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Graphical Abstracts/J. Fluorine Chem. 125 (2004) 1553–1559

J. Fluorine Chem., 125 (2004) 1563

Energetics of hydride and electron pair attachment to $EX_3^{0/+}$ (E=B, C, Al, Si and X=F, Cl, Br, I) and the study of bonding trends among $EX_3^{0/+}$, $EX_3^{2-/-}$, and $EX_3H^{-/0}$ by use of ELF and NBO analyses

Hélène P.A. Mercier[a], Matthew D. Moran[a], Gary J. Schrobilgen[a], Reijo J. Suontamo[b]

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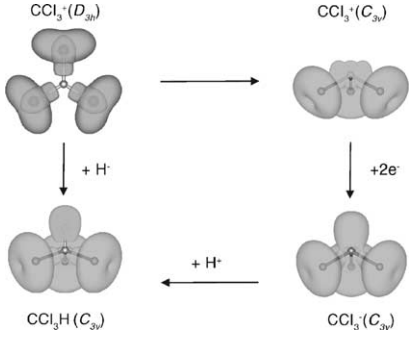

J. Fluorine Chem., 125 (2004) 1579

New class of coordination compounds with noble gas fluorides as ligands to metal ions

G. Tavčar, M. Tramšek, T. Bunič, P. Benkič, B. Žemva

Jožef Stefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia

$$M^{n+}(AF_6^-)_n + zXeF_2 \xrightarrow[22\ ^\circ C]{aHF} [M^{n+}(XeF_2)_p](AF_6^-)_n + (z\text{-}p)XeF_2$$

A= P, As, Sb, Bi
M = Mg, Ca, Sr, Ba, Cd, Pb, lanthanides

$$Mg(AsF_6)_2 + nXeF_4 \xrightarrow[22\ ^\circ C]{aHF} [Mg(XeF_4)](AsF_6)_2 + (n\text{-}1)XeF_4$$

$$M(AsF_6)_2 + nXeF_6 \xrightarrow[22\ ^\circ C]{aHF} MF_2 + 2Xe_2F_{11}AsF_6 + (n\text{-}4)XeF_6$$

M = Mg, Ca, Sr

J. Fluorine Chem., 125 (2004) 1585

A computational study of Sb_nF_{5n} (n=1–4) Implications for the fluoride ion affinity of $n$$SbF_5$

H. Donald Brooke Jenkins[a], Ingo Krossing[b], Jack Passmore[c], Ines Raabe[b]

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[b]*Universität Karlsruhe, Institut für Anorganische Chemie, Engesserstr. Geb. 30.45, 76128 Karlsruhe, Germany*
[c]*Chemistry Department, University of New Brunswick, Fredericton, NB, Canada E3B6E2*

nF_{5n} (n=1–4) as well as the fluoride ion affinities of Sb_nF_{5n}(g), $n$$SbF_5$(g) and $n$$SbF_{5(l)}$ were calculated.

$$Sb_nF_{5n} \xrightarrow{\Delta_r H^\circ_{depoly.} = ?} n\ SbF_5$$

$$Sb_nF_{5n\,(g)} + F^-_{(g)} \xrightarrow{FIA = ?} [Sb_nF_{5n+1}]^-_{(g)}$$

$$n\ SbF_{5\,(l)} + F^-_{(g)} \xrightarrow{FIA = ?} [Sb_nF_{5n+1}]^-_{(g)}$$

doi:10.1016/S0022-1139(04)00344-6

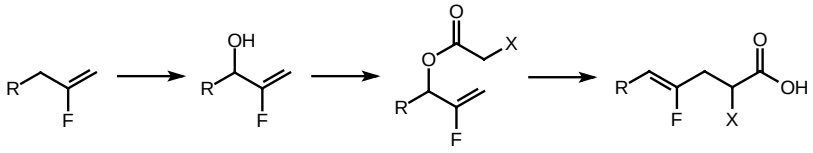
J. Fluorine Chem., 125 (2004) 1593

Claisen rearrangements based on vinyl fluorides

Frank Tranel, Günter Haufe

Organisch-Chemisches Institut, Westfälische Wilhelms-Universität Münster, Corrensstr. 40, D-48149 Münster, Germany

2-Fluoroalk-1-en-3-ol esters prepared in two steps from 2-fluoroalk-1-enes undergo Claisen rearrangements to form 2-substistuted 4-fluoroalk-4-enecarboxylic acids.

