Journal of Fluorine Chemistry 132 (2011) 641–648

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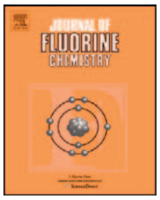


Graphical Abstracts/J. Fluorine Chem. 132 (2011) 641–648

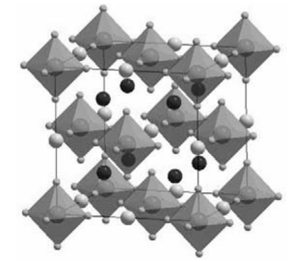
J. Fluorine Chem., 132 (2011) 651

Structural architecture and physical properties of some inorganic fluoride series: a review

Alain Tressaud

Institute of Condensed Matter Chemistry of Bordeaux (ICMCB-CNRS), Université Bordeaux, 87 Ave Dr. A Schweitzer, 33608 Pessac, France

The great variety of outstanding physical properties displayed by inorganic fluorides, including ferromagnetism, piezoconductivity, ferroelasticity, surface functionalization, can be better understood with the help of accurate structural considerations. These relationships will be illustrated using several examples relating to ReO_3, perovskite, elpasolite and related networks.



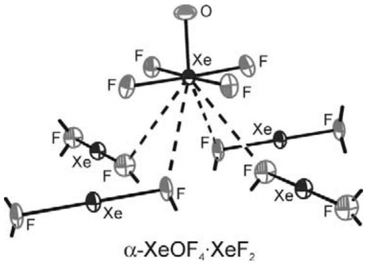
J. Fluorine Chem., 132 (2011) 660

A Raman spectroscopic study of the $XeOF_4/XeF_2$ system and the X-ray crystal structure of α-$XeOF_4{\cdot}XeF_2$

Michael J. Hughes, David S. Brock, Hélène P.A. Mercier, Gary J. Schrobilgen

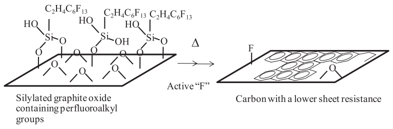
Department of Chemistry, McMaster University, Hamilton, Ontario L8S 4M1, Canada

The α-$XeOF_4XeF_2$ adduct has been synthesized by reaction of $XeOF_4$ with XeF_2 and characterized by low-temperature X-ray crystallography and Raman spectroscopy. A second, less stable phase, β-$XeOF_4XeF_2$, was characterized by low-temperature Raman spectroscopy.



J. Fluorine Chem., 132 (2011) 669

Effect of the perfluoroalkyl groups on the preparation of carbon-based transparent and conductive thin films from silylated graphite oxides



Yoshiaki Matsuo[a], Kenshiro Iwasa[a], Yosohiro Sugie[a], Hisanao Usami[b], Masayuki Kawaguchi[c]

[a]*Department of Materials Science and Chemistry, Graduate School of Engineering, University of Hyogo, 2167 Shosha Himeji, Hyogo, 671-2201, Japan*

[b]*Faculty of Textile Science and Technology, Shinshu University, 3-15-1,Tokida, Ueda, 386-0018, Nagano, Japan*

[c]*Faculty of Engineering, Osaka Electro-Commnication University, 18-8, Hatsu-cho, Neyagawa, 572-8530, Osaka, Japan*

Thermal reduction of silylated graphite oxide containing perfluoroalkyl groups provide dgraphene-based carbon thin films with lower sheet resistance. This was because of the increased number of carbons participating the π-conjugating system as the result of the reaction with some active fluorine containing species generated from the decomposition of perfluoroalkyl groups.

doi:10.1016/S0022-1139(11)00304-6

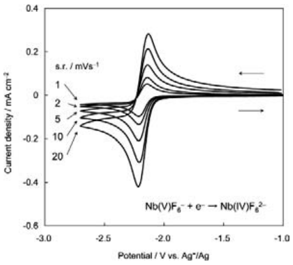
J. Fluorine Chem., 132 (2011) 673

Electrochemical behavior of hexafluoroniobate, heptafluorotungstate, and oxotetrafluorovanadate anions in *N*-butyl-*N*-methylpyrrolidinium bis(trifluoromethylsulfonyl)amide room temperature ionic liquid

