



Graphical Abstracts/J. Fluorine Chem. 132 (2011) 859–864

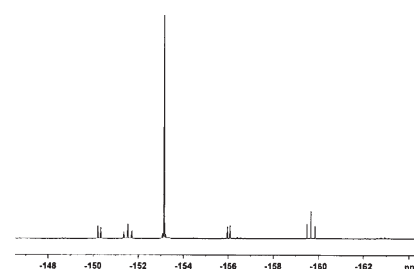
Synthesis, characterization and solution behaviour of phosphoryl complexes of tin tetrafluoride

Med Abderrahmane Sanhoury, Med Taieb Ben Dhia, Med Rachid Khaddar

Laboratory of Coordination Chemistry, Department of Chemistry, Faculty of Sciences of Tunis, University of Tunis El Manar, 2092 Tunis, Tunisia

The synthesis and characterization of a series of octahedral complexes $[\text{SnF}_4\text{L}_2]$ ($\text{L} = (\text{Me}_2\text{N})_3\text{PO}$, $(\text{R}_2\text{N})_2\text{P}(\text{O})\text{F}$ or $\text{R}_2\text{NP}(\text{O})\text{F}_2$ with $\text{R} = \text{Me}$ or Et) are described. The NMR data particularly the ^{19}F NMR spectra showed that the complexes exist in solution as mixtures of *cis* and *trans* isomers.

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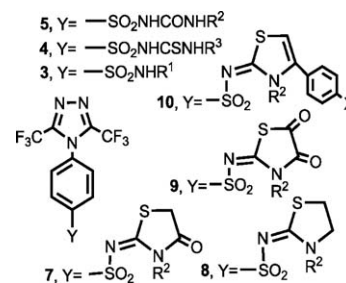


Synthesis and biological evaluation of new 3,5-di(trifluoromethyl)-1,2,4-triazolesulfonylurea and thiourea derivatives as antidiabetic and antimicrobial agents

Hassan M. Faidallah^a, Khalid A. Khan^a, Abdullah M. Asiri^{ab}^aDepartment of Chemistry, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia^bCenter of Excellence for Advanced Materials Research, King Abdulaziz University, P.O. Box 80203, Jeddah 21589, Saudi Arabia

Fluorinated 1,2,4-triazoles were prepared as hypoglycemic and antibacterial agents by condensation and subsequent cyclization of the thiourea derivatives of 3,5-di(trifluoromethyl)triazoles with ethyl bromoacetate, 1,2-diiodoethane, diethyl oxalate and α -bromoacetophenone to give compounds 7–10.

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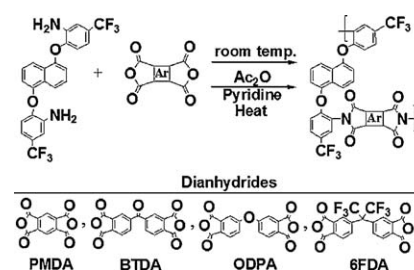
Optical and thermal behavior of novel fluorinated polyimides capable of preparing colorless, transparent and flexible films

Hossein Behniafar, Narges Sefid-girandehi

School of Chemistry, Damghan University, 36715-364, Damghan, Iran

Change in macromolecular alignment caused by changing the attached position of CF_3 groups in CF_3 -containing polyimides can affect film-forming ability, optical and thermal behavior, and organo-solubility.

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Perfluoropolyether–tetrafluoroethylene (PFPE–TFE) block copolymers: An innovative family of fluorinated materials

M. Avataneo, U. De Patto, P.A. Guarda, G. Marchionni

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Perfluoropolyether–tetrafluoroethylene copolymers are one of the most innovative materials developed in the last decade in the field of fluoropolymers. Applications are endless, from thin film lubrication to additives for plastics and rubber. This new material will fill many of the gaps existing today in markets not currently served by PFPEs.