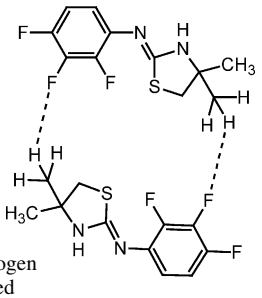


J. Fluorine Chem., 125 (2004) 1609

Syntheses, structures and bioactivities of fluorine-containing phenylimino-thia(oxa)zolidine derivatives as agricultural bioregulators

Xuhong Qian[a], Xiaoyong Xu[b], Zhibin Li[b], Zhong Li[b], Gonghua Song[b]

[a]*State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116012, China*
[b]*Shanghai Key Laboratory of Chemical Biology, Institute of Pesticides and Pharmaceuticals, East China University of Science and Technology, Shanghai 200237, China*



From insight into the structure of trehazolin as trehalase inhibitor, six series of fluorine-containing phenylimino-thiazolidines (oxazolidines) derivatives were designed and prepared through a convenient synthesis of fluoroaryl isothiocyanate and a one-pot facile synthesis in high yield of fluorophenyl aminobenzoxazoles by cyclodesulfurization. The structures of the target compounds were confirmed with using IR, NMR, MS and elemental analysis. Their X-ray crystal analysis suggested that there were novel intermolecular (sp^2CF...H_3C-) and intramolecular (sp^2CF...HN) hydrogen bonds between the fluorine atom on benzene ring and hydrogen atom of methyl group or amino group on five-membered heterocycle. Their fungicidal activities against *Rhizoctonia solani* and *Pyricuraria oryzae* at 100 ppm were determined.

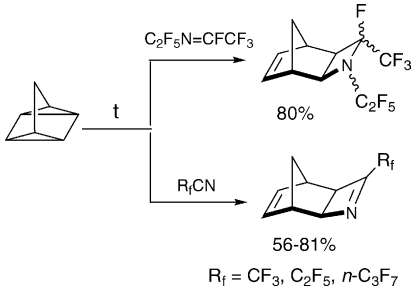
J. Fluorine Chem., 125 (2004) 1621

Reactions of quadricyclane with fluorinated nitrogen-containing compounds. Synthesis of 3-aza-4-perfluoroalkyl-tricyclo [4.2.1.$0^{2,5}$]non-3,7-dienes

Viacheslav A. Petrov, Frederic Davidson, Will Marshall

DuPont Central Research and Development, Experimental Station, P.O. Box 80328, Wilmington, DE 19880-0328, USA

The reaction of quadricyclane with perfluoroazaalkenes and perfluorinated nitriles leads to high yield formation of the corresponding cycloadducts.

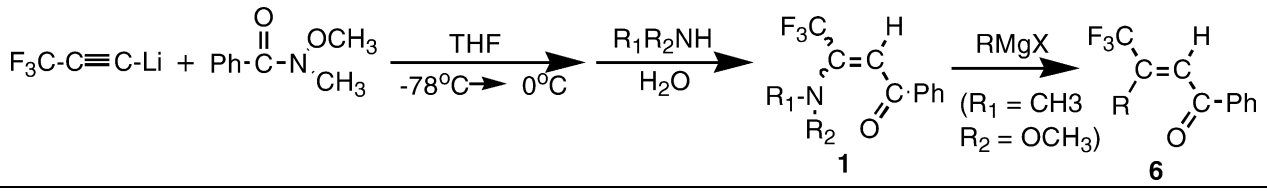


J. Fluorine Chem., 125 (2004) 1629

New approaches to β-trifluoromethylated enone derivatives

In Howa Jeong[a], Sung Lan Jeon[a], Myong Sang Kim[a], Bum Tae Kim[b]

