

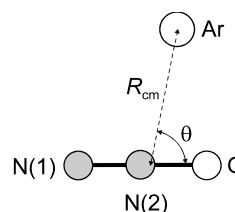
Structure Data of Free Polyatomic Molecules

35	ArN₂O	Argon – dinitrogen monoxide (1/1)	C_s
MW		(weakly bound complex)	(effective symmetry class)
			(large-amplitude motion)
			Ar · N ₂ O

r_0	Å ^{a)}	θ_0	deg ^{a)}
R_{cm}	3.465(5)	$\theta^{\text{b)}}$	82.6(3)
O...Ar	3.501(5)	O=N(2)...Ar	81.4(3)
N(1)...Ar	3.811(5)		
N(2)...Ar	3.475(5)		

r_z	Å ^{a)}	θ_z	deg ^{a)}
R_{cm}	3.473(5)	$\theta^{\text{b)}}$	84.0(3)
O...Ar	3.519(5)	O=N(2)...Ar	81.9(3)
N(1)...Ar	3.809(5)		
N(2)...Ar	3.483(5)		

r_s	Å ^{a)}	θ_s	deg ^{a)}
O...Ar	3.501(5)	O=N(2)...Ar	84.6(3)
N(1)...Ar	3.819(5)		
N(2)...Ar	3.499(5)		



^{a)} Uncertainties were not estimated in the original paper.

^{b)} Angle between R_{cm} and the N₂O molecular axis, see figure for the definition.

Ngari, M.S., Jäger, W.: J. Mol. Spectrosc. **192** (1998) 452.

See also: Leung, H.O., Gangwani, D., Grabow, J.-U.: J. Mol. Spectrosc. **184** (1997) 106.

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State	R_{cm} [Å] ^{a)}	θ [deg] ^{a)}	Reference
$\nu=0$	3.46911(3)	82.915(9)	[1]
$\nu_1=1$	3.47(2)	82.92(1)	[2]
$\nu_2=1$	3.46(2)	82.9(7)	[3]
$\nu_3=1$	3.47167(4)	82.924(9)	[1]
$\nu_1=\nu_3=1$	3.58(3)	77.29(5)	[2]

The structures were determined from the rovibrational spectra [1-3].

The geometries of the monomer subunits were assumed to be unchanged upon complexation.

^{a)} Uncertainties were unidentified.

[1] Herrebout, W.A., Qian, H.-B., Yamaguchi, H., Howard, B.J.: J. Mol. Spectrosc. **189** (1998) 235.

[2] Hu, T.A., Chappell, E.L., Sharpe, S.W.: J. Chem. Phys. **98** (1993) 6162.

[3] Gimmler, G., Havenith, M.: J. Mol. Struct. **599** (2001) 117.

[II/25A\(2, 38\)](#)