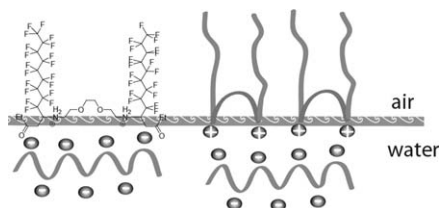


J. Fluorine Chem., 132 (2011) 892

Langmuir isotherm analysis of novel branched per-fluorinated surfactants and their interactions with single stranded DNA

Nicolas Dupuy^a, Andreea Pasc^a, Francis Baros^b, Christine Gérardin^a^aLERMAB – EA 4370, Nancy-Université, BP 70239, F-54506 Vandoeuvre-lès-Nancy, France^bLRGP-UPR 3349 CNRS – INPL, Nancy-Université, ENSIC, 1 rue Grandville, BP 20451, F-54001 Nancy Cedex, France

The synthesis of gemini-type fluorinated surfactants with ester and acid polar heads connected with diaminoethoxylated spacer is described. By combining two rigid fluorinated hydrophobic tags and a flexible ethylenoxide moiety, one can design original gemini lipids, which are able to bind ssDNA. The aminoethoxylated polar head might undergo conformational changes so that the DNA complexation could occur.



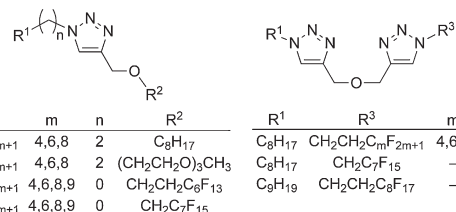
J. Fluorine Chem., 132 (2011) 898

Towards functional fluororous surfactants. Synthesis of hydrophilic fluororous 1,2,3-triazolylmethyl ethers and di(1,2,3-triazolylmethyl) ethers

Dominic V. Francis, D. Howard Miles, Adnan I. Mohammed, Roger W. Read, Xiaobei Wang

School of Chemistry, University of New South Wales, UNSW, Sydney, NSW 2052, Australia

Fluororous triazol-4-ylmethyl ethers and di(triazol-4-ylmethyl) ethers with systematically varying degrees of fluorination and oxygenation, substituent chain lengths and ring position have been synthesised by Cu(I)-induced Huisgen–Meldal dipolar cycloaddition. Microwave acceleration and *in situ* generation of azides have given yield advantages.



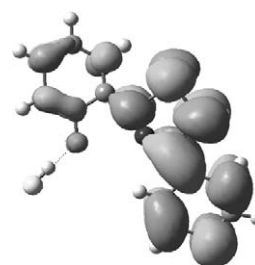
J. Fluorine Chem., 132 (2011) 907

Theoretical study of thiazole derivatives as chemosensors for fluoride anion

Ruifa Jin

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The interactions between chemosensor substrate 2-(2'-hydroxyphenyl)-4-phenylthiazole (**1**) and different F⁻, Cl⁻, Br⁻, and NO₃⁻ anions have been theoretically investigated. Seven derivatives of **1** have been designed by introducing electron-donating or -withdrawing groups with the aim to design novel chemosensors.



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Synthesis, characterization and properties of a novel fluorinated methacrylate polymer

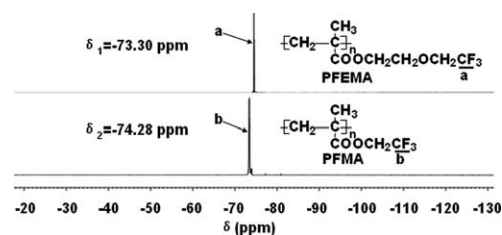
Shuxiang Zhang^{abc}, Junqiang Zhao^{abc}, Guohong Chu^{abc}, Luqing Zhang^{abc}, Anhou Xu^{abc}, Hui Li^a, Bing Geng^{abc}

^aSchool of Chemistry and Chemical Engineering, University of Jinan, Jinan 250022, China

^bShandong Key Laboratory of Fluorine Chemistry and Chemical Engineering Materials, Jinan 250022, China

^cShandong Engineering Research Center for Fluorinated Material, Jinan 250022, China

2-(2,2,2-Trifluoroethoxy)ethyl methacrylate (FMA) was synthesized using a "one pot" process. Novel and stable poly[2-(2,2,2-trifluoroethoxy)ethyl methacrylate] (PFEMA) latex was successfully prepared by miniemulsion polymerization.