Takatsugu Kanatani, Kazuhiko Matsumoto, Toshiyuki Nohira, Rika Hagiwara

Graduate School of Energy Science, Kyoto University, Yoshida, Sakyo-ku, Kyoto 606-8501, Japan

Electrochemical behavior of NbF_6^-, WF_7^-, and VOF_4^- has been investigated in *N*-butyl-*N*-methylpyrrolidinium bis(trifluoromethylsulfonyl)amide (BMPyrTFSA) ionic liquid at 298 K by means of cyclic voltammetry and chronoamperometry.



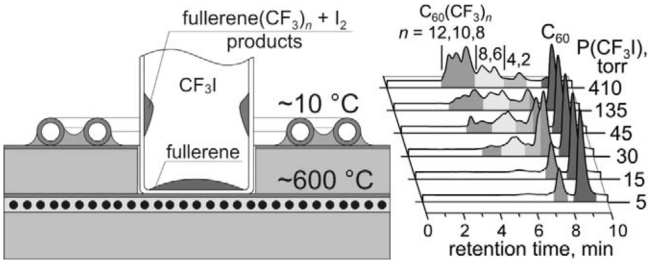
J. Fluorine Chem., 132 (2011) 679

Pressure effect on heterogeneous trifluoromethylation of fullerenes and its application

Igor V. Kuvychko[a], James B. Whitaker[a], Bryon W. Larson[a], Rachel S. Raguindin[ab], Kristin J. Suhr[a], Steven H. Strauss[a], Olga V. Boltalina[a]

[a] *Department of Chemistry, Colorado State University, Fort Collins, CO 80523, USA*
[b] *REU student at CSU from Adams State College, CO, USA*

The first systematic study of heterogeneous fullerene trifluoromethylation using an innovative gradient-temperature gas–solid reactor revealed a significant effect of CF_3I pressure on the conversion and on the range of fullerene(CF_3)*n* compositions. The selective synthesis of asingle-isomer $C_{60}(CF_3)_2$ was developed.



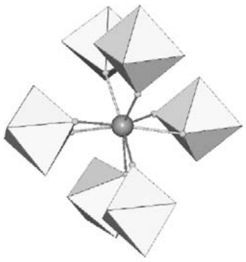
J. Fluorine Chem., 132 (2011) 686

X-ray single crystal structures of $Hg(AuF_6)_2$ and $AgFAuF_6$

Zoran Mazej, Evgeny Goreshnik, Gašper Tavčar

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

Eight-fold coordination of Hg^{2+} in the crystal structure of $Hg(AuF_6)_2$.



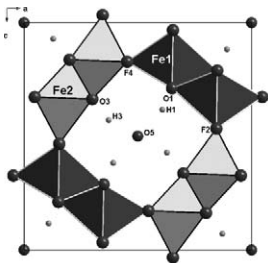
J. Fluorine Chem., 132 (2011) 690

Investigation of Fe-based oxyhydroxy-fluoride with hollandite-type structure

Alain Demourgues, Alain Wattiaux

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

Fe-based oxyhydroxyfluoride $FeO(OH_{0.2}F_{0.8})0.2H_2O$ adopts the hollandite-type structure (SG8: *I*2/*m*). Fluorine atoms are mainly located on the common vertices of Fe octahedra whereas OH groups occupy mainly the shared edges of the Fe octahedra. All the Fe octahedra are highly distorted.



