

Sulfur Molecule Cheatsheet (by Oxidation State)

Molecule	Bonds (central S)	Lone pairs (central S)	Ox. number	Formal charge (S)	Overall charge	How charge arises	Comments
H₂S (hydrogen sulfide)	2 S-H	2	-2	0	0	—	Analog of NH ₃ , smelly gas
SO₃²⁻ (sulfite)	3 S-O (~1 double, 2 single, 1 resonance)	1	+4	+1	-2	2 extra e ⁻ on O's	Resonance, pyramidal
SO₄²⁻ (sulfate)	4 S-O (~all equivalent, resonance)	0	+6	+2	-2	2 extra e ⁻ on O's	Tetrahedral, fully oxidised
S⁰ (elemental sulfur, S ₈)	S-S rings	2	0	0	0	—	Stable ring allotrope