[a]*Department of Chemistry, Yonset University, Wonju 220-710, South Korea*
[b]*Korea Research Institute of Chemical Technology, Daejeon 305-606, South Korea*



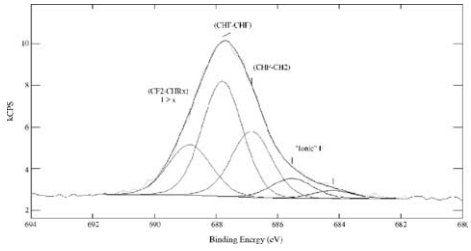
J. Fluorine Chem., 125 (2004) 1639

Surface modification of several carbon-based materials: comparison between CF_4 rf plasma and direct F_2-gas fluorination routes

Alain Tressaud, Etienne Durand, Christine Labrugère

Institut de Chimie de la Matière Condensée de Bordeaux (ICMCB-CNRS), University Bordeaux 1, 87 Avenue du Dr. A. Schweitzer, 33608 Pessac Cedex, France

In fluorinated carbon-based materials, the fitting of F 1s XPS envelopes – as those of C 1s ones – allows to assign the components to the different types of C–F bonds formed at the surface of the materials, as shown below in the case of F_2-treated nitrile–butadiene elastomer.

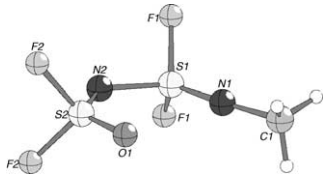


J. Fluorine Chem., 125 (2004) 1649

Fluorothiazynes, 50 years old and still exciting: electrophilic attack at the thiazyl nitrogen of $NSF_2NS(O)F_2$

Rüdiger Mews[a], Tobias Borrmann[b], Reinhard Hoppenheit[c], Enno Lork[a], Simon Parsons[d], Jan Petersen[a], Markus Schröter[a], Wolf-Dieter Stohrer[b], Alfred Waterfeld[e], Paul G. Watson[a]

[a]*Institute of Inorganic and Physical Chemistry, University of Bremen, Leobener Str. NW2, D-28334 Bremen, Germany*
[b]*Institute of Organic Chemistry, University of Bremen, Leobener Str. NW2, D-28334 Bremen, Germany*
[c]*Lindenstrasse 31, D-37181 Hardegsen, Germany*
[d]*School of Chemistry, The University of Edinburgh, King's Buildings, West Mains Road, Edinburgh EH9 3JJ, Scotland*
[e]*Department of Chemistry, University of Alabama, Tuscaloosa, USA*



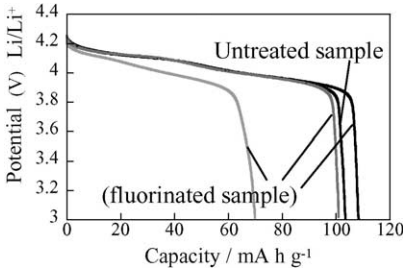
J. Fluorine Chem., 125 (2004) 1657

Surface fluorination of the cathode active materials for lithium secondary battery

Susumu Yonezawa, Masahiro Yamasaki, Masayuki Takashima

Department of Materials Science and Engineering, Faculty of Engineering, University of Fukui, Bunkyo 3-9-1, Fukui 910-8507, Japan

The electrochemical properties of LiMn2O4 as a cathode active material of lithium secondary battery was improved by its fluorination with F2 gas.