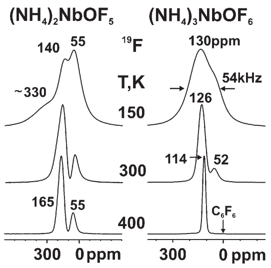
J. Fluorine Chem., 132 (2011) 698

Intramolecular mobility and phase transitions in ammonium oxofluoroniobates $(NH_4)_2NbOF_5$ and $(NH_4)_3NbOF_6$, a NMR and DFT study

V.Ya. Kavun[a], S.P. Gabuda[b], S.G. Kozlova[b], I.A. Tkachenko[a], N.M. Laptash[a]

[a]*Institute of Chemistry, Far Eastern Branch of RAS, Pr. Stoletiya 159, 690022 Vladivostok, Russia*
[b]*A.V. Nikolaev Institute of Inorganic Chemistry, Siberian Branch of RAS, Lavrentieva Str. 3, 630090 Novosibirsk, Russia*

Rigid and fluxional behavior of six- and seven-coordinated polyhedra in $(NH_4)_2NbOF_5$ and $(NH_4)_3NbOF_6$, respectively, reflects in ionic mobility and phase transitions of these compounds.



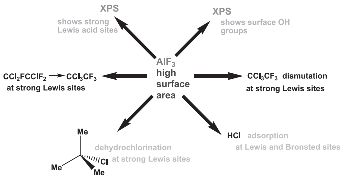
J. Fluorine Chem., 132 (2011) 703

Aluminium(III) fluoride originating from decomposition of hydrazinium fluoroaluminate(III) under oxidative conditions: Syntheses, X-ray photoelectron spectroscopy and some catalytic reactions

Tomaž Skapin[a], Zoran Mazej[a], Anna Makarowicz[b], Adolf Jesih[a], Mahmood Nickkho-Amiry[c], Sven L.M. Schroeder[bd], Norbert Weiher[b], Boris Žemva[a], John M. Winfield[c]

[a]*Department of Inorganic Chemistry and Technology, Jožef Stefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia*
[b]*School of Chemical Engineering and Analytical Science, The University of Manchester, The Mill, Manchester M13 9PL, UK*
[c]*Department of Chemistry, University of Glasgow, Joseph Black Building, Glasgow G12 8QQ, UK*
[d]*School of Chemistry, The University of Manchester, Oxford Road, Manchester M13 9PL, UK*

Decomposition of $[N_2H_6][AlF_5]$ with F_2 under mild conditions is an alternative route to prepare AlF_3 with unusually high surface area. Its acidity is investigated using several probes.



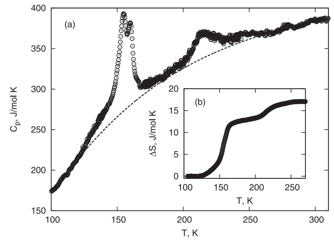
J. Fluorine Chem., 132 (2011) 713

Disorder and phase transitions in oxyfluoride $(NH_4)_3Ta(O_2)_2F_4$

I.N. Flerov[ab], M.V. Gorev[ab], V.D. Fokina[a], A.F. Bovina[a], E.V. Bogdanov[a], E.I. Pogoreltsev[a], N.M. Laptash[c]

[a]*L.V. Kirensky Institute of Physics, Siberian Department of RAS, 660036 Krasnoyarsk, Russia*
[b]*Siberian Federal University, 660074 Krasnoyarsk, Russia*
[c]*Institute of Chemistry, Far Eastern Department of RAS, 690022 Vladivostok, Russia*

The successive phase transitions in $(NH_4)_3Ta(O_2)_2F_4$ are associated with the ordering disordered cubic structure $Fm\bar{3}m$. The mechanism of structural distortions in oxyfluorides with the eightcoordinated anionic polyhedra is considerably affected by the substitutions of central atom.



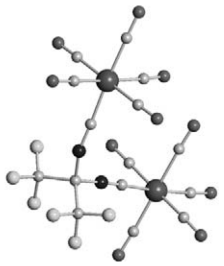
J. Fluorine Chem., 132 (2011) 719

Synthesis of fluorinated geminal diisocyanides stabilized on a transition metal

Claudia Frank, Juliane Krüger, Dieter Lentz

Fachbereich Biologie Chemie Pharmazie, Institut für Chemie und Biochemie – Anorganische Chemie, Freie Universität Berlin, Fabeckstrasse 34-36, D-14195 Berlin, Germany

Rare examples of geminal diisocyanides are formed by radical alkylation of pentacarbonylcyanochromate in fluoro alkanes.



