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Monitoring and possible reduction of HF in stack flue gases from ceramic tiles

E. Monfort, J. García-Ten, I. Celades, S. Gomar

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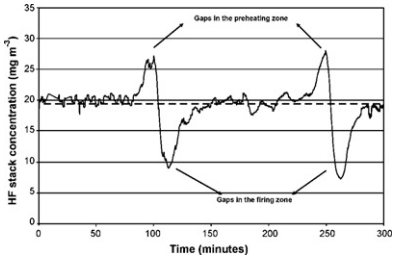
In-stack concentrations of HF were monitored on-line with laser-based equipment during the fast firing of ceramic tiles. HF stack emissions can vary significantly in continuous kilns depending on whether glazed or unglazed tiles are produced, or important changes occur in production, so further research in this field can be made in order to reduce HF emissions.



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A novel and efficient method for the synthesis of polyfluoroarenesulfonyl bromides from polyfluoroarenethiols

Vyacheslav E. Platonov, Roman A. Bredikhin, Alexander M. Maksimov, Victor V. Kireenkov

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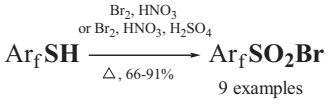
At heating of polyfluoroarenethiols with a mixture of Br_2 and fuming HNO_3 or other bromine-containing oxidative systems polyfluoroarenesulfonyl bromides are obtained in good yields.



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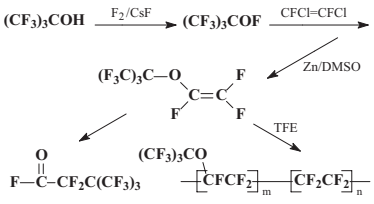
Synthesis of perfluoro-*t*-butyl trifluorovinyl ether and its copolymerization with TFE

Changqing Lu, Jae-Ho Kim, Darryl D. DesMarteau

Department of Chemistry, Clemson University, Clemson, SC 29634, USA

Perfluoro-*t*-butyl trifluorovinyl ether $(CF_3)_3COCF\text{-}CF_2$ was prepared by the addition of perfluoro-*t*-butyl hypofluorite $(CF_3)_3COF$ to 1,2-dichloro-1,2-difluoroethylene followed by dechlorination. The obtained trifluorovinyl ether monomer copolymerizes with TFE readily in the presence of a radical initiator.



doi:10.1016/S0022-1139(09)00350-9

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^{19}F NMR spectroscopy as useful tool for determining the structure in solution of coordination compounds of MF_5 (M = Nb, Ta)

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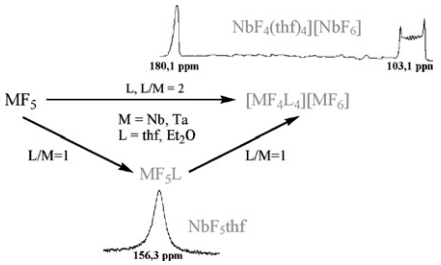
[b]*Dipartimento di Chimica Fisica e Inorganica, Università di Bologna, Viale Risorgimento 4, I-40136 Bologna, Italy*

The unambiguous ^{19}F NMR characterization of the $[MF_6]^-$ anions (M = Nb, Ta) in chlorinated solvents has allowed the discussion of the room temperature ^{19}F NMR spectra of MF_5 derivatives in $CDCl_3$ or CD_2Cl_2 solutions, suggesting the usefulness of ^{19}F NMR spectroscopy for previewing the structure of MF_5 adducts in solution.