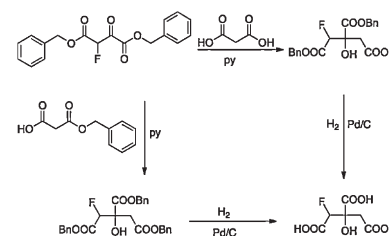
J. Fluorine Chem., 132 (2011) 920

Improved synthesis of D,L-fluorocitric acid

Ruben Vardanyan, Vlad K. Kumirov, Victor J. Hruby

Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ 85721, USA

Bulk synthesis of commercially unavailable fluorocitric acid has been proposed, starting from dibenzyl 2-fluoro-3-oxosuccinate.



J. Fluorine Chem., 132 (2011) 925

Pairing heterocyclic cations with *closo*-dodecafluorododecaborate (2⁻). Synthesis of binary heterocyclium(1⁺) salts and a Ag₄(heterocycle)₈⁴⁺ salt of B₁₂F₁₂²⁻

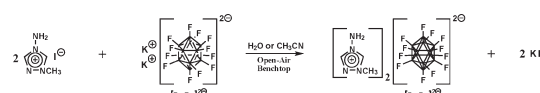
John L. Belletire^a, Stefan Schneider^b, Scott A. Shackelford^b, Dmitry V. Peryshkov^c, Steven H. Strauss^c

^aERC Inc., AFRL/RZSP, 10 East Saturn Blvd., Edwards AFB, CA 93524-7680, United States

^bAir Force Research Laboratory, AFRL/RZSP, 10 East Saturn Blvd., Edwards AFB, CA 92524-7680, United States

^cDepartment of Chemistry, Colorado State University, Ft. Collins, CO 80523, United States

Described are the first syntheses and single-crystal X-ray diffraction characterization of eight binary [heterocyclium]₂[B₁₂F₁₂] salts and a complex [Ag₄(heterocycle)₈][B₁₂F₁₂]₂ salt.



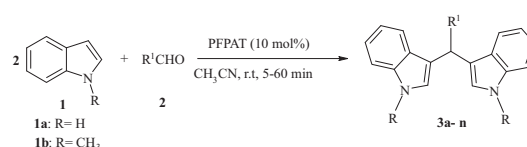
J. Fluorine Chem., 132 (2011) 937

Pentafluorophenylammonium triflate as an efficient, environmentally friendly and novel organocatalyst for synthesis of bis-indolyl methane derivatives

Samad Khaksar, Seyed Mojtaba Ostad

Chemistry Department, Ayatollah Amoli Branch, Islamic Azad University, Amol, Iran

Bis-indolyl methane derivatives were synthesized in excellent yield using PFPAT as a novel organocatalyst.



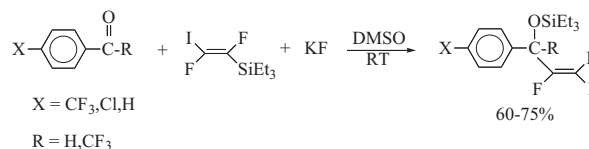
J. Fluorine Chem., 132 (2011) 940

(E)-1,2-Difluoro-1-iodo-2-trialkylsilanes—A useful synthon for the addition of the [IF=CF] unit to activated electrophiles

Ya-Bo He, Ba V. Nguyen, Donald J. Burton

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

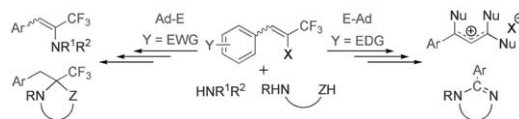
Fluoride ion catalyzed reaction of (E)-IF=CFSiR₃ with activated aromatic aldehydes and ketones and activated perfluoroaromatics stereospecifically transfers the [IF=CF] unit to directly provide (Z)-1,2-difluoro-1-iodo-substituted derivatives. With AlCl₃ catalysis, (E)-ICF=CFSiR₃ reacts with acyl chlorides to stereospecifically afford (Z)-1,2-difluoro-1-iodo-3-ketones.



