

Accepted Manuscript

Title: Solvent-Free Synthesis of Alkyl and Fluoroalkyl
Sulfonium Salts from Sulfides and Fluoroalkyl
Trifluoromethanesulfonates

Author: Hai-Xia Song Shi-Meng Wang Xiao-Yan Wang
Jia-Bin Han Ying Gao Su-Jiao Jia Cheng-Pan Zhang



PII: S0022-1139(16)30325-6
DOI: <http://dx.doi.org/doi:10.1016/j.jfluchem.2016.10.020>
Reference: FLUOR 8885

To appear in: *FLUOR*

Received date: 18-9-2016
Revised date: 28-10-2016
Accepted date: 28-10-2016

Please cite this article as: Hai-Xia Song, Shi-Meng Wang, Xiao-Yan Wang, Jia-Bin Han, Ying Gao, Su-Jiao Jia, Cheng-Pan Zhang, Solvent-Free Synthesis of Alkyl and Fluoroalkyl Sulfonium Salts from Sulfides and Fluoroalkyl Trifluoromethanesulfonates, Journal of Fluorine Chemistry <http://dx.doi.org/10.1016/j.jfluchem.2016.10.020>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

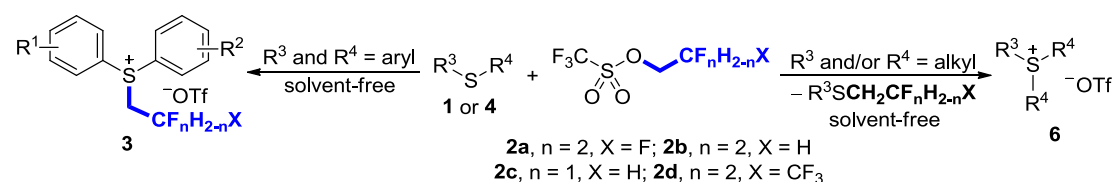
<AT>Solvent-Free Synthesis of Alkyl and Fluoroalkyl Sulfonium Salts from Sulfides and Fluoroalkyl Trifluoromethanesulfonates

<AU>Hai-Xia Song, Shi-Meng Wang, Xiao-Yan Wang, Jia-Bin Han, Ying Gao, Su-Jiao Jia, Cheng-Pan Zhang* ##Email##cpzhang@whut.edu.cn##/Email##, ##Email##zhangchengpan1982@hotmail.com##/Email##
<AU>

<AFF>School of Chemistry, Chemical Engineering and Life Science, Wuhan University of Technology, 205 Luoshi Road, Wuhan, 430070, China

<PA>*Corresponding author Graphic.

<ABS-HEAD>Abstract



<ABS-HEAD>Highlights ► Solvent-free facile synthesis of alkyl and fluoroalkyl sulfonium salts. ► Fluoroalkyl trifluoromethanesulfonates were used as fluoroalkyl sources. ► The reaction could selectively afford alkyl- or fluoroalkylsulfonium salts. ► The reactants and reaction temperature dramatically affected the reaction.

<ABS-HEAD>Abstract

<ABS-P>A series of diaryl(fluoroalkyl)sulfonium salts were synthesized from electron-rich diaryl sulfides and fluoroalkyl trifluoromethanesulfonates under solvent-free conditions. Unlike diaryl sulfides, dialkyl and alkyl(aryl) sulfides reacted with fluoroalkyl trifluoromethanesulfonates (e.g. $\text{CF}_3\text{SO}_3\text{CH}_2\text{CF}_3$, $\text{CF}_3\text{SO}_3\text{CH}_2\text{CF}_2\text{H}$) to provide trialkyl- and aryl(dialkyl)sulfonium trifluoromethanesulfonates in good yields, wherein dialkyl- and alkyl(aryl)(fluoroalkyl)sulfonium salts were formed, respectively, and nucleophilically attacked by a second sulfide to yield the non-fluorinated sulfoniums. The $\text{S}_{\text{N}}2$ -type reaction could stop at the first step and exclusively afford dialkyl- and alkyl(aryl)(fluoroalkyl)sulfonium salts, which was dramatically dependent upon the structure of sulfides, the nature of fluoroalkyl trifluoromethanesulfonates, the reactant ratio, and/or the reaction temperature. This protocol allows for an efficient and convenient access to a variety of alkyl and fluoroalkyl sulfonium salts.

<KWD>Keywords: sulfides; fluoroalkyl trifluoromethanesulfonates; sulfonium salts.

<H1>1. Introduction

Sulfonium salts are versatile reagents in the fields of chemistry and materials science [1,2]. Triarylsulfonium salts have been widely used as photoinitiators in cationic polymerizations and as photoacid generators in the areas of coatings, adhesives, photoresists, microfabrication, and patterning [2,3]. Vinylsulfoniums can *in situ* form

Download English Version:

<https://daneshyari.com/en/article/5152173>

Download Persian Version:

<https://daneshyari.com/article/5152173>

[Daneshyari.com](https://daneshyari.com)