

A table of systematic mineralogy III: redox pairs

Minerals consisting of uncharged atoms (i.e., in elemental state)	Minerals consisting of cations bonded to single anions (no radical groups or complex ions)	Minerals consisting of cations bonded to negatively-charged radical groups (i.e., to complex ions like CO ₃ ²⁻ or AsS ₃ ²⁻)	
Native elements Sulfur (S) Diamond (C) Copper (Cu)	Fluorides Fluorite (CaF ₂) Chlorides Halite (NaCl) Bromides Bromargyrite (AgBr) Iodides Iodargyrite (AgI)	Fluoborates Ferrucite (NaBF ₄) Hieratite (K ₂ SiF ₆) Indifferent minerals	
	Halides ("Group VII -ides") (and thus minerals with 1- anions)	Fluosalts: Oxysalts: <ul style="list-style-type: none"> Silicates Borates Carbonates Nitrates Phosphates Sulfates 	Vanadates Chromates Niobates Molybdates Tantalates Tungstates Calcite (CaCO ₃) Arsenates Selenates Antimonates Tellurates Iodates Sulfites Arsenites Selenites Antimonites Tellurites
	Oxides Hematite (Fe ₂ O ₃) Oxidized minerals	Sulfosalts: <ul style="list-style-type: none"> Sulfarsenates Sulfogermanates Sulfantimonates Sulfestannates 	Intermediate redox states Pyrrargyrite (Ag ₃ SbS ₃) Sulfobismuthites Permingeaitite (Cu ₃ SbS ₄) Volynskite Intermediate-reduced redox states (Ag ₅ Te ₂)
	"Group VI -ides" (and thus minerals with 2- anions)	Sulfides Galena (PbS) Selenides Achavalite (FeSe) Tellurides Altaite (PbTe)	Selenosalts: Selenioantimonates Seleniobismuthites Tellurosals: Telluribismuthites
"Group V -ides" (and thus minerals with 3- anions)	Nitrides Osbornite (TiN) Phosphides Barringerite (Fe,Ni ₂ P) Arsenides Löllingite (FeAs ₂) Antimonides & Bismuthides Sobolevskite (PdBi)	Negative charge in mineral comes from anions of Group VI elements	
"Group IV -ides" (and thus minerals with 4- anions)	Carbides Moissanite (SiC) Silicides Gupeiite (Fe ₃ Si)	Negative charge in mineral comes from anions of Group IV and V elements Maxximally reduced minerals Reduced extreme Oxidized extreme	

This table focuses only on the redox state of the anions in minerals. Some minerals have cations whose redox state is the opposite that of the anion (e.g., ferroxahydrate Fe²⁺SO₄·6H₂O, greigite Fe³⁺Fe₂S₄ and gwinabaite (N⁵⁺H₄.K)N³⁻O₃).