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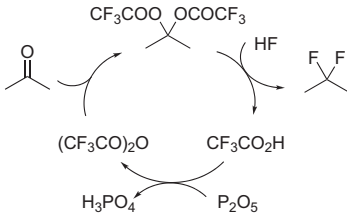
Practical synthesis of *gem*-difluorides from cyclohexanone: Synthesis of *gem*-bistrifluoroacetates and their reactions with fluoride nucleophiles

Masahiro Tojo[ab], Shinsuke Fukuoka[c], Hiroshi Tsukube[a]

[a]*Department of Chemistry, Graduate School of Science, Osaka City University, Sugimoto, Sumiyoshi-ku, Osaka 558-8585, Japan*
[b]*Chemistry and Chemical Process Laboratory, Asahi KASEI Chemicals Corporation, 2767-11 Niihama, Kojima-Shionasu, Kurashiki, Okayama 711-8510, Japan*
[c]*New Business Development, Asahi KASEI Corporation, 1-105 Kanda Jinbocho, Chiyoda-ku, Tokyo 101-8101 Japan*

Formation of ketone acylals bearing trihaloacetoxy groups and their nucleophilic geminal disubstitution by fluoride ions are described.



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Synthesis and properties of fluorinated thermoplastic polyurethane elastomer

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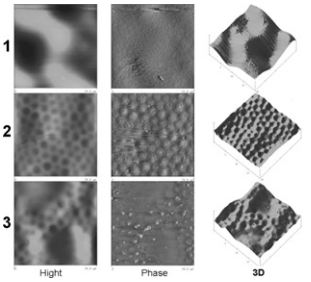
State Key Laboratory of Polymer Materials Engineering, Polymer Research Institute of Sichuan University, 3# kehua north road, Chengdu, 610065, China

A series of fluorinated thermoplastic polyurethane elastomers (FTPU) based on self-synthesized fluorinate polyether diol (PFGE) were prepared by two-step polymerization. For the purpose of improving the molecular weight and mechanical property of FTPU, polybutylene adipate (PBA) was used to be compounded with PFGE as the soft-segment of FTPU. Effects of the mass ratio of PFGE/PBA and the mass fraction of hard-segment on the mechanical property of FTPU were investigated, and FTPU with high tensile strength and elongation at break was obtained. The structure and morphology of FTPU were characterized by FTIR, GPC, DMA, surface tension and AFM analysis.



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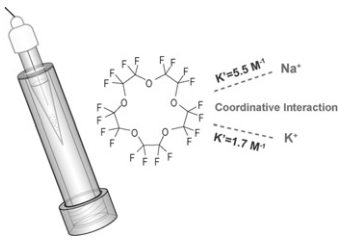
Cation-coordinating properties of perfluoro-15-crown-5

Chun-Ze Lai, Molly E. Reardon, Paul G. Boswell, Philippe Bühlmann

University of Minnesota, Department of Chemistry, 207 Pleasant St. SE, Minneapolis, MN 55455, United States

While the stabilities of perfluorocrown ether complexes with cations have been known to be weak at most, no quantitative data have been available to confirm complexation. This contribution uses ^{19}F NMR spectroscopy and ion-selective potentiometry to show that perfluoro-15-crown-5 indeed binds weakly to Na^+ and K^+ but not to H^+, Li^+, and NH_4^+.



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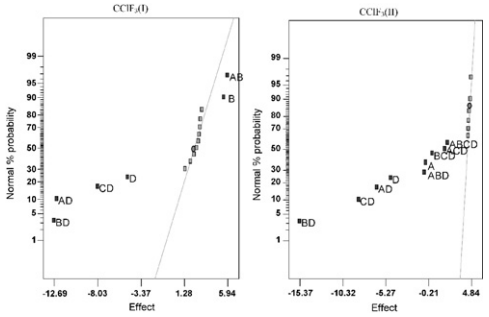
A survey of wave function effects on theoretical calculation of gas phase ^{19}F NMR chemical shifts using factorial design

H. Shaghaghi, H. Ebrahimi, M. Tafazzoli, M. Jalali-Heravi

Department of Chemistry, Sharif University of Technology, P. O. Box 11155-9516, Tehran, Iran

The wave functions for calculating gas phase ^{19}F chemical shifts have been optimally selected using the factorial design as a multivariate technique.