J. Fluorine Chem., 132 (2011) 724

Quantum chemistry studies of unbranched fluoropolymers

L.N. Ignatieva[a], V.M. Bouznik[b]

[a]*Institute of Chemistry, FEB RAS, 159, Prosp. 100-letya Vladivostoka, Vladivostok 690022, Russia*
[b]*A.A. Baykov Institute of Metallurgy and Material Science RAS, Moscow, Russia*

The energy, topology, IR- and NMR-spectra of C_nF_{2n+2} and $C_{10}F_nH_{22-n}$ molecules were calculated by ab initio methods. The formation of radicals, branching in fluorocarbon molecules and serial and partial fluorination of hydrocarbon polymers are discussed on the basis of calculated results.

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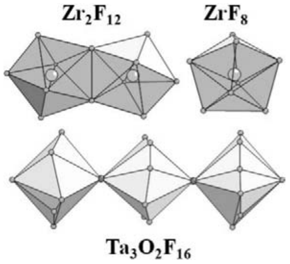
$[H_3tren]^{3+}$ and $[H_4tren]^{4+}$ fluoride zirconates or tantalates

Mohamed Ali Saada[a], Vincent Maisonneuve[a], Jérome Marrot[b], Nicolas Mercier[c], Marc Leblanc[a], Annie Hémon-Ribaud[a]

[a]*Laboratoire des Oxydes et Fluorures, UMR CNRS 6010, Faculté des Sciences et Techniques, Université du Maine, Avenue O. Messiaen, 72085 Le Mans Cedex 9, France*
[b]*Institut Lavoisier, UMR CNRS 8180, Université de Versailles Saint Quentin-en-Yvelines, 45 Avenue des Etats Unis, 75035 Versailles Cedex, France*
[c]*Laboratoire de Chimie Inorganique, Matériaux et Interfaces, UMR CNRS 6200, Université d'Angers, 2 Boulevard Lavoisier, 49045 Angers, France*



Six new $[H_3tren]^{3+}$ and $[H_4tren]^{4+}$ fluoride zirconates or tantalates are evidenced in the (ZrF_4 or Ta_2O_5)-*tren*-HF_{aq}-ethanol systems at 190 °C in solvothermal conditions.

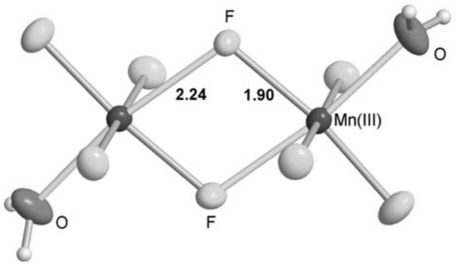
J. Fluorine Chem., 132 (2011) 740

Jahn–Teller-distorted dimeric anions in (cat)$[Mn_2F_8(H_2O)_2]\cdot 2H_2O$ (cat = pipzH_2, dabcoH_2) and $(dabcoH_2)_2[Mn_2F_8(H_2PO_4)_2]$

Gerry Rother[b], Ronald Stief[a], Ursula Bentrup[b], Werner Massa[a]

[a]*Fachbereich Chemie, Philipps-Universität, 35032 Marburg, Germany*
[b]*Institut für Angewandte Chemie Berlin-Adlershof e.V., 12484 Berlin, Germany*

$dabcoH_2[Mn_2F_8(H_2O)_2]\cdot{}_2H_2O$, $pipzH_2[Mn_2F_8(H_2O)_2]\cdot{}_2H_2O$ and $(dabcoH_2)_2[Mn_2F_8(H_2PO_4)_2]$ show dimeric anions with highly asymmetrical double bridges due to strong Jahn–Teller distortion.

