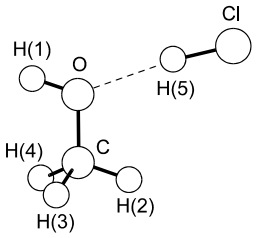
135 **CH_5ClO** **Methanol – hydrogen chloride (1/1)** **C_s**
MW (weakly bound complex) (effective symmetry class)
(large-amplitude motion)
$CH_3OH \cdot HCl$

r_0	Å	θ_0	deg
O...Cl	3.13(10)	C–O...H(5)	116(5)
R_{cm} [a])	3.44(2)	O...H(5)–Cl	172(5)

Atom	a_0	b_0	c_0
H(1)	1.962	–1.377	0.0
O	1.400	–0.618	0.0
C	2.217	0.550	0.0
H(2)	1.543	1.412	0.0
H(3)	2.853	0.604	0.888
H(4)	2.853	0.604	–0.888
Cl	–1.654	0.067	0.0
H(5)	–0.430	–0.322	0.0



An apparently low barrier (74 cm^{-1}) of the CH_3 internal rotation is ascribed to a large-amplitude wagging motion of the hydroxyl hydrogen. Assuming that the methyl group torsional barrier does not change upon complexation (*i.e.*, 373 cm^{-1}), an estimate for the hydroxyl torsional barrier of 155(5) cm^{-1} was obtained.

[a]) Uncertainty was not estimated in the original paper.

Tan, X.-Q., Ioannou, I.I., Kuczkowski, R.L.: J. Mol. Struct. **356** (1995) 105.

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