

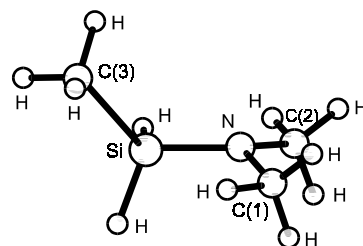
1439
ED

$C_3H_{11}NSi$

N,N,1-Trimethylsilanamine
(Dimethylamino)methylsilane

C_1
 $H_3C-SiH_2-N(CH_3)_2$

r_a	$\text{\AA}^a)$	θ_a	$\text{deg}^a)$
C–H	1.116(5)	Si–N–C	121.5(8)
Si–H	1.485 ^{b)}	C–N–C	112.7(8)
C–N	1.455(3)	N–C–H	113.4(24)
Si–N	1.715(6)	N–Si–C	113.3(23)
Si–C	1.867(6)	H–Si–H	108.5 ^{b)}
		Si–C–H	113.4(30)
		$\tau_1^c)$	60.0 ^{b)}
		$\tau_2^d)$	60.0 ^{b)}
		$\delta^e)$	–149.8(30)
		$\alpha^f)^g)$	355.6(15)
		$\beta^g)^h)$	19.6(30)
		$\varphi_1^g)^i)$	–72.4(30)
		$\varphi_2^g)^j)$	132.9(39)



The preferred conformation has Si–C bond *gauche* to the lone pair of electrons on the N atom. The Si–NC₂ skeleton was assumed to have local C_s symmetry, and CH₃ groups were assumed to have local C_{3v} symmetry with no tilt. The dihedral angles of torsion are defined relative to zero for the *syn* position and they are positive for counterclockwise rotation. The nozzle temperature was 295 K.

^{a)} Estimated standard errors including a systematic error.

^{b)} Assumed.

^{c)} Dihedral angle H–C–N–C.

^{d)} Dihedral angle H–C–Si–N.

^{e)} Torsional angle C(3)–Si–N–b, where b is the bisector of the C–N–C angle.

^{f)} The sum of the angles around the N atom. The deviations from 360° could be ascribed to the neglect of the shrinkage effect; in other words, a planar equilibrium structure is possible.

^{g)} Dependent parameter.

^{h)} Dip angle between the bisector of the C–N–C angle and the extension of the Si–N bond. See footnote ^{f)}.

ⁱ⁾ Torsional angle C(1)–N–Si–C(3).

^{j)} Torsional angle C(2)–N–Si–C(3).

Gundersen, G., Mayo, R.A, Rankin, D.W.H.: Acta Chem. Scand. Ser. A **38** (1984) 579.