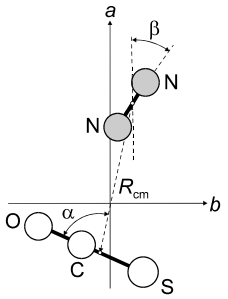
153 **CN_2OS** **Carbonyl sulfide – dinitrogen (1/1)** **C_s**
MW (weakly bound complex) (effective symmetry class)
(large-amplitude motion)
$O{=}C{=}S \cdot N_2$

r_0	Å [a])
R_{cm}	3.9771(50) [b])
	3.9816(50) [c])

θ_0	deg [a])
β [d])	28.04(50) [b])
	27.64(50) [c])
α [d])	69.68(50) [b])
	69.71(50) [c])



The nitrogen nuclei are effectively equivalent due to rotation of the nitrogen molecule. The resulting symmetric and antisymmetric combined nuclear spin and tunneling states are associated with slightly different rotational and hyperfine parameters. The quadrupole coupling constants of the two tunneling symmetry states have been used to model the angular tunneling potential, giving a barrier to rotation of 40.44 cm^{-1} and a tunneling frequency of 2450.0 GHz.

[a]) Uncertainties were not estimated in the original paper.
[b]) Effective values for the symmetric state.
[c]) Effective values for the antisymmetric state.
[d]) See figure for the definition.

Connelly, J.P., Duxon, S.P., Kennedy, S.K., Howard, B.J., Muenter, J.S.: J. Mol. Spectrosc. **175** (1996) 85.