Forsterite, Mg_2SiO_4

Forsterite
Kirfel A, Lippmann T, Blaha P, Schwarz K, Cox D F, Rosso K M, Gibbs G V
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Electron density distribution and bond critical point properties for forsterite, Mg2 SiO4, determined with synchrotron single crystal X-ray diffraction data
4.752 10.192 5.978 90 90 90 Pbnm

atom	x	y	z	Wyckoff
Mg1	0	0	0	4a
Mg2	0.50846	0.77742	0.25	4c
Si	0.07353	0.59403	0.25	4c
O1	0.73408	0.59155	0.25	4c
O2	0.22160	0.44704	0.25	4c
O3	0.22253	0.66316	0.46697	8d

$(1 \times 8d) + (4 \times 4c) + (1 \times 4a)$

Raman Active Modes

WP	A_g	A_u	B_{1g}	B_{1u}	B_{2g}	B_{2u}	B_{3g}	B_{3u}
8d	3	·	3	·	3	·	3	·
4c	2	·	1	·	2	·	1	·
4a	·	·	·	·	·	·	·	·

Total number of modes:
$11A_g + 7B_{1g} + 11B_{2g} + 7B_{3g} = 36$