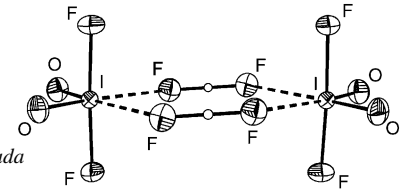


J. Fluorine Chem., 125 (2004) 1663

Synthesis, vibrational and NMR spectroscopic characterization of $[N(CH_3)_4][IO_2F_2]$ and X-ray crystal structure of $[N(CH_3)_4]_2[IO_2F_2][HF_2]$

Michael Gerken[a,b], Johnathan P. Mack[a], Gary J. Schrobilgen[b], Reijo J. Suontamo[c]

[a]*Department of Chemistry and Biochemistry, University of Lethbridge, Lethbridge, AB T1K 3M4, Canada*
[b]*Department of Chemistry, McMaster University, Hamilton, ON L8S 4M1, Canada*
[b]*Department of Chemistry, University of Jyvðskylð, P.O. Box 35, FIN-40014 Jyväskylä, Finland*



$[N(CH_3)_4][IO_2F_2]$ was synthesized and characterized by vibrational and ^{19}F NMR spectroscopy. The crystal structure of $[N(CH_3)_4]_2[IO_2F_2][HF_2]$ provides an unique example of a symmetric bifluoride bridge. The geometry and vibrational frequencies of IO2F2− were calculated at the MP2 and SVWN levels of theory.

J. Fluorine Chem., 125 (2004) 1671

New fluoropolymer materials

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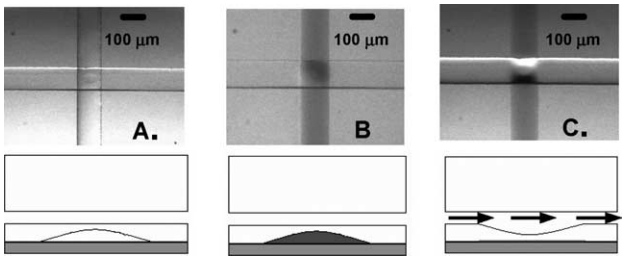
[a]*Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*

[b]*Department of Chemical Engineering, North Carolina State University, Raleigh, NC, USA*

A solvent resistant photocurable "liquid Teflon" which can be used for microfluidic device fabrication, actuation of the valve is shown.



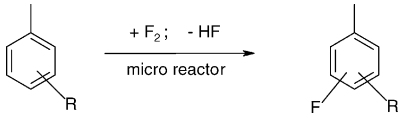
J. Fluorine Chem., 125 (2004) 1677

Fluorinations, chlorinations and brominations of organic compounds in micro reactors

Patrick Löb, Holger Löwe, Volker Hessel

Institut für Mikrotechnik Mainz GmbH, Carl-Zeiss-Str. 18-20, D-55129 Mainz, Germany

An overview of the application of micro reactors for fluorination (e.g. of toluene derivatives), chlorination and bromination of organic compounds using the elemental halogens is given.

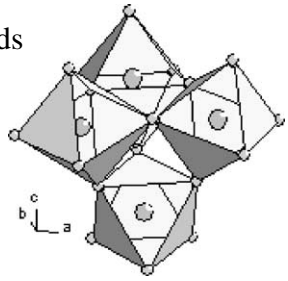


J. Fluorine Chem., 125 (2004) 1695

An entirely new methodology for synthesizing perfluorinated compounds: synthesis of perfluoroalkanesulfonyl fluorides from non-fluorinated compounds

Takashi Okazoe, Eisuke Murotani, Kunio Watanabe, Masahiro Itoh, Daisuke Shirakawa, Kengo Kawahara, Isamu Kaneko, Shin Tatematsu

Research Center, Asahi Glass Co., Ltd., 1150 Hazawa-cho, Kanagawa-ku, Yokohama 221-8755, Japan



J. Fluorine Chem., 125 (2004) 1703

Graphite intercalation chemistry with large fluoroanions

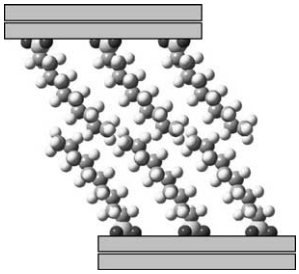
Wei Yan[a], Lyuba Kabalnova[a], Nipaka Sukpirom[b], Sherry Zhang[c], Michael Lerner[a]

[a]*Department of Chemistry, Oregon State University, Gilbert Hall, Corvallis, OR 97331, USA*

[b]*Department of Chemistry, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand*

[c]*Lawrence Berkeley Labs, Mail Stop 2-100, 1 Cyclotron Road, Berkeley, CA 94720, USA*

The syntheses and characterization of graphite intercalation compounds with large anions, including perfluoroalkylsulfonates and perfluoroalkylborates, are described.