J. Fluorine Chem., 132 (2011) 945

Mechanistic study of multi-step nucleophilic substitution for trifluoromethylated styrenesAlexander Yu. Rulev^a, Igor A. Ushakov^a, Evgeniy V. Kondrashov^a, Vasiliy M. Muzalevskiy^b, Aleksey V. Shastin^c, Valentine G. Nenajdenko^b^aA.E. Favorsky Institute of Chemistry, Siberian Branch of the Russian Academy of Sciences, 1, Favorsky Str., Irkutsk 664033, Russia^bMoscow State University, Department of Chemistry, Leninskie Gory, Moscow 119992, Russia^cInstitute of Problems of Chemical Physics, Chernogolovka, Moscow Region 142432, Russia

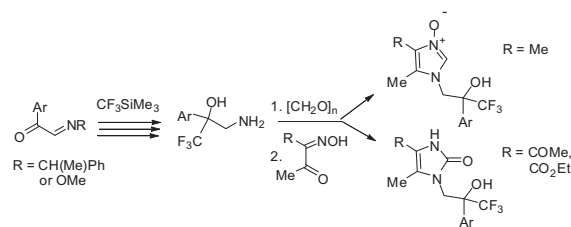
The key steps of the reactions of nitrogen nucleophiles with β-halogen-β-trifluoromethylstyrenes have been studied by ¹⁹F and ¹H NMR monitoring and quantum-chemical calculations. In contrast to the mechanism proposed earlier for nucleophilic vinylic substitution of captodative carbonyl-bearing haloalkenes, this reaction proceeds via either E-Ad or Ad-E sequence depending on the nature of aromatic substituents of the parent styrenes.



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New β-amino-α-trifluoromethyl alcohols and their exploration in the synthesis of trifluoromethylated imidazole derivativesGrzegorz Młostoń^a, Emilia Obijalska^a, Heinz Heimgartner^b^aDepartment of Organic and Applied Chemistry, University of Łódź, Tamka 12, PL-91-403 Łódź, Poland^bInstitute of Organic Chemistry, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland

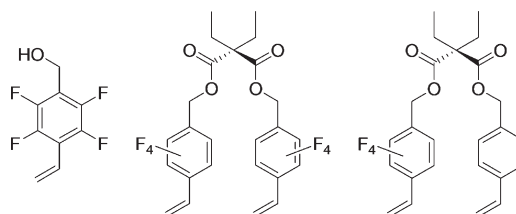
A new approach for synthesis of imidazole derivatives bearing fluorinated hydroxylalkyl group as a substituent at the N(1) atom is described.



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Fluorinated styrene-based monomers for cyclopolymerizationsArvind K. Sharma^a, Dario Pasini^{a,b}^aDepartment of Chemistry, University of Pavia, Via Taramelli, 10 – 27100 Pavia, Italy^bINSTM Research Unit, University of Pavia, Via Taramelli, 10 – 27100 Pavia, Italy

The synthesis of versatile fluorine monomers for polymerizations and cyclopolymerizations is presented.

