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SHORT COMMUNICATIONS

Synthesis of *N*-(2,2-Dichloroethylidene)trifluoromethanesulfonamide

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We previously showed [1, 2] that reactions of *N*,*N*-dichloroarenesulfonamides with 1,2-dichloroethylene under conditions of thermal, chemical, or photochemical initiation lead to formation of mixtures of *N*-(2,2-dichloroethylidene)arenesulfonamides, 1,1-bis(arylsulfonylamino)-2,2-dichloroethanes, and *N*-(2,2,2-trichloroethylidene)arenesulfonamides; the yield of the latter products can attain 30%.

We now report for the first time on the reaction of *N*,*N*-dichlorotrifluoromethanesulfonamide with 1,2-dichloroethylene, which selectively yields *N*-(2,2-dichloroethylidene)trifluoromethanesulfonamide with no impurity of trichloroethyl derivative. The reaction does not require additional thermal initiation; it occurs in excess 1,2-dichloroethylene and is accompanied by heat evolution. The reaction time is 5 h in the sunlight or 1 h under UV irradiation. The chlorine released from *N*,*N*-dichlorotrifluoromethanesulfonamide adds to 1,2-dichloroethylene, yielding tetrachloroethane.

$$CF_3SO_2NCl_2 + ClCH{=}CHCl \longrightarrow CF_3SO_2N{=}CH{-}CHCl_2 + Cl_2CH{-}CHCl_2$$

Thus the reaction of *N*,*N*-dichlorotrifluoromethanesulfonamide with 1,2-dichloroethylene provides an efficient route to highly reactive intermediate product which is used in the synthesis of compounds having a trifluoromethanesulfonamide group as promising medicinals, dyes, insectoacaricides, etc.

***N*-(2,2-Dichloroethylidene)trifluoromethanesulfonamide.** *N*,*N*-Dichlorotrifluoromethanesulfonamide, 2.18 g (0.01 mol) (prepared by the procedure reported in [3]), was dissolved in 7.7 ml (0.1 mol) of 1,2-dichloroethylene, and the solution was purged with argon for 0.5 h. The mixture was kept in the sunlight (5 h) or under UV irradiation (ORK-21 lamp, 0.5 h) until it no longer warmed up, and excess 1,2-dichloroethylene was removed under reduced pressure without heating. The residue was 3.98 g of a mixture of *N*-(2,2-dichloroethylidene)trifluoromethanesulfonamide and 1,1,2,2-tetrachloroethane. ^{1}H NMR spectrum (Bruker DPX-400, $CDCl_3$, HMDS), δ, ppm: 8.57 d (CH=N), 6.24 d ($CHCl_2$), J = 6.4 Hz; 5.95 s ($Cl_2HCCHCl_2$). IR spectrum, (Specord IR75, thin film), ν, cm^{-1}: 1150, 1200, 1240, 1360 (SF_3SO_2), 1660 (C=N), 3095 (C−H).

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