421

Electrical conductivity and chemical diffusivity of NiAl₂O₄ spinel under internal reforming fuel cell conditions 1433

Metal and alloy deposition and dissolution

Copper deposition on micropatterned electrodes from an industrial acid copper plating bath 1

Electrodeposition studies in the $MnO_2 + PbO_2$ system: formation of $Pb_3Mn_7O_{15}$ 117

Barrel zinc electrodeposition from alkaline solution 165

Normal and anomalous codeposition of Zn-Ni alloys from chloride bath 173

Effects of chloride, bromide and iodide ions on internal stress in films deposited during high speed nickel electroplating from a nickel sulfamate bath 231

Electrodeposition of Ni-Co alloys from sulfamate baths 277

Comparison of platinum with IrO₂-Ta₂O₅ system for the stannous ion consumption in methane sulfonic acid baths with and without catechol 359

Effects of air agitation on conductivity in acid copper electrodeposition solutions 457

Electrodeposition and dissolution of Co-W alloy films 601

Impedance spectroscopy and modelling of zinc deposition in chloride electrolyte containing a commercial additive 665

Nucleation effects on structural and optical properties of electrodeposited zinc oxide on tin oxide 711

Role of polyethylene glycol in electrodeposition of zinc-chromium alloys 817

Effect of tartrate on the morphological characteristics of the copper-tin electrodeposits from a noncyanide acid bath 987

Dynamic aspects of the electroreduction of chromic acid solutions 1069

Evaluation of nickel deposition by electrochemical impedance spectroscopy 1125

Diffusion coefficients of Cu(II) complexes with ligands used in alkaline electroless copper plating solutions 1163

An interpretation of the Zech-Podlaha-Landolt model of metal codeposition via queuing theory 1169

Electrocrystallization and electrodeposition of silver on titanium nitride 1261

Mineral and metallurgical electrochemistry

Sulphurous acid as anodic depolarizer in copper electrowinning Part II 181

An electrochemical study of gold cementation with zinc powder at low cyanide concentration in alkaline solutions 217

Electrowinning of tellurium from alkaline leach liquor of cemented Te 315

A SERS spectroelectrochemical investigation of the interaction of 2-mercaptobenzothiazole with copper, silver and gold surfaces 1209

Molten salt electrochemistry

Pulse electrodeposition of titanium on carbon steel in the LiF-NaF-KF eutectic melt 239

Electrodeposition of cohesive carbon films on aluminum in a LiCl-KCl-K₂CO₃ melt 571

Alkali and earth alkaline metal contents in the aluminium cathode in aluminium electrolysis 925

Determination of diffusion coefficients of depositing ions in molten chlorides by transient electrochemical techniques 1351

Electrochemical oxidation of carbon in a 62/38 mol % Li/K carbonate melt 1389

Effect of molten carbonate composition on oxygen reduction under pressurized conditions: cyclic voltammetry and equivalent circuit analysis 1397

Study of cerium species in molten Li₂CO₃-Na₂CO₃ in the conditions used in molten carbonate fuel cells. Part I: Thermodynamic, chemical and surface properties 1405

Study of cerium species in molten Li₂CO₃-Na₂CO₃ in the conditions used in molten carbonate fuel cells. Part II: Potentiometric and voltammetric behaviour 1415

Photoelectrochemistry

Observation of photocurrent generation in electrodeposited zinc oxide layers 855

Photoelectrochemical degradation of lignin 953

Photocatalytic degradation of oxalic acid on a semiconductive layer of n-TiO₂ particles in a batch plate reactor. Part III: Rate determining steps and nonsteady diffusion model for oxygen transport 1033

Thermodynamics and physical properties

Effective solution resistivity in beds containing one monolayer or multilayers of uniform spherical glass beads 507

Miscellaneous

Fitz's Atlas of coating defects (F. Walsh) 515

Electrochemistry at Metal and semiconductor electrodes (G.H. Kelsall) 515

Use of a rotating cylinder electrode in corrosion studies of a 90/10 Cu-Ni alloy in 0.5 mol L^{-1} H₂SO₄ media 981

Molecular Thermodynamics 1187

Uhlig's Corrosion Handbook 2nd edition 1189

Advances in Surface Engineering (Volumes I, II and III) 1191

Magnetic properties of electrodeposited nickel-manganese alloys: Effect of Ni/Mn bath ratio 1313

Impact of chlorine and acidification in the electrochemical treatment of tumours 1321