



>>Entry Name: Cyanotrimethylsilane

Synonym(s): Trimethylsilanecarbonitrile, 12Cl, 9Cl. Trimethylsilyl cyanide

CAS Registry Number: 7677-24-9

Me₃SiCN

Molecular Formula: C₄H₉NSi

Molecular Weight: 99.207

Accurate Mass: 99.050426

Percentage Composition: C 48.43%; H 9.14%; N 14.12%; Si 28.31%

Source/Synthesis: Synth. from Me₃SiCl + KCN in presence of KI/*N*-methylpyrrolidinone; also from Bis(trimethylsilyl)amine [FJK87-O](#) + HCN

Use/Importance: Commercially available. Reagent for the conversion of aldehydes to ketones and for the isoprenylation of quinones; precursor to bis(trimethylsilyl) methylamine; protocol for peptide synth.; hydrocyanates aldehydes enantioselectively in presence of a chiral Ti complex; undergoes 1,2-addn. to enals, and 1,2- or 1,4-addn. to enones depending on reaction conditions; reacts with acid chlorides in presence of Py → α,α-dicyanotrimethylsiloxy compds.; reagent for cyanosilylation of Schiff bases, oximes catalysed by AlCl₃, ZnI₂ or Al(OR)₃ → aminonitriles after hydrol.; with aryl aldehydes, ketones and TiCl₄ → α-chloronitriles; in presence of SnCl₄ or SnCl₂ converts tertiary alkyl halides to alkyl cyanides and substitutes thioacetals → α-alkylthionitriles; in presence of ZnI₂ cleaves epoxides regio- and stereoselectively → 1-siloxy-2-isocyanides, and oxetanes → γ-hydroxy isocyanides which may be hydrol. to γ-amino alcohols; reacts with tertiary halides in presence of TiCl₄ → isonitriles which rearrange → nitriles; in presence of Et₃N/[Bu₄N]F, adds to pyridine or quinoline *N*-oxides → 2-cyano derivs.

Physical Description: Liq.

Melting Point: Fp 34°. Mp 11°

Boiling Point: Bp 118-119°

Refractive Index: n_D²⁰ 1.3900

Aldrich: 21284-9

Fluka: 92755

References:

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