JOURNAL OF THE CHEMICAL SOCIETY

Chemical Communications

Number 23 1986

CONTENTS

- 1685 Thermally Induced Gas Phase Phosphonylation of Arenes via Intramolecular Trapping of an Aryl Metaphosphate Moiety J. I. G. Cadogan, Alan H. Cowley, Ian Gosney, Marek Pakulski, Peter M. Wright, Salih Yaslak
- 1686 Asymmetric Intramolecular Conjugate Addition of Amines to Chiral Vinyl Sulphoximides. Total Synthesis of (R)-(+)-and (S)-(-)-Carnegine Stephen G. Pyne
- 1688 Asymmetric Intramolecular Conjugate Addition of Amines to Chiral Vinyl Sulphoxides. Total Synthesis of (R)-(+)-Carnegine Stephen G. Pyne, Sandra L. Chapman
- 1689 Iridium(III) Hydrides derived from an Iridium(I) Substrate by Oxidative Addition and Cyclometallation of Germanium(II) Bis(trimethylsilyl)amide; X-Ray Structures of [{CH₂Me₂SiN(R)(NR₂)Ge}HI₁(μ-Cl)₂{Ge(NR₂)N(R)SiMe₂CH₂}IrH{Ge-(NR₂)₂}] and [Ir{GeCl(NR₂)N(R)SiMe₂CH₂}(CO)₂H{Ge(NR₂)₂}] (R = SiMe₃) Stephen M. Hawkins, Peter B. Hitchcock, Michael F. Lappert, Audesh K. Rai
- 1691 An Enantiospecific Synthesis of Longiborneol and Longifolene David L. Kuo, Thomas Money
- 1692 Reaction of Oxazoles. Formation of Abnormal Diels-Alder Adducts of 5-Methoxy-4-(p-nitrophenyl)oxazoles with Tetracyanoethylene, and X-Ray Crystal Structure of One of the Products Toshikazu Ibata, Yasushi Isogami, Shuji Nakano, Hiroyuki Nakawa, Hatsue Tamura
- 1694 Stepwise Transition Metal Promoted Ring Expansion Reactions of Vinylcyclopropenes to give Cyclopentadienes and

 Cyclohexa-2,4-dienones. The First Example of a 1-Metallacyclohexa-2,4-diene Complex, {[Pt-CH₂-CH=C(Ph)-C(Ph)-C(Ph)-C(Ph)](PPh₃)₂} Norman A. Grabowski, Russell P. Hughes, B. Scott Jaynes, Arnold L. Rheingold
- 1696 Biosynthesis of Polyesters by Alcaligenes eutrophus: Incorporation of ¹³C-Labelled Acetate and Propionate **Yoshiharu Doi, Masao Kunioka, Yoshiyuki Nakamura, Kazuo Soga**
- 1697 Palladium(II) Catalysed Construction of Tetrasubstituted Carbon Centres, and Spiro- and Bridged-ring Compounds from Enamides of 2-Iodobenzoic Acids Ronald Grigg, Visuvanathar Sridharan, Paul Stevenson, Tanachat Worakun
- 1699 Spectroscopic Evidence for the Formation of Catecholato-Fe^{III} and Semiquinonato-Fe^{III} Pyridine Complexes in the Oxygenation of Catechol by a Pyridineiron(III) Complex Takuzo Funabiki, Shinichi Tada, Toshihiko Yoshioka, Mikio Takano, Satohiro Yoshida
- 1701 Eliminative Ring Fission of 1,2,4-Trioxan-5-ones. A New Approach to α-Keto Acids Charles W. Jefford, Jean-Claude Rossier, John Boukouvalas
- 1702 Biosynthesis of the Antimitotic Antitumour Antibiotic Rhizoxin by Rhizopus chinensis; Origins of the Carbon Atoms Hisayoshi Kobayashi, Shigeo Iwasaki, Emiko Yamada, Shigenobu Okuda
- 1703 Formation of N-Tributylstannyl-2-oxazolidone from (Bu₃Sn)₂O and 2-Chloroethyl Isocyanate Ikuya Shibata, Akio Baba, Haruo Matsuda
- 1704 Photochemical Intramolecular Cyclisation of Purine and Pyrimidine Nucleosides induced by an Electron Acceptor Magoichi Sako, Kaoru Shimada, Kosaku Hirota, Yoshifumi Maki
- 1706 Novel Photocatalysts, Ion-exchanged K₄Nb₆O₁₇, with a Layer Structure Kazunari Domen, Akihiko Kudo, Mutsumi Shibata, Akira Tanaka, Ken-ichi Maruya, Takaharu Onishi
- 1707 Heterogeneous Water Oxidation by an Amide-bridged Dinuclear Ruthenium Complex adsorbed on Ion-exchange Resins Ramasamy Ramaraj, Akira Kira, Masao Kaneko
- 1709 Fluorescent Signalling Crown Ethers; 'Switching On' of Fluorescence by Alkali Metal Ion Recognition and Binding in situ A. Prasanna de Silva, Saliya A. de Silva
- 1710 Synthesis, Crystal, and Molecular Structure of the Novel Infinite Chain Mixed Metal Carbene Complex [Pd(µ-Cl)₂Pt{C(PPh₂)₂}]_n derived from Co-ordinated Bis(diphenylphosphino)methane (dppm) Saud I. Al-Resayes, Peter B. Hitchcock, John F. Nixon
- 1711 Cofacial Porphyrin Dimers containing Intramolecular Metal-Metal Bonds James P. Collman, Kimoon Kim, James M. Garner
- 1713 Acceleration Effect of a High Speed Rotating Generator on the Transformation of Iron(III) Oxide Hydroxides in Aqueous Media Jan Šubrt, Alois Nosek, Vladimír Procházka, Vladimír Zapletal
- 1715 The Metal-Nitride Stretching Vibrations in $[M_4(\mu_4-N)(CO)_{12}(\mu-H)]$ (M = Ru, Os) and Related Clusters Christopher E. Anson, Julian P. Attard, Brian F. G. Johnson, Jack Lewis, Julian M. Mace, Donald B. Powell