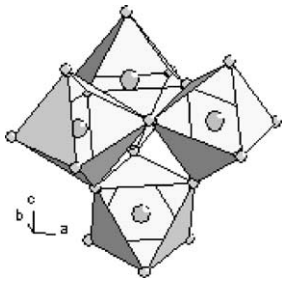


J. Fluorine Chem., 125 (2004) 1709

Ternary and tetrahedral symmetry in hybrid fluorides, fluoride carbonates and carbonates

Karim Adil[a], Amor Ben Ali[a], Gilles Dujardin[b], Robert Dhal[b], Marc Leblanc[a], Vincent Maisonneuve[a]

[a]*Laboratoire des Oxydes et Fluorures, UMR CNRS 6010, IRIM2F FR CNRS 2575, Faculté des Sciences et Techniques, Université du Maine, Avenue Olivier Messiaen, 72085 Le Mans Cedex 09, France*
[b]*Laboratoire de Chimie Organique et Macromoléculaire, UMR CNRS 6011, IRIM2F FR CNRS 2575, Faculté des Sciences et Techniques, Université du Maine, Avenue Olivier Messiaen, 72085 Le Mans Cedex 09, France*

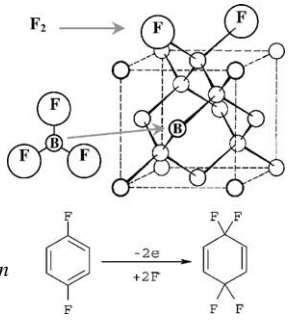


J. Fluorine Chem., 125 (2004) 1715

Preparation of boron-doped semiconducting diamond films using BF_3 and the electrochemical behavior of the semiconducting diamond electrodes

Fujio Okino[a], Yukio Kawaguchi[a], Hidekazu Touhara[a], Kunitake Momota[b], Mikka Nishitani-Gamo[c], Toshihiro Ando[d], Atsushi Sasaki[e], Mamoru Yoshimoto[e], Osamu Odawara[f]

[a]*Faculty of Textile Science and Technology, Shinshu University, 3-15-1 Tokida, Ueda 386-8567, Japan*
[b]*Department of Research and Development, Morita Chemical Industries Company Limited, Higashimikuni 3-12-10, Yodogawa-ku, Osaka 532-0002, Japan*
[c]*Department of Applied Chemistry, Faculty of Engineering, Toyo University, 2100 Kujirai, Kawagoe 350-8585, Japan*
[d]*National Institute for Materials Science, 1-1 Namiki, Tsukuba 305-0044, Japan*
[e]*Materials and Structures Laboratory, Tokyo Institute of Technology, 4259 Nagatsuta, Midori, Yokohama 226-8503, Japan*
[f]*Department of Innovative and Engineered Materials, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, 4259 Nagatsuta, Midori, Yokohama 226-8502, Japan*



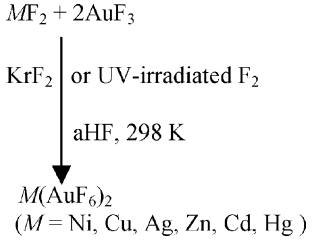
J. Fluorine Chem., 125 (2004) 1723

Recent achievements in the synthesis and characterization of metal hexafluorantimonates and hexafluoroaurates

Zoran Mazej

Department of Inorganic Chemistry and Technology, Jožef Stefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia

$CuSbF_6$, a rare example of Cu(I) compound in a pure fluorine environment was synthesized. In the reactions of $MF_2/2AuF_3$ with KrF_2 or UV-irradiated F_2 in aHF, the synthesis of new Au(V)-salts was achieved. Previously reported syntheses of $M(AuF_6)_2$ (M = Mg, Ca, Sr, Ba) were reinvestigated.



