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### A FACILE SYNTHESIS OF DIARYLACETONITRILE FROM DIARYKETONES AND TRIMETHYLSILYL CYANIDE

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A FACILE SYNTHESIS OF DIARYLACETONITRILE  
FROM DIARYLKETONES AND TRIMETHYLSILYL CYANIDE

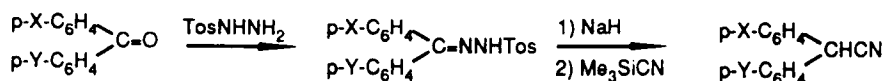
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Introduction of the nitrile group into organic compounds is a very valuable technique in organic synthesis. Conversion of carbonyl compounds into nitrile compounds has been investigated actively and a wide variety of methods have been developed. Trimethylsilyl cyanide proved to be very effective to transform carbonyl compounds into  $\alpha$ -cyanohydrins.<sup>1</sup> However, reduction of the hydroxy group of the cyanohydrins requires conversion of the cyanohydrins to  $\alpha$ -halonitriles, which are then reduced with zinc.<sup>2</sup>

We now report that diarylketones (1) may be converted into diarylacetonitriles (3) in moderate yields,<sup>3</sup> via the reaction of trimethylsilyl cyanide with the sodium salts of diarylketone



tosylhydrazones (2), very easily prepared in quantitative yields from 1 and tosylhydrazide.<sup>4</sup> The procedure is a simple one-pot reaction which requires only addition of sodium hydride and trimethylsilyl cyanide to a diglyme solution of the tosylhydrazone.

TABLE. Yields of Diarylacetonitriles (3)<sup>5</sup>

<u>2</u>	X	Y	Yields of <u>3</u> <sup>a</sup> (%)	IR (CN) (cm <sup>-1</sup> )
<u>2a</u>	H	H	49	2222
<u>2b</u>	H	Cl	43	2221
<u>2c</u>	H	OMe	52	2220
<u>2d</u>	OMe	OMe	51	2223

a) All the yields are isolated yields based on 2.

## EXPERIMENTAL SECTION

Reaction of Sodium Salt of Benzophenonetosylhydrazone (2a) with Trimethylsilyl Cyanide.

Representative Procedure.- To a solution of **2a** (7.36 g, 20 mmol) in anhydrous diglyme (50 ml) was added sodium hydride (50% in oil, 0.72 g, 30 mmol). After evolution of hydrogen gas had ceased, trimethylsilyl cyanide (9.90 g, 100 mmol) was added and the mixture was heated at 125° for 5 min. to evolve a quantitative amount of nitrogen gas. After filtration the filtrate was diluted with ether (200 ml), washed with water (200 ml x 5), dried over anhydrous sodium sulfate, and finally the solvent was evaporated on a rotary evaporator. The oily residue was chromatographed on silica gel (hexane-benzene 6:4) to give **3a** (1.87 g, 49%).

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AN IMPROVED PROCEDURE FOR THE DICHLOROACETYLATION  
OF PRIMARY AND SECONDARY AMINES<sup>†</sup>

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The dichloroacetamido moiety (-NHCOCHCl<sub>2</sub>) is prevalent in number of biologically