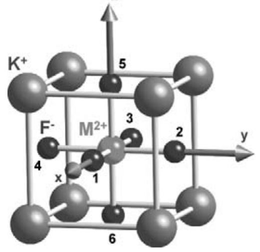


J. Fluorine Chem., 132 (2011) 747

Transition metal impurities in fluorides: Role of electronic structure of fluorine on spectroscopic properties

A. Trueba[a], P. Garcia-Fernandez[a], J.M. García-Lastra[b], J.A. Aramburu[a], M.T. Barriuso[c], M. Moreno[a]

[a]*Departamento de Ciencias de la Tierra y Física de la Materia Condensada, Universidad de Cantabria, Avenida de los Castros s/n, 39005 Santander, Spain*
[b]*Center for Atomic-scale Materials Design, Department of Physics, Technical University of Denmark, DK-2800 Kongens Lyngby, Denmark*
[c]*Departamento de Física Moderna, Universidad de Cantabria, Avenida de los Castros s/n, 39005 Santander, Spain*



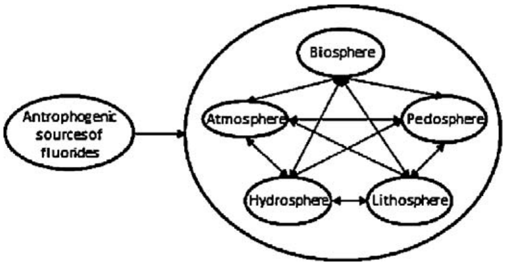
J. Fluorine Chem., 132 (2011) 755

Effects of airborne fluoride on soil and vegetation

Alenka Koblar, Gašper Tavčar, Maja Ponikvar-Svet

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

Fluorine in soil and vegetation.



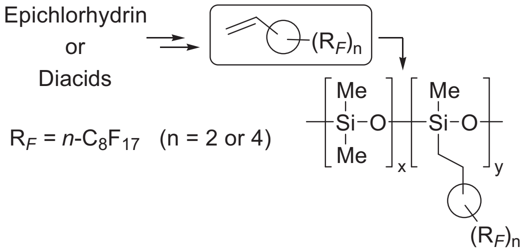
J. Fluorine Chem., 132 (2011) 760

Synthesis of bi- and tetracatenar highly fluorinated compounds for grafting on silicone materials

Stéphane Malfait[a], Stéphane Gérard[a], Richard Plantier-Royon[a], Gérard Mignani[b], Charles Portella[a]

[a]*Institut de Chimie Moléculaire de Reims, Université de Reims-Champagne-Ardenne – CNRS (UMR 6229), UFR Sciences, BP 1039, 51687 Reims Cedex 2, France*

[b]*Rhodia Usines silicones, 55 rue des frères Perret, BP 22-69191, Saint-Fons Cedex, France*[2]



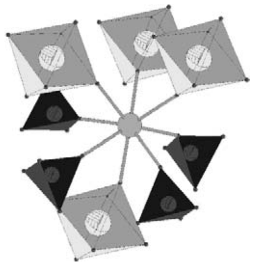
J. Fluorine Chem., 132 (2011) 767

Syntheses, structures and Raman spectra of $Cd(BF_4)(AF_6)$ (A = Ta, Bi) compounds

Kristian Radan, Matic Lozinšek, Evgeny Goreshnik, Boris Žemva

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

The compounds $Cd(BF_4)(TaF_6)$ and $Cd(BF_4)(BiF_6)$ have been synthesized and characterized by single-crystal X-ray diffraction and Raman spectroscopy.