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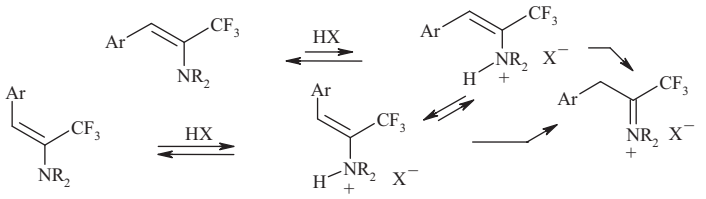
Regioselectivity of the protonation of captodative enamines bearing a CF_3 group

Alexander Yu. Rulev, Igor A. Ushakov

A.E. Favorsky Institute of Chemistry, Siberian Branch of Russian Academy of Sciences, 1, Favorsky Str., 664033 Irkutsk, Russian Federation



Ar = 2-$NO_2C_6H_4$, 2-BrC_6H_4, 4-$O_2NC_6H_4$;
NR_2 = $N(CH_2)_4$, $N(CH_2)_5$, NEt_2;
X = CF_3SO_3, CF_3CO_2, Cl

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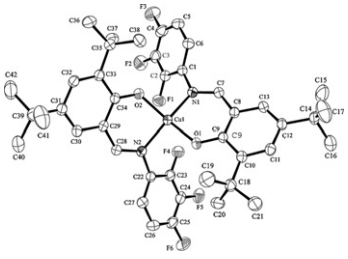
Synthesis, structural, spectroscopic and reactivity properties of a new *N*-2,3,4-trifluorophenyl-3,5-di-*tert*-butylsalicylaldimine ligand and its Cu(II) and Pd(II) complexes

Veli T. Kasumov[a], Ibrahim Uçar[b], Ahmed Bulut[b]

[a]*Department of Chemistry, Harran University, Osmanbey, 63300 Şanlıurfa, Turkey*
[b]*Department of Physics, Faculty of Arts and Sciences, Ondokuz Mayıs University, 55139 Kurupelit, Samsun, Turkey*

The synthesis, structural, spectroscopic characterization and reactivity of a novel *N*-2,3,4-trifluorophenyl-3,5-di-*tert*-butylsalicylaldimine and its complexes with Cu(II) (**2**) and Pd(II) (**3**), have been described. The X-ray structure analyses for **2**, reveal that weak C(sp^2)–H…F, π–π stacking and C(sp^3)–H…π interactions are responsible for lattice stabilization.



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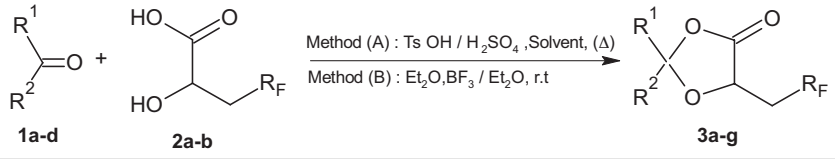
Synthesis of 5-(perfluoroalkylmethyl)-1,3-dioxolan-4-ones

Ikram Chehidi[a], Abaccar Ould Amanetoullah[a], Mohamed Moncef Chaabouni[ab], Ahmed Baklouti[a]

[a]*Faculty of Sciences of Tunis, Department of Chemistry, Laboratory of Structural Organic Chemistry, Campus Universitaire, 2092 El Manar, Tunis, Tunisia*
[b]*Ecole Supérieure des Industries Alimentaires, 58, Avenue Alain Savary, 1003 Tunis, Tunisia*

Acid catalysed condensation of *F*-alkyl α-hydroxy acids with carbonyl compounds gave new *F*-alkyl 1,3-dioxolan-4-ones.



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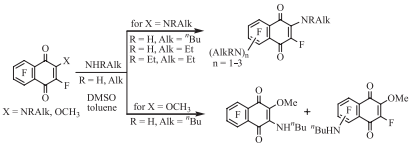
Aminodefluorination of 2-X-pentafluoro-1,4-naphthoquinones (X = NH^nBu, NEt_2, and OMe)

Nadezhda M. Troshkova[a], Leonid I. Goryunov[a], Yurij V. Gatilov[a], Georgy A. Nevinsky[b], Vitalij D. Shteingarts[ac]

