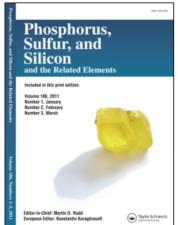
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SYNTHESIS OF THIOAMIDES FROM NITRILES AND HYDROGEN SULPHIDE
IN THE PRESENCE OF PHASE-TRANSFER CATALYSTS

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The synthesis of thioamides (1) from nitriles generally involves base catalyzed reaction of nitriles with hydrogen sulphide in a polar organic solvent.

The known preparations are usually accomplished under pressure by heating, in a closed reactor, an alcoholic solution of nitrile and of hydrogen sulphide or of an ammonium hydrogen sulphide otherwise, at atmospheric pressure, by reacting nitrile dissolved in pyridine (2) with hydrogen sulphide in the presence of triethylamine.

We wish (3) to report on the application of phase trasfer method (4) to the reaction of nitriles with hydrogen sulphide.

When an heterogeneous mixture of an aqueous solution of sodium sulphide, a phase transfer catalyst, nitrile dissolved in an organic solvent and hydrogen sulphide (1-2 ata) is stirred vigorously, at 70°, the corresponding thioamide is obtained in high yield.

Generally thioamides are insoluble in the reaction medium and can be conveniently isolated by filtration; the mother liquors (aqueous and organic phases) can be reutilized, after addition of a new amount of nitrile. Nitriles are generally used dissolved in benzene, 1,2-dichlorobenzene or diphenylether; solvent can be avoided when liquid nitriles are used.

Tricaprilylmethylammonium chloride, tetrabutylammonium chloride and dibenzo-18-crown-6 are used as phase transfer catalysts.

In their absence formation of thioamides is very slow.

The convenience and high yields of our phase transfer procedure suggest that this will be a method of choice for routine synthesis of thioamides.

- 1) For Reviews see: W.Walter, K.D.Boole, Angew.Chem.Intern.

 Edit., 1966, 447
 - W.Wolfgang, V.Juergen, The Chemistry of Amides 1970, 383-475 Edited by Zabicky, Jacob (Series Editor Saul Patai).
 Interscience: London, Engl.
- 2) A.E.Fairfull, J.L.Lowe, D.A.Peak, J.Chem.Soc., 1952, 743.
- 3) L.Cassar, S.Panossian, C.Giordano, Italian Patent Application no 29882 A/76 (11/29/76).
- 4) E.V. Dehmlow, Angew. Chem. Int. Ed. Engl. 16, 493 (1977).