J. Fluorine Chem., 132 (2011) 772

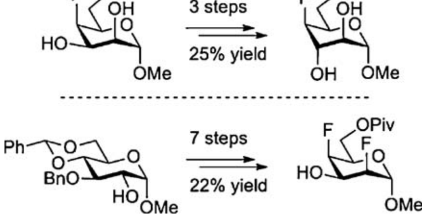
Facile synthesis of 4-deoxy-4-fluoro-α-D-talopyranoside, 4-deoxy-4-fluoro-α-D-idopyranoside and 2,4-dideoxy-2,4-difluoro-α-D-talopyranoside

Guy T. Giuffredi[a], Laura E. Jennings[a], Bruno Bernet[b], Véronique Gouverneur[a]

[a]*Chemistry Research Laboratory, University of Oxford, 12 Mansfield Road, Oxford OX1 3TA, United Kingdom*

[b]*Laboratorium für Organische Chemie, ETH Zürich, Wolfgang Pauli-Strasse 10, CH-8093 Zürich, Switzerland*

4-Deoxy-4-fluoro-α-D-idopyranosides and 2,4-dideoxy-2,4-difluoro-α-D-talopyranosides were prepared in two independent syntheses, in good yields from commercially available starting materials.

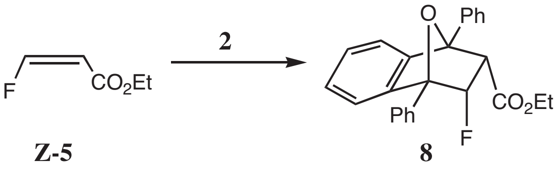


J. Fluorine Chem., 132 (2011) 779

Cycloaddition reactions of ethyl (*E*)- and (*Z*)-3-fluoropropenoate

Timothy B. Patrick, Joshua Neumann, Allison Tatro

Department of Chemistry, Southern Illinois University, Edwardsville, IL, USA



Ethyl (*Z*)-3-fluoropropenoate (**Z-5**) has been prepared in a pure state in 68% yield by a Wittig procedure developed by Burton. Ethyl(*E*)-3-fluoropropenoate (**E-6**) was prepared in 38% yield following the synthetic method of Purrington. The *Z* isomer gives cycloaddition with 1,3-diphenylisobenzofuran and cyclopentadiene to give a product with completely *endo* configurations. The *E* isomer also gives cycloadducts with same dienes to give mixtures of *endo* and *exo* products.

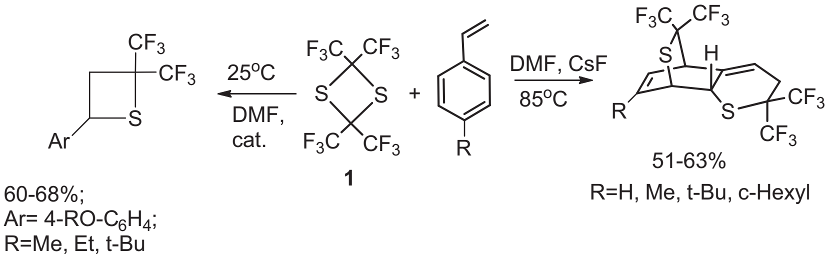
J. Fluorine Chem., 132 (2011) 783

New data on the reaction of hexafluorothioacetone with styrenes

Viacheslav A. Petrov[a], Will Marshall[b]

[a]*DuPont Central Research and Development, Experimental Station, PO Box 80500, Wilmington, DE 19880-0500, United States*[1]

[b]*DuPont Corporate Center for Analytical Sciences, Experimental Station, PO Box 80500, Wilmington, DE 19880-0500, United States*

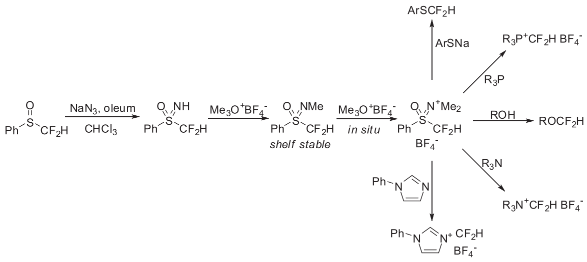


J. Fluorine Chem., 132 (2011) 792

N,N-Dimethyl-*S*-difluoromethyl-*S*-phenylsulfoximinium tetrafluoroborate: A versatile electrophilic difluoromethylating reagent