[a]*N.N. Vorozhtsov Novosibirsk Institute of Organic Chemistry, Siberian Branch of the Russian Academy of Sciences, Lavrentiev Avenue 9, 630090 Novosibirsk, Russian Federation*

[b]*Institute of Biological Chemistry and Fundamental Medicine, Siberian Branch of the Russian Academy of Sciences, Lavrentiev Avenue 8, 630090 Novosibirsk, Russian Federation*

[c]*Novosibirsk State University, Pirogova St. 2, 630090 Novosibirsk, Russian Federation*



The series of potentially bioactive polyfluorinated derivatives of 2-amino-1,4-naphthoquinone have been synthesized by mono- and dialkylaminodefluorination on benzene or quinone moiety of 2-*n*-butylamino-, 2-diethylaminopentafluoro- or 2-methoxy-hexafluoro-1,4-naphthoquinone and the regioselectivity has been revealed as depending on a reagent, substituent and solvent nature.

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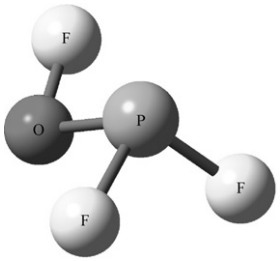
Can PF_2OF exist?

David W. Ball

Department of Chemistry, Cleveland State University, 2121 Euclid Avenue, Cleveland, OH 44115, USA



G2 and G3 compound methods were used to explore the possibility that the covalent hypofluorite compound PF_2OF might exist as a stable compound. Calculations suggest that it may exist, making it a legitimate synthetic target. If it is isolable, it is likely to be very reactive, as the O–F bond is expected to be rather weak.

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Chemoselectivity of cobalt-catalysed carbonylation—A reliable platform for the synthesis of fluorinated benzoic acids

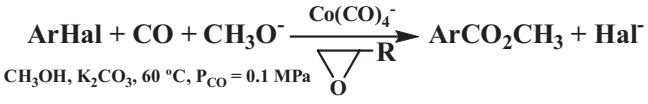
Vadim P. Boyarskiy[a], Marina S. Fonari[b], Tatiana S. Khaybulova[a], Maria Gdaniec[c], Yurii A. Simonov[b]

[a]*Saint-Petersburg State University, Chemistry Department, Staryj Petergof, Universitetskii pr., 26, 198504 S.-Petersburg, Russian Federation*

[b]*Institute of Applied Physics, Academy of Sciences of Moldova, Academiei str., 5 MD-2028 Chisinau, Republic of Moldova*

[c]*Faculty of Chemistry, Adam Mickiewicz University, Poznań, Poland*

The high selectivity of cobalt-catalysed carbonylation of mixed aryl halides (bromo,fluoro- and chloro,fluorobenzenes) and 1,2,4-trichlorobenzene is demonstrated and explained by anion-radical mechanism of aryl halides activation by modified cobalt carbonyl complex. It allows using this effective procedure as a universal method for synthesis of fluorinated benzoic acids.



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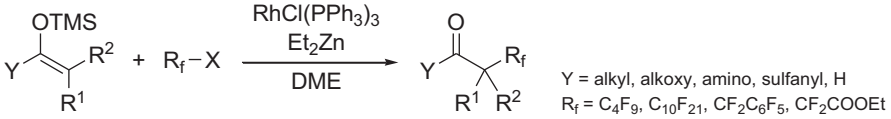
α-Fluoroalkylation of carbonyl compounds mediated by a highly reactive alkyl-rhodium complex

Kazuyuki Sato, Satoshi Yamazoe, Yukiko Akashi, Tetsuya Hamano, Arisa Miyamoto, Shuhei Sugiyama, Atsushi Tarui, Masaaki Omote, Itsumaro Kumadaki, Akira Ando

Faculty of Pharmaceutical Sciences, Setsunan University, 45-1, Nagaotoge-cho, Hirakata, Osaka 573-0101, Japan

The treatment of silyl enol ethers with fluoroalkyl halides (R_f–X) and Et_2Zn in the presence of $RhCl(PPh_3)_3$ gave α-fluoroalkylated ketones.



