

THE (CF₃S)₂N· radical : PREPARATION, DIMERIZATION, ESR-STUDIES

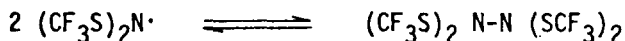
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The Bis (trifluormethylmercapto) amino radical (CF₃S)₂N· has been prepared by oxidation of Bis (trifluormethylmercapto) amine, (CF₃S)₂NH with activated lead dioxide in CCl₃F solution at room temperature.

The 10⁻⁵ - 10⁻⁶ molar solution of the radical shows in the ESR-spectrum a triplet of septets with a isotropic nitrogen hyperfine splitting constant $a(^{14}\text{N}) = 13,2 \text{ G}$, $a(^{19}\text{F}) = 1.95 \text{ G}$, indicating that the radical is a planar sp² species where the unpaired electron is located predominantly in the nitrogen 2p orbital.

It is suggested that in solution an thermal equilibrium exists between the (CF₃S)₂N radical and its dimer Tetrakis (trifluoromethylmercapto)-hydrazine:



Aspects of preparation as well as thermodynamic and kinetic details of the hydrazine (N-N bond strength 7 kcal/mol⁻¹) and the equilibrium, which can be followed by ESR-spectroscopy will be given.