G.K. Surya Prakash, Zhe Zhang, Fang Wang, Chuanfa Ni, George A. Olah

Loker Hydrocarbon Research Institute and Department of Chemistry, University of Southern California, Los Angeles, CA, 90089-1661, USA



J. Fluorine Chem., 132 (2011) 799

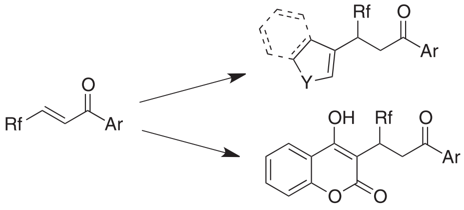
1,4-Additions of electron-rich heterocycles onto β-perfluoroalkyl enones

Julia Leuger[b], Gaelle Blond[c], Thierry Billard[a], Günter Haufe[b], Bernard R. Langlois[a]

[a]*Université de Lyon, Université Lyon 1, CNRS ICBMS (UMR CNRS 5246) – Laboratoire SURCOOF, 43 Bd du 11 novembre 1918, Bat Raulin, F-69622 Villeurbanne, France*

[b]*Organisch-Chemisches Institut, Westfälische Wilhelms-Universität Münster, Corrensstrasse 40, D-48149 Münster, Germany*

[c]*Université de Strasbourg, Faculté de Pharmacie, Laboratoire d'innovation thérapeutique, UMR CNRS 7200, 74 route du Rhin, F-67401 Illkirch, France*



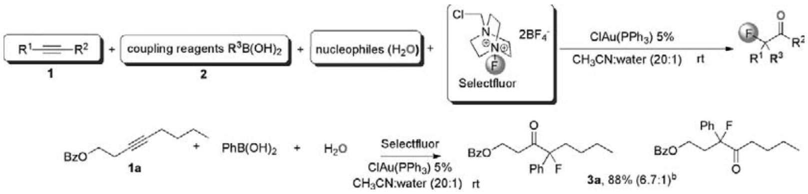
β-(Fluoroalkyl)enones react with O- and N-containing heterocycles to yield various heterocycles bearing a functionalized, fluorinated, side-chain.

J. Fluorine Chem., 132 (2011) 804

Library-friendly synthesis of fluorinated ketones through functionalized hydration of alkynes and investigation of the reaction mechanism

Bo Xu, Weibo Wang, Gerald B. Hammond

Department of Chemistry, University of Louisville,
Louisville, KY 40292, USA



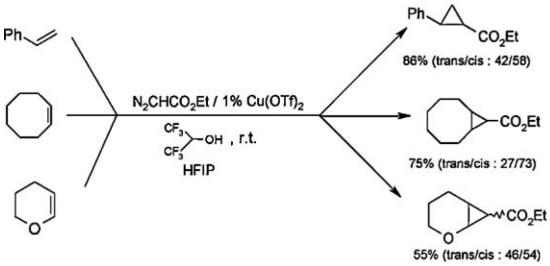
J. Fluorine Chem., 132 (2011) 811

Transition metal-catalyzed cyclopropanation of alkenes in fluorinated alcohols

Kaouther Azzouzi-Zriba, Danièle Bonnet-Delpon, Benoit Crousse

Laboratoire BioCIS-CNRS, Faculté de Pharmacie, Univ Paris-Sud, rue J. B. Clément, F-92296
Châtenay-Malabry, France

The system hexafluoroisopropanol/ethyl diazoacetate/$Cu(OTf)_2$ is efficient for the cyclopropanation reaction. The process is very easy to realize, and efficient with various olefins in particular terminal, disubstituted double bonds.



