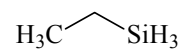


## Structure Data of Free Polyatomic Molecules

 315  
MW

 $\text{C}_2\text{H}_8\text{Si}$ 

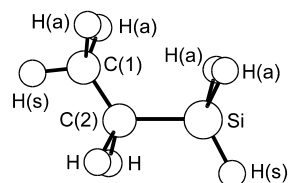
Ethylsilane

 $\text{C}_s$ 


$r_s$	Å	$\theta_s$	deg
C(2)–Si	1.869(1)	C(1)–C(2)–Si	113.00(8)
C(1)–C(2)	1.541(1)	C(1)–C(2)–H	110.20(5)
C(2)–H	1.095(1)	Si–C(2)–H	108.62(5)
Si–H(s)	1.476(3)	H–C(2)–H	105.90(5)
Si–H(a)	1.480(3)	$\delta^a$	1.48(25)
C(1)–H(s)	1.092(1)	C(2)–Si–H(s)	111.03(8)
C(1)–H(a)	1.092(1)	C(2)–Si–H(a)	109.65(5)
		H(s)–Si–H(a)	109.07(5)
		H(a)–Si–H(a)	108.30(12)
		$\gamma(\text{SiH}_3)^a$	110.12(7)
		$\theta(\text{SiH}_3)^a$	–0.92(5)
		$\beta(\text{SiH}_3)^a$	0.77(17)
		C(2)–C(1)–H(s)	111.55(13)
		C(2)–C(1)–H(a)	111.02(5)
		H(s)–C(1)–H(a)	107.92(8)
		H(a)–C(1)–H(a)	107.22(5)
		$\gamma(\text{C(1)H}_3)^a$	111.20(7)
		$\theta(\text{C(1)H}_3)^a$	–0.35(10)
		$\beta(\text{C(1)H}_3)^a$	0.70(13)
$r_0^b$	Å	$\theta_0^b$	deg
C(2)–Si	1.870(2)	C(1)–C(2)–Si	113.02(3)
C(1)–C(2)	1.538(2)	C(1)–C(2)–H	110.35(22)
C(2)–H	1.096(1)	Si–C(2)–H	108.52(13)
Si–H(s)	1.481(1)	H–C(2)–H	105.75(13)
Si–H(a)	1.480(1)	$\delta^a$	1.70(33)
C(1)–H(s)	1.099(2)	C(2)–Si–H(s)	110.87(5)
C(1)–H(a)	1.093(1)	C(2)–Si–H(a)	109.63(7)
		H(s)–Si–H(a)	109.07(15)
		H(a)–Si–H(a)	108.47(10)
		$\gamma(\text{SiH}_3)^a$	109.67(12)
		$\theta(\text{SiH}_3)^a$	–1.18(13)
		$\beta(\text{SiH}_3)^a$	1.15(18)
		C(2)–C(1)–H(s)	110.80(20)
		C(2)–C(1)–H(a)	110.93(8)
		H(s)–C(1)–H(a)	108.28(30)
		H(a)–C(1)–H(a)	107.42(18)
		$\gamma(\text{C(1)H}_3)^a$	110.88(13)
		$\theta(\text{C(1)H}_3)^a$	0.08(20)
		$\beta(\text{C(1)H}_3)^a$	0.87(50)

# Structure Data of Free Polyatomic Molecules

Atom	$a_s$ [Å]	$b_s$ [Å]	$c_s$ [Å]
C(2)	-0.59443	0.66717	0.0
Si	1.10122	-0.11852	0.0
C(1)	-1.73708	-0.36648	0.0
H(CH <sub>2</sub> )	-0.67666	1.32201	$\pm 0.87427$
H(s)(CH <sub>3</sub> )	-2.71598	0.11750	0.0
H(a)(CH <sub>3</sub> )	-1.68138	-1.01196	$\pm 0.87906$
H(s)(SiH <sub>3</sub> )	2.16106	0.90858	0.0
H(a)(SiH <sub>3</sub> )	1.25459	-0.97175	$\pm 1.19983$



- <sup>a</sup>)  $\delta = [\alpha_{in}(C(1)-C(2)-H) - \alpha_{in}(H-C(2)-Si)]/2$ ,  $\cos \alpha_{in} = \cos \alpha_i / \cos [\alpha(H-C-H)/2]$ ,  
 $\gamma = [2\alpha(C-X-H(a)) + \alpha(C-X-H(s))]/3$ ,  $\theta = 2 [\alpha(C-X-H(a)) - \alpha(C-X-H(s))]/3$ ,  
 $\beta = \alpha(H(s)-X-H(a)) - \alpha(H(a)-X-H(a))$ , X = C or Si.  
<sup>b</sup>) By a diagnostic least-squares method.

Niide, Y., Hayashi, M.: J. Mol. Spectrosc. **216** (2002) 52.

Replaces [II/25B\(3,943\)](#)