

308 **N₂O₃S** **Dinitrogen monoxide – sulfur dioxide (1/1)** **C_s**
 MW (weakly bound complex) (effective symmetry class)
 (large-amplitude motion)
 N₂O · SO₂

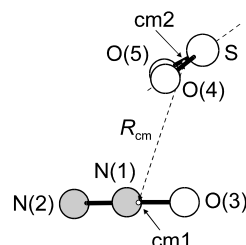
r_0		Å			
		I ^{a)}	II ^{a)}	III ^{a)}	IV ^{a)}
R_{cm}		3.3306(6)	3.3306(6)	3.3306(7)	3.3306(7)
θ_0		deg			
		I ^{a)}	II ^{a)}	III ^{a)}	IV ^{a)}
cm2...cm1–N(2) ^{b)}		111.2(10)	111.1(10)	111.6(12)	111.7(12)
S...cm2...cm1 ^{b)}		156.6(51)	156.9(49)	161.3(54)	160.3(58)
S...cm2...cm1–N(2) ^{c)}		–158.3(57)	153.2(66)	–26.2(96)	–30.0(99)
O–S...cm2...cm1 ^{c)}		–115.0(59)	–65.2(57)	–119.5(97)	–119.1(87)
Atoms	Coordinates [Å]	I ^{a)}	II ^{a)}	III ^{a)}	IV ^{a)}
N(1)	a_0	–1.9989	–1.9989	–2.0000	–2.0002
	b_0	0.0438	–0.0612	0.0536	0.0478
	c_0	0.0609	0.0482	0.0137	0.0230
N(2)	a_0	–2.4693	–2.4702	–2.4606	–2.4603
	b_0	0.2235	0.1061	–0.0716	0.2069
	c_0	–0.9484	–0.9635	–1.0083	–0.9945
O(3)	a_0	–1.5047	–1.5033	–1.5161	–1.5168
	b_0	–0.1449	–0.2322	0.1851	–0.1194
	c_0	1.1213	1.1110	1.0874	1.0920
cm1	a_0	–1.9690	–1.9687	–1.9707	–1.9709
	b_0	0.0324	–0.0715	0.0615	0.0376
	c_0	0.1252	0.1126	0.0788	0.0878
cm2	a_0	1.3545	1.3543	1.3557	1.3558
	b_0	–0.0223	0.0492	–0.0423	–0.0259
	c_0	–0.0861	–0.0774	–0.0542	–0.0604
S	a_0	1.6922	1.6923	1.6917	1.6898
	b_0	–0.1018	0.1028	–0.1174	–0.0775
	c_0	0.0153	0.0388	–0.1641	–0.1885
O(4)	a_0	1.2540	0.7776	1.2478	1.2528
	b_0	1.2596	1.1994	1.2399	1.2337
	c_0	–0.0335	–0.0538	–0.0716	0.1823
O(5)	a_0	0.7801	1.2554	0.7919	0.7913
	b_0	–1.1452	–1.2081	–1.1746	–1.1823
	c_0	–0.3414	–0.3334	0.1830	–0.0469

The complex lacks a symmetry plane. A tunneling motion splits the transitions into doublets. This is attributed to an interconversion between mirror-image conformations in which the oxygen atoms on the SO₂ are inequivalent.

^{a)} Four possible structures.

^{b)} cm1 and cm2 are the centers of mass of N₂O and SO₂, respectively; see figure.

^{c)} Dihedral angle.



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