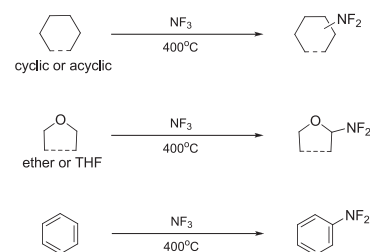


Difluoroalkylamines from high temperature vapor phase reactions of nitrogen trifluoride with alkanes, ethers and benzene

Randolph K. Belter

Y-Not Chemical Consulting, Zachary, LA, 70791, United States

J. Fluorine Chem., 132 (2011) 961



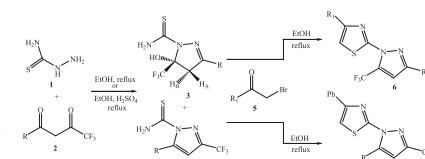
Synthesis and antibacterial activity of some 5-hydroxy-5-trifluoromethyl-4,5-dihydropyrazol-1-thiocarboxamides, 3-trifluoromethylpyrazol-1-thiocarboxamides and 4-aryl-2-(5(3)-trifluoromethyl-1-pyrazolyl)thiazoles

Ranjana Aggarwal, Rajiv Kumar, Sunil Kumar, Gaurav Garg, Ritu Mahajan, Jitender Sharma

5-Hydroxy-5-trifluoromethyl-4,5-dihydropyrazol-1-thiocarboxamides **3** and 3-trifluoromethylpyrazol-1-thiocarboxamides **4**, regioselectively obtained by the condensation of trifluoromethyl- β -diketones

with thiosemicarbazide under neutral and acidic conditions, on further reaction with phenacyl bromides **5** afforded 4-aryl-(5-trifluoromethyl-pyrazol-1-yl)thiazoles **6** and 4-aryl-(3-trifluoromethyl-pyrazol-1-yl)thiazoles **7**, respectively. Five 4,5-dihydropyrazoles (**3a-e**) and two pyrazolylthiazoles (**6a** and **6c**) were tested against one Gram-positive and one Gram-negative bacteria to assess their *in vitro* antibacterial activity. Compounds **3a**, **3b** and **3e** showed moderate antibacterial activity against Gram-positive bacterium, *Bacillus pumilus*.

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Simple indole-based colorimetric sensors with electron-withdrawing chromophores: Tuning selectivity in anion sensing

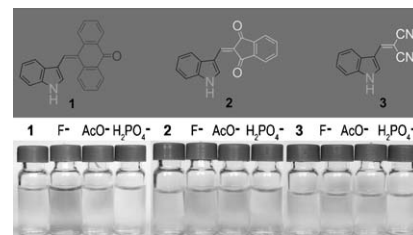
Yongjun Lv^{ab}, Yong Guo^a, Jian Xu^a, Shijun Shao^a

^aKey Laboratory of Chemistry of Northwestern Plant Resources and Key Laboratory for Natural Medicine of Gansu Province, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, PR China

^bGraduate School of the Chinese Academy of Sciences, Beijing 100039, PR China

Three simple colorimetric indole-based sensors show different anion binding properties with the introduction of different electron-withdrawing chromophore. The most electronegative F^- can induce significant UV-vis absorption and color changes of three sensors in CH_3CN , which is attributed to the fitness in the acidity of indole NH and F^- .

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Fluorous solvent for cell culture

Maria Carmelita Z. Kasuya^a, Xiaonan Wen^a, Kenichi Hatanaka^a, Kageyasu Akashi^b

^aInstitute of Industrial Science, The University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153-8505, Japan

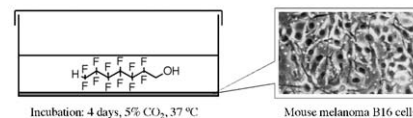
^bThe Noguchi Institute, 1-8-1 Kaga, Itabashi-ku, Tokyo 173-0003, Japan

Mouse melanoma B16 cells were cultured in the presence of various fluorous solvents. Remarkably, cells survived deprived of nutrition up to 4 days when incubated in 2,2,3,3,4,4,5,5,6,6,6-undecafluoro-1-hexanol and in 2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoroheptanol.

