

substance: MoO₃

property: phonon wavenumbers

infrared and Raman active phonon wavenumbers

at RT (in cm⁻¹): (first, second and third column according to [69M], [71B] and [79B], respectively)

(ν/c) _{IR}	193			a _u [2]	the numbers in brackets refer to the position of the O-ion, δ are deformation modes, ν are stretching modes
	229			b _u [1]	
	285	270	δ(O, MoO ₃)	a _u [1]	
	352	351		b _u [3]	
	362, 377	371	δ(O, MoO ₃)	b _u [2]	
	485	505	490	b _u [3]	
	570	545	565	v(MoO ₃)	
	821,870	840	820,860	v(MoO ₂ , -O ₃)	
	996	1004	986,1000	v(MoO ₁)	
(ν/c) _R		84,101		a _g [all 3]	
	116	118,130		b _g [all 3]	
	158	160		a _g [all 3']	
	196	200		b _g [2]	
	220	218		a _g [1]	
	248	248		b _g [2]	
	285	286, 294	b _g (δO, MoO ₃)	b _g [1]	
	340	338		a _g [3]	
	363	367	a _g (δO, MoO ₃)	a _g [1,2]	
	378	382	370	a _g (δO, MoO ₃)	a _g [1,2]
	474	473	474	a _g [3]	
	665	668	668	b _g (νMoO ₃)	Mo – O – Mo chains
	807	820	822	a _g (νMoO ₂)	ν(Mo – O ₂)
	992	997	998	a _g (νMoO ₁)	ν(Mo – O ₁)

References:

- 69M Mattes, R., Schröder, F.: Z. Naturforsch. 24B (1969) 1095.
71B Beattie, I. R., Cheetham, N., Gardner, M., Rogers, D. E.: J. Chem. Soc. A 1971, 2240.
79B Bart, J. C. J., Cariati, F., Sgiamdotti, A.: Inorg. Chim. Acta 36 (1979) 105.