- 1717 Effect of A-Strain on a Synthesis of cis-Fused 4a-Aryloctahydro-1H-cyclopenta[c]pyridine Derivatives through Tandem Radical Cyclisation of an α-Acylamino-Polyene System Shinzo Kano, Yoko Yuasa, Tsutomu Yokomatsu, Kenji Asami, Shiroshi Shibuva
- 1719 The First Stable Lithium Complex of a Pentadentate Macrocycle Incorporating sp²-Nitrogen Donor Atoms only; the X-Ray Crystal Structure of [Li(L²)(MeOH)][PF₆] {L² = 6,13-(Bis-2-hydroxyethyl)-6H,13H-tripyrido[cd.fg,lm]-[1,2,4,7,9,10,13]hepta-azapentadecine} Edwin C. Constable, Lap-Yan Chung, Jack Lewis, Paul R. Raithby
- 1720 New Charge Transfer Complexes between Tetracyanoethylene (TCNE) and Conducting Polymers (Polyacetylene and Polypyrrole) Irena Kulszewicz-Bajer, Denis Billaud
- 1721 A Novel 3,4-Dihydro-5-methylene-1,2,4-triazole and its Reactions with Acrylonitrile and Sulphene (Thioformaldehyde S,S-Dioxide) to form Spiroaziridines Adrian L. Schwan, John Warkentin
- 1722 The Oxidative Addition of Iodomethane to [PdMe₂(bpy)] and the X-Ray Structure of the Organopalladium(IV) Product fac-[PdMe₃(bpy)I] (bpy = 2,2'-bipyridyl) Peter K. Byers, Allan J. Canty, Brian W. Skelton, Allan H. White
- 1724 Stereochemical Rigidity of the Square Pyramidal W(CO)₅ Moiety During 1,2-Metallotropic Shifts in Disulphide Complexes Edward W. Abel, Ian Moss, Keith G. Orrell, Vladimir Šik, David Stephenson
- 1725 Synthesis of *meso*-Tetravinyl Porphyrins through 1-Selenoallyl Cationic Species László Hevesi, Michel Renard, Gottfried Proess
- 1727 An Efficient Electrochemical Process for the Oxidation of Saturated Hydrocarbons: the Gif-Orsay System Gilbert Balavoine, Derek H. R. Barton, Jean Boivin, Aurore Gref, Nubar Ozbalik, Henriette Rivière
- 1729 Selective Hydrogenation of α,β-Unsaturated Aldehydes to give Unsaturated Alcohols over Platinum-Germanium Catalysts S. Galvagno, Z. Poltarzewski, A. Donato, G. Neri, R. Pietropaolo
- 1731 A series of μ-Disulphido-Dimolybdenum(IV) Complexes: X-Ray Structure of the Novel (μ-Tetrahydrothiophene) Complex [(C₄H₈S)Cl₃Mo(μ-S₂)(μ-C₄H₈S)MoCl₃(C₄H₈S)] **David L. Hughes, Raymond L. Richards, Caroline Shortman**
- 1732 An Efficient, Practical Method for Preparation of Optically Active erythro-Epoxy Secondary Alcohols using Sharpless Kinetic Resolution of β-Trimethylsilyl Secondary Allylic Alcohols Yasunori Kitano, Takashi Matsumoto, Yoshiyuki Takeda, Fumie Sato
- 1734 Photochemical Activation of Ethene C-H Bonds of (η⁵-C₅H₅)Ir(C₂H₄)₂ in Low-temperature Matrices and in Solution David M. Haddleton, Robin N. Perutz
- 1737 Synthesis of Mixed-metal Trinuclear Complexes. X-Ray Crystal Structure of [(cod)₂Rh₂(μ₃-C₇H₄NS₂)₂AgO₂ClO₂] (cod = cyclo-octa-1,5-diene; C₇H₄NS₂ = benzothiazole-2-thiolate) Miguel A. Ciriano, Luis A. Oro, Jesús J. Pérez-Torrente, Antonio Tiripicchio, Marisa Tiripicchio-Camellini
- 1738 The Inelastic Neutron Scattering Spectrum of Rotational Tunnelling in Phase III of NH₄PF₆ Gordon J. Kearley, Jeremy K. Cockcroft, Andrew N. Fitch, Brian E. F. Fender
- 1740 The Synthesis and X-Ray Structural Characterisation of the First Mixed Alkali Metal Organonitrogen Molecular Cluster LiNa₃[O=P(NMe₂)₃]₃[N=C(NMe₂)₂]₄ William Clegg, Robert E. Mulvey, Ronald Snaith, Gerald E. Toogood, Kenneth Wade
- 1742 Synthesis and X-Ray Crystal Structure of the Novel Cluster Anion [Rh₁₂H(N)₂(CO)₂₃]³⁻; an Irregular Metallic Array containing Two Interstitial Nitrogen Atoms Secondo Martinengo, Gianfranco Ciani, Angelo Sironi