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Fluorous Solvent for Cell Culture

Maria Carmelita Z. Kasuya¹, Xiaonan Wen¹, Kenichi Hatanaka^{1*} and Kageyasu Akashi²



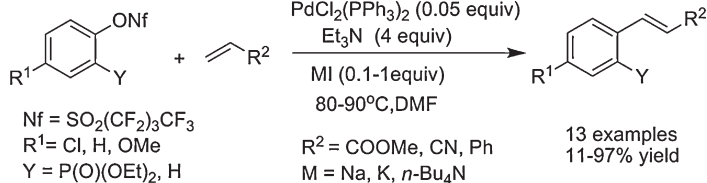
J. Fluorine Chem., 132 (2011) 982

Pd(0)/iodide salt-mediated Heck reaction of aryl nonaflates: Application to the synthesis of 2-(1-alkenyl)phenylphosphonates

Ai-Yun Peng, Ba-Tian Chen, Zheng Wang, Bo Wang, Xiao-Bin Mo, Yuan-You Wang, Pei-Jiang Chen

School of Chemistry & Chemical Engineering, Sun Yat-sen University, 135 Xingangxi Lu, Guangzhou 510275, China

In the presence of PdCl₂(PPh₃)₂ and iodide salt, the aryl nonaflates with or without an ortho-phosphonyl group could proceed the Heck reaction to produce the desired alkenes.



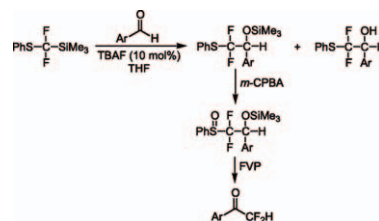
J. Fluorine Chem., 132 (2011) 987

α,α -Difluoro- α -phenylsulfanyl- α -trimethylsilylmethane as a difluoromethyl building block: A general strategy to α,α -difluoromethyl aryl ketones

Kanhokhron Boonkitpattarakul, Darunee Soorukram, Patoomratana Tuchinda, Vichai Reutrakul, Manat Pohmakotr

Department of Chemistry and Center for Innovation in Chemistry (PERCH-CIC), Faculty of Science, Mahidol University, Rama VI Road, Bangkok 10400, Thailand

The synthetic utility of α,α -difluoro- α -phenylsulfanyl- α -trimethylsilylmethane (PhSCF₂SiMe₃) as *gem*-difluoromethyl building block for the synthesis of α,α -difluoromethyl aryl ketones was described.



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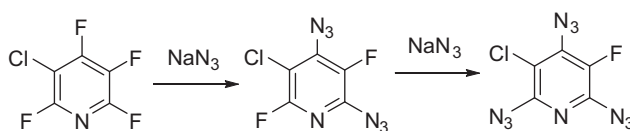
Di- and triazidation of 3-chlorotetrafluoropyridine

Sergei V. Chapyshev

Institute of Problems of Chemical Physics, Russian Academy of Sciences, 142432 Chernogolovka, Moscow Region, Russian Federation

3-Chlorotetrafluoropyridine and pentafluoropyridine readily react with

an excess of sodium azide in dimethylsulfoxide at room temperature to give corresponding 2,4,6-triazido-3-chloro-5-fluoropyridine and 2,4,6-triazido-3,5-difluoropyridine in high yields. The reaction of asymmetric 3-chlorotetrafluoropyridine with two equimolar amounts of sodium azide under similar reaction conditions occurs regioselectively to give 2,4-diazido-5-chloro-3,6-difluoropyridine as a sole product. ¹⁹F, ¹³C and ¹⁵N NMR spectral characteristics of the triazides suggest that these compounds can be of interest as cross-linking reagents for polymer chemistry and as starting materials for organic synthesis.



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Catalyst-free one-pot synthesis of 1,4,5-trisubstituted pyrazoles in 2,2,2-trifluoroethanol

Heshmatollah Alinezhad, Mahmood Tajbakhsh, Mahboobeh Zare

Faculty of Chemistry, Mazandaran University, Babolsar, Iran

A simple and efficient method for the preparation of 1,4,5-trisubstituted pyrazoles by the reaction of β -dicarbonyls, *N,N*-dimethylformamide dimethyl acetal (DMFDMA) and hydrazine derivatives is described in 2,2,2-trifluoroethanol without use of a catalyst or any other additive.

