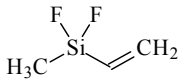
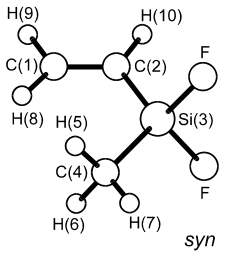
399 **$C_3H_6F_2Si$** **Ethenyldifluoro(methyl)silane** **C_s** (*syn*)
ED, *ab initio* calculations Difluoro(methyl)vinylsilane **C_1** (*gauche*)

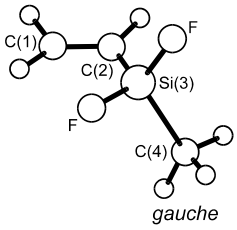


r_g	Å [a])
C=C	1.344(5)
C(2)–Si	1.846(3)
Si–C(4)	1.851(3)
C(2)–H	1.114 [b])
C(1)–H(8)	1.119 [b])
C(1)–H(9)	1.109 [b])
Si–F	1.592(2)
C(4)–H	1.140 [b])

θ_α	deg [a])
C=C–Si	123.3(8)
C–Si–C	113.4(11)
C(2)–Si–F	112.8(5)
Si–C(4)–H	111.6(34)
F–Si–F	106.0(6)
F–Si–C(4)	105.6(8)
Si–C(2)–H	118.8(8)
H–C(4)–H	107.2(37)
C=C–H(8)	122.5 [b])
C=C–H(9)	122.1 [b])
C=C–H(10)	117.9 [b])
H–C(1)–H	115.4 [b])
τ_1(C=C–Si–C)	0.0 [b])
τ_2[H–C(4)–Si–C(2)] [c])	60.0 [b])

The molecule exists as a mixture of *syn* (35(41)%) and *gauche* (65(41)%) conformers. The conformational energy difference $\Delta E° = E°(gauche) - E°(syn)$ was estimated to be 0.0(12) kcal mol^{-1}. The structural differences between corresponding bond distances and bond angles of the two conformers were assumed at the values from HF/6-311G(d) calculations. Torsional angle τ_1(C=C–Si–C) of the *gauche* conformer was found to be 117(14)°. The parameters are listed for the *syn* conformer.
The nozzle temperature was 297...298 K.





[a]) Twice the estimated standard errors including a systematic error.
[b]) Fixed in the final refinement.
[c]) $\tau_2 = 0°$ for the *syn* position.

Johansen, T.H., Hagen, K., Stølevik, R., Hassler, K.: J. Phys. Chem. A **101** (1997) 3580.