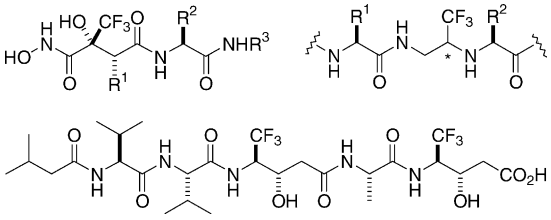
J. Fluorine Chem., 125 (2004) 1735

Fluorinated peptidomimetics: synthesis, conformational and biological features

Marco Molteni, Cristina Pesenti, Monica Sani, Alessandro Volonterio, Matteo Zanda

C.N.R. – Istituto di Chimica del Riconoscimento Molecolare, sezione "A. Quilico", and Dipartimento C.M.I.C. "G. Natta", Politecnico di Milano, via Mancinelli 7, I-20131 Milano, Italy

Synthesis, structural and biological properties of three different trifluoromethyl-peptidomimetics are overviewed and analyzed.



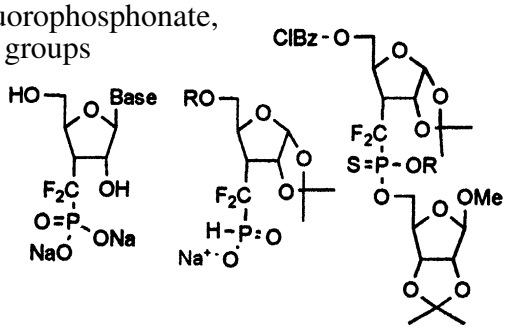
J. Fluorine Chem., 125 (2004) 1745

Analogues of nucleotides and oligonucleotides featuring difluorophosphonate, difluorophosphonothioate and difluorophosphinate functional groups

Arnaud Gautier, Chrystel Lopin, Goulnara Garipova, Irina Kalinina, Carmen Salcedo, Sébastien Balieu, Serge R. Piettre

Laboratoire des Fonctions Azotées et Oxygénées Complexes, UMR CNRS 6014, IRCOF-Université de Rouen, Rue Tesnières, F-76821 Mont Saint Aignan, France

New methodologies allowing the stereoselective construction or incorporation of α,α-difluorinated phosphorus-centered functional groups on carbon 3′ of furanoses are described. Application to the preparation of analogues of nucleotides and dinucleotides is discussed.



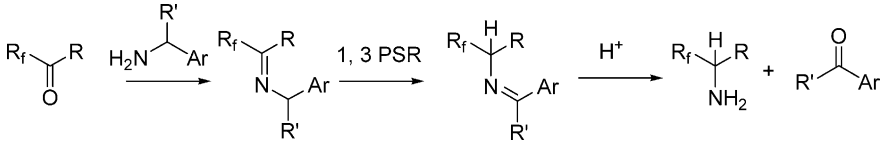
J. Fluorine Chem., 125 (2004) 1757

Synthesis of fluorine-containing compounds under operationally convenient conditions

Vadim A. Soloshonok, Dmitrii O. Berbasov

Department of Chemistry and Biochemistry, University of Oklahoma, Norman, OK 73019, USA

This paper describes a concept of ''operationally convenient conditions'', gives a short overview of the synthetic applications of biomimetic reductive amination under such conditions and discusses new kinetic data on the mechanism of 1,3-proton shift transfer.

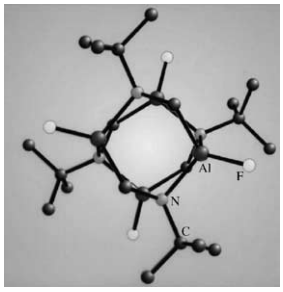


J. Fluorine Chem., 125 (2004) 1765

Preparation of fluorine compounds of groups 13 and 14: a study case for the diagonal relationship of aluminum and germanium

Herbert W. Roesky

Institut für Anorganische Chemie, Universität Göttingen, Tammannstrasse 4, D-37077 Göttingen, Germany