Corrigendum

1744 Novel Discotic Liquid Crystals obtained from Substituted Bis(dithiolene)nickel Complexes Kazuchika Ohta, Akira Takagi, Hiromitsu Muroki, Iwao Yamamoto, Kei Matsuzaki, Tamotsu Inabe, Yusei Maruyama

AUTHOR INDEX

Abel, Edward W., 1724 Al-Resayes, Saud I., 1710 Anson, Christopher E., 1715 Asami, Kenji, 1717 Attard, Julian P., 1715 Baba, Akio, 1703 Balavoine, Gilbert, 1727 Barton, Derek H. R., 1727 Billaud, Denis, 1720 Boivin, Jean, 1727 Boukouvalas, John, 1701 Byers, Peter K., 1722 Cadogan, J. I. G., 1685 Canty, Allan J., 1722 Chapman, Sandra L., 1688 Chung, Lap-Yan, 1719 Ciani, Gianfranco, 1742 Ciriano, Miguel A., 1737 Clegg, William, 1740 Cockcroft, Jeremy K., 1738 Collman, James P., 1711 Constable, Edwin C., 1719 Cowley, Alan H., 1685 de Silva, A. Prasanna, 1709 de Silva, Saliva A., 1709 Doi, Yoshiharu, 1696 Domen, Kazunari, 1706 Donato, A., 1729 Fender, Brian E. F., 1738 Fitch, Andrew N., 1738 Funabiki, Takuzo, 1699 Galvagno, S., 1729 Garner, James M., 1711 Gosney, Ian, 1685 Grabowski, Norman A., 1694 Gref, Aurore, 1727 Grigg, Ronald, 1697