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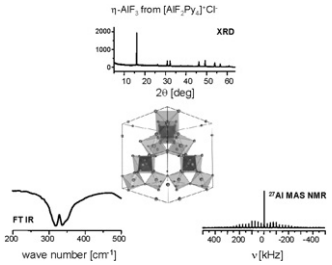
Spectroscopic characterization of crystalline AlF_3 phases

R. König[a], G. Scholz[a], K. Scheurell[a], D. Heidemann[a], I. Buchem[a], W.E.S. Unger[b], E. Kemnitz[a]

[a]*Humboldt-Universität zu Berlin, Institut für Chemie, Brook Taylor-Straße 2, D-12489 Berlin, Germany*
[b]*BAM Bundesanstalt für Materialforschung und – prüfung, 12200 Berlin, Germany*

^{27}Al and ^{19}F MAS NMR, FT IR and XPS-characterization of various crystalline AlF_3 phases have been comprehensively performed.



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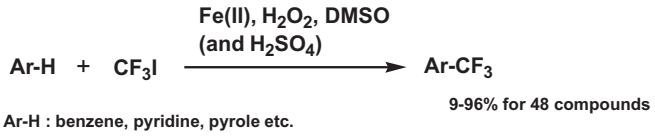
Trifluoromethylation of various aromatic compounds by CF_3I in the presence of Fe(II) compound, H_2O_2 and dimethylsulfoxide

Tatsuhito Kino[ab], Yu Nagase[b], Yuhki Ohtsuka[a], Kyoko Yamamoto[a], Daisuke Uraguchi[a], Kenji Tokuhisa[c], Tetsu Yamakawa[a]

[a]*Sagami Chemical Research Center, Hayakawa 2743-1, Ayase, Kanagawa 252-1193, Japan*
[b]*Tokai University, Faculty of Engineering, Department of Applied Chemistry, Kitakaname 1117, Hiratsuka-shi, Kanagawa 259-1292, Japan*
[c]*Tosoh F-Tech Inc., Kaisei-cho 4988, Shunan, Yamaguchi 746-0006, Japan*

Trifluoromethylation of aromatic compounds by CF_3I in the presence of Fe(II) compound, H_2O_2 and dimethylsulfoxide was investigated. General orientation of electrophilic substitution of aromatic compounds was observed.



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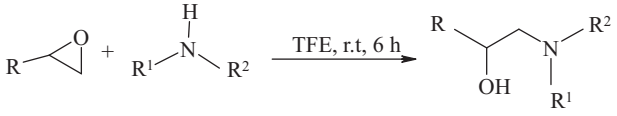
A facile and efficient synthesis of β-amino alcohols using 2,2,2-trifluoroethanol as a metal-free and reusable medium

Samad Khaksar[a], Akbar Heydari[a], Mahmood Tajbakhsh[b], Hamid Reza Bijanzadeh[a]

[a]*Chemistry Department, Tarbiat Modares University, P.O. Box 14155-4838, Tehran, Iran*
[b]*Chemistry Department, Mazandaran University, Babol Sar, Iran*



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Hafnium (IV) bis(perfluorooctanesulfonyl)imide complex catalyzed synthesis of polyhydroquinoline derivatives via unsymmetrical Hantzsch reaction in fluorous medium

Mei Hong, Chun Cai, Wen-Bin Yi

School of Chemical Engineering, Nanjing University of Science and Technology, Xiao Ling Wei Street, No. 200, Nanjing 210094, JiangSu, People's Republic of China

The synthesis of polyhydroquinoline derivatives via a four-component coupling reaction of aldehydes, dimedone, active methylene compounds, and ammonium acetate was successfully accomplished using metal bis(perfluorooctanesulfonyl)imide ($M(NPf_2)n$, M = Sn, Hf, Yb, Sc, Y, Sm, La, Nd) as catalysts in fluorous solvent. Hafnium bis(perfluorooctanesulfonyl)imide catalyzed the high efficient preparation of polyhydroquinolines in fluorous solvent. Fluorous phase containing only catalyst can be reused several times.