J. Fluorine Chem., 125 (2004) 1771

Polyfluoroorganotrifluoroborates and -difluoroboranes: interesting materials in fluoroorgano and fluoroorgano-element chemistry

Anwar Abo-Amer[a], Nicolay Yu. Adonin[a], Vadim V. Bardin[b], Petra Fritzen[a], Hermann-Josef Frohn[a], Christoph Steinberg[a]

[a]*Inorganic Chemistry, University Duisburg-Essen, D-47048 Duisburg, Germany*
[b]*N.N. Vorozhtsov Novosibirsk Institute of Organic Chemistry, 630090 Novosibirsk, Russia*

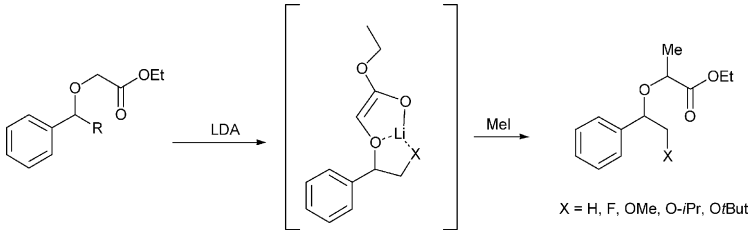
$C_6F_{13}C_2H_4BF_2$ $K[(C_2F_5)_2BF_2]$ $[C_6F_5(4\text{-}C_5F_4N)I][BF_4]$ $[p\text{-}FC_6H_4(\textit{trans}\text{-}CF_3CF{=}CF)I][BF_4]$

J. Fluorine Chem., 125 (2004) 1779

The role of organic fluorine in directing alkylation reactions via lithium chelation

Kenny Tenza[a], Julian S. Northen[b], David O'Hagan[a], Alexandra M.Z. Slawin[a]

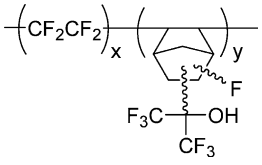
[a]*School of Chemistry, University of St Andrews, North Haugh, St Andrews KY16 9ST, UK*
[b]*Onyx Scientific Ltd., Units 97/98 Silverbriar, Sunderland Enterprise Park East, Sunderland SR5 2TQ, UK*



The diastereoselectivity of alkylation is explored comparing the coordination ability of H, F and OR substituents in the above model.

J. Fluorine Chem., 125 (2004) 1791

Dissolution behavior of tetrafluoroethylene-based fluoropolymers for 157-nm resist materials



Takuji Ishikawa[a], Tesuhiro Kodani[a], Tomohiro Yoshida[a], Tsukasa Moriya[a], Tsuneo Yamashita[a], Minoru Toriumi[a], Takayuki Araki[a], Hirokazu Aoyama[a], Takuya Hagiwara[b], Takamitsu Furukawa[b], Toshiro Itani[b], Kiyoshi Fujii[b]

[a]*Dakin Industries Ltd., 1-1 Nishi-Hitotsuya, Settsu, Osaka 566-8585, Japan*
[b]*Semiconductor Leading Edge Technologies, Inc. (Selete), 16-1 Onogawa, Tsukuba, Ibaraki 305-8569, Japan*

We have synthesized various main-chain fluorinated polymers and studied their transparency, dry-etch durability and solubility.

J. Fluorine Chem., 125 (2004) 1801

Environmental assessment of CFC alternatives. Rate constants for the reactions of OH radicals with fluorinated compounds

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The rate constants for reactions of OH radicals with $CF_3OCHFCF_3$, and CF_3CHFCF_3 have been measured using absolute rate method. The Arrhenius rate constants have been determined from these kinetic data as: $k(CF_3OCHFCF_3) = (4.39 \pm 1.38) \times 10^{-13}\exp[-(1780 \pm 100)/T]\text{cm}^3$ molecule^{-1} s^{-1}, and $k(CF_3CHFCF_3) = (6.19 \pm 2.07) \times 10^{-13}\exp[-(1830 \pm 100)/T]\text{cm}^3$ molecule^{-1} s^{-1}.