Haddleton, David M., 1734 Hawkins, Stephen M., 1689 Hevesi, László, 1725 Hirota, Kosaku, 1704 Hitchcock, Peter B., 1689, 1710 Hughes, David L., 1731 Hughes, Russell P., 1694 Ibata, Toshikazu, 1692 Inabe, Tamotsu, 1744 Isogami, Yasushi, 1692 Iwasaki, Shigeo, 1702 Jaynes, B. Scott, 1694 Jefford, Charles W., 1701 Johnson, Brian F. G., 1715 Kaneko, Masao, 1707 Kano, Shinzo, 1717 Kearley, Gordon J., 1738 Kim, Kimoon, 1711 Kira, Akira, 1707 Kitano, Yasunori, 1732 Kobayashi, Hisayoshi, 1702 Kudo, Akihiko, 1706 Kulszewicz-Bajer, Irena, 1720 Kunioka, Masao, 1696 Kuo, David L., 1691 Lappert, Michael F., 1689 Lewis, Jack, 1715, 1719 Mace, Julian M., 1715 Maki, Yoshifumi, 1704 Martinengo, Secondo, 1742 Maruya, Ken-ichi, 1706 Maruyama, Yusei, 1744 Matsuda, Haruo, 1703 Matsumoto, Takashi, 1732 Matsuzaki, Kei. 1744 Money, Thomas, 1691

Moss, Ian, 1724 Mulvey, Robert E., 1740 Muroki, Hiromitsu, 1744 Nakamura, Yoshiyuki, 1696 Nakano, Shuji, 1692 Nakawa, Hiroyuki, 1692 Neri, G., 1729 Nixon, John F., 1710 Nosek, Alois, 1713 Ohta, Kazuchika, 1744 Okuda, Shigenobu, 1702 Onishi, Takaharu, 1706 Oro, Luis A., 1737 Orrell, Keith G., 1724 Ozbalik, Nubar, 1727 Pakulski, Marek, 1685 Pérez-Torrente, Jesús J., 1737 Perutz, Robin N., 1734 Pietropaolo, R., 1729 Poltarzewski, Z., 1729 Powell, Donald B., 1715 Procházka, Vladimír, 1713 Proess, Gottfried, 1725 Pyne, Stephen G., 1686, 1688 Rai, Audesh K., 1689 Raithby, Paul R., 1719 Ramaraj, Ramasamy, 1707 Renard, Michel, 1725 Rheingold, Arnold L., 1694 Richards, Raymond L., 1731 Rivière, Henriette, 1727 Rossier, Jean-Claude, 1701 Sako, Magoichi, 1704 Sato, Fumie, 1732 Schwan, Adrian L., 1721 Shibata, Ikuya, 1703 Shibata, Mutsumi, 1706

Shibuya, Shiroshi, 1717 Shimada, Kaoru, 1704 Shortman, Caroline, 1731 Šik, Vladimir, 1724 Sironi, Angelo, 1742 Skelton, Brian W., 1722 Snaith, Ronald, 1740 Soga, Kazuo, 1696 Sridharan, Visuvanathar, 1697 Stephenson, David, 1724 Stevenson, Paul, 1697 Šubrt, Jan, 1713 Tada, Shinichi, 1699 Takagi, Akira, 1744 Takano, Mikio, 1699 Takeda, Yoshiyuki, 1732 Tamura, Hatsue, 1692 Tanaka, Akira, 1706 Tiripicchio, Antonio, 1737 Tiripicchio-Camellini, Marisa, 1737 Toogood, Gerald E., 1740 Wade, Kenneth, 1740 Warkentin, John, 1721 White, Allan H., 1722 Worakun, Tanachat, 1697 Wright, Peter M., 1685 Yamada, Emiko, 1702 Yamamoto, Iwao, 1744 Yaslak, Salih, 1685 Yokomatsu, Tsutomu, 1717 Yoshida, Satohiro, 1699 Yoshioka, Toshihiko, 1699 Yuasa, Yoko, 1717 Zapletal, Vladimír, 1713