J. Fluorine Chem., 132 (2011) 815

Synthetic and mechanistic aspects of halo-F-methylphosphonates

Richard M. Flynn, Donald J. Burton

Department of Chemistry, University of Iowa, Iowa City, IA 52242, USA

$$(RO)_3P + CFXYZ \xrightarrow[\text{TG}]{Et_2O \text{ or}} (RO)_2P(O)CFXY + RZ$$

R = Me, Et, *n*-Pr, *iso*-Pr, *n*-Bu, *iso*-Bu

X,Y = F, Cl, Br, I

Z = Br, Cl, I

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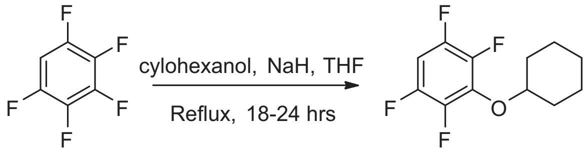
Polyfluorinated cycloalkoxyphenyl ether systems as dopants for liquid crystal display applications

Matthew R. Cargill[a], Graham Sandford[a], David J. Tomlinson[a], Nadine Hollfelder[b], Frank Pleis[b], Gabriele Nelles[b], Pinar Kilickiran[b]

[a]*Department of Chemistry, Durham University, South Road, Durham DH1 3LE, UK*
[b]*SONY Deutschland GmbH, Materials Science Laboratory, Stuttgart Technology Center, Hedelfinger Strasse 61, 70327 Stuttgart, Germany*



J. Fluorine Chem., 132 (2011) 834

Convenient synthesis of fluoroalkyl α- and β-aminophosphonates

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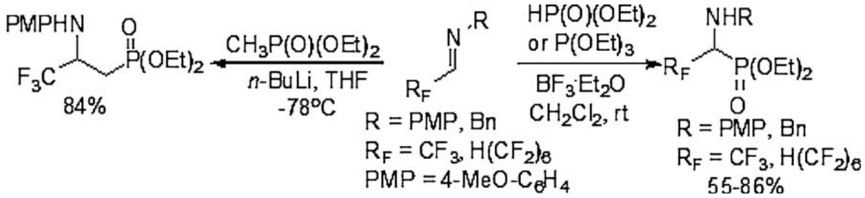

J. Fluorine Chem., 132 (2011) 838

Synthesis of monofluorinated isofagomine analogues and evaluation as glycosidase inhibitors

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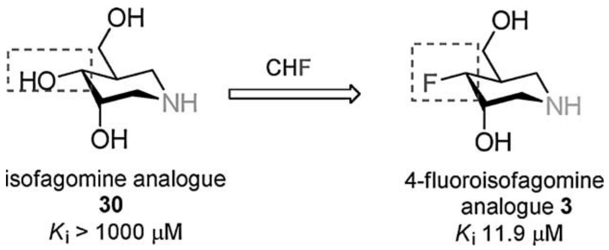

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Photochemical transformations of 5-perfluoroalkenyl uracils

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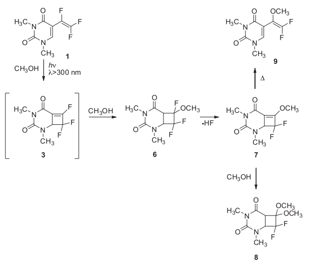
Photochemical behavior of 1,3-dimethyl-5-trifluorovinyluracil **1** has been studied in polar, nucleophilic solvents (water and anhydrous methanol). Photoirradiation of **1** with UV light (λ > 300 nm) provides additional insight on previously suggested mechanism of phototransformations. Electrocyclization leading to cyclobutene intermediate **3** is a primary reaction; next addition of nucleophile (molecule of methanol or water) occurs, giving access to products.



J. Fluorine Chem., 132 (2011) 850

ClickEnam. 1. Synthesis of novel 1,4-disubsituted-[1,2,3]-triazole-derived β-aminovinyl trifluoromethylated ketones and their copper(II) complexes

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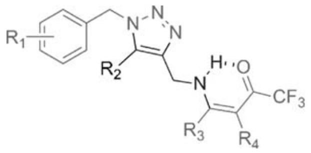

The synthesis of novel 1,4-disubsituted-[1,2,3]-triazole derived enaminones is presented.