New Safety Publications

from The Royal Society of Chemistry

Hazards in the Chemical Laboratory



4th Edition

Edited by L. Bretherick, Safety Consultant

Hazards in the Chemical Laboratory has become established as an essential handbook of safety practices, measures and toxic effects for laboratories handling dangerous chemicals. Since the last edition was published in 1981 there have been many changes in legislation regulations, precautionary safety methods and toxicity assessments which warrant publication of this new 4th edition. In addition coverage has been expanded to include material relating to legislation and safety practices in the USA.

Brief Contents:

Introduction, Health and Safety at Work Act 1974; Safety Planning and Management; Fire Protection; Reactive Chemical Hazards; Chemical Hazards and Toxicology; Health Care and First Ald; Hazardous Chemicals; Precautions Against Radiations; An American View.

Protective PVC Binding 618pp ISBN 0 85186 489 9 Price £29.50 (\$54.00) RSC Members £18.00

Hazards in the Chemical Laboratory
4th Edition is edited by Les Bretherick,
presently a consultant and formerly a
Senior Project Leader with BP
Research Centre at Sunbury on
Thames. Les Bretherick is well known
for his expertise and knowledge in
safety matters and is now regarded
as a world authority on laboratory
hazards. This new edition should
therefore be regarded as an
authoritative and essential
requirement for all academic,
governmental and industrial
laboratories.

Guide to Safe Practices in Chemical Laboratories

The "Guide to Safe Practices in Chemical Laboratories" is the successor to the "Code of Practice for Chemical Laboratories" published by the Royal Institute of Chemistry in 1976. The broad objective of the Guide remains the same as that of the earlier Code of Practice: to provide general guidance on which specific procedures can be based and to point out relevant statutory requirements.

Brief Contents:

Introduction; Organisation for Safety; Hazards; Design; Operation; Legislation and Bibliography.

(to be published Autumn 1986)

Softcover 40pp ISBN 0 85186 479 1 Price £10.00 (\$18.00) RSC Members £7.50

Organo-chlorine Solvents Health Risks to Workers

Prepared for the Commission of the European Communities this new book deals with the safe use and toxicity of certain widely used organo-chlorine compounds.

It contains original material produced by the Royal Society of Chemistry including recommended occupational exposure limits for each material considered. In addition it contains a series of reports based on reviews of the published literature.

Contents:

Background note on the Sources of Information used in these Reports. Background Note on Occupational Exposure Limits.

Background Note on the Number of Persons Potentially at Risk from Occupational Exposure in the European Communities to the Ten Organo-chlorine Solvents Examined. p-Dichlorobenzene

Chloroform
1,1,1-Trichloroethane
1,2-Dichloroethane
Trichlorethylene
1,1,2-Trichloroethane
Dichloromethane
1,2-Dichloropropane
Perchloroethylene
Carbon Tetrachloride

Hardcover 269pp ISBN 0 85186 078 8 Price £50.00 (\$90.00) RSC Members £35.00

Toxic Hazard Assessment of Chemicals



Edited by:

M. Richardson RSC Environment Group

The aim of this book is to provide basic guidance on means of retrieving, validating, and interpreting data in order to make a toxicological hazard assessment upon a chemical. This book gives information and advice for many of those concerned with research application and legislation relevant to toxic hazards and should materially assist in the formulation of recommendations, concerning acceptable or safe levels of exposure to particular substances.

Brief Contents:

Section 1 - Introduction

Section 2 – Retrieval of Data

Section 3 – Verification of Data Section 4 – Interpretation of Data

Section 5 – Risk Assessment and Case

Histories

Section 6 - Legislation on Chemicals

Hardcover 380pp ISBN 0 85186 897 5 Price £47.50 (\$85.00) RSC Members £30.00

Ordering:

RSC Members should send their orders to:

Membership Manager, The Royal Society of Chemistry, 30 Russell Square, London WC1B 5DT.

Non-RSC Members should send their orders to:

The Royal Society of Chemistry, Distribution Centre,

Blackhorse Road, Letchworth, Herts SG6 1HN.

