

Appendix 2

Mineral	Chemical formula
Pyrite	FeS_2
Arsenopyrite	$(\text{Fe}_{0.99-1.00}\text{Cu}_{0.00-0.01})_{\Sigma=1.00}\text{As}_{0.97-0.99}\text{S}_{0.99-1.01}$
Sphalerite I	$(\text{Zn}_{0.83-0.96}\text{Fe}_{0.02-0.08}\text{Cu}_{0.02-0.08})_{\Sigma=0.99-1.00}\text{S}_{0.98-1.03}$
Sphalerite II	$(\text{Zn}_{0.94-1.00}\text{Cd}_{0.00-0.03}\text{Fe}_{0.00-0.02}\text{Cu}_{0.00-0.01})_{\Sigma=1.00}\text{S}_{0.96-1.02}$
Chalcopyrite I	$(\text{Cu}_{0.98-1.04}\text{Fe}_{0.96-1.01}\text{Co}_{0.00-0.01})_{\Sigma=2.00}\text{S}_{1.95-2.03}$
Chalcopyrite II	$(\text{Cu}_{1.00-1.01}\text{Fe}_{0.99-1.00})_{\Sigma=2.00}\text{S}_{1.98-1.99}$
Bi-rich tennantite-(Zn) to <i>annivite</i> -(Zn)	$(\text{Cu}_{10.01}\text{Ag}_{0.03}\text{Zn}_{1.54}\text{Fe}_{0.42})_{\Sigma=12.00}(\text{Sb}_{0.17}\text{As}_{2.40}\text{Bi}_{1.43})_{\Sigma=4.00}\text{S}_{12.88}$
Tetrahedrite-(Zn)	$(\text{Cu}_{10.01}\text{Ag}_{0.02}\text{Zn}_{1.70}\text{Fe}_{0.27})_{\Sigma=12.00}(\text{Sb}_{3.25}\text{As}_{0.66}\text{Bi}_{0.09})_{\Sigma=4.00}\text{S}_{12.66}$
Tetrahedrite-(Fe)	$(\text{Cu}_{9.91}\text{Ag}_{0.02}\text{Fe}_{1.19}\text{Zn}_{0.88})_{\Sigma=12.00}(\text{Sb}_{2.15}\text{As}_{1.85})_{\Sigma=4.00}\text{S}_{13.94}$
Tennantite-(Zn)	$(\text{Cu}_{10.04}\text{Ag}_{0.01}\text{Zn}_{1.34}\text{Fe}_{0.61})_{\Sigma=12.00}(\text{Sb}_{0.18}\text{As}_{3.45}\text{Bi}_{0.37})_{\Sigma=4.00}\text{S}_{12.86}$
Tennantite-(Fe)	$(\text{Cu}_{10.06}\text{Ag}_{0.01}\text{Fe}_{1.15}\text{Zn}_{0.78})_{\Sigma=12.00}(\text{Sb}_{0.17}\text{As}_{3.77}\text{Bi}_{0.06})_{\Sigma=4.00}\text{S}_{12.91}$
Bornite I	$\text{Cu}_{4.80-4.89}\text{Fe}_{1.09-1.20}\text{Zn}_{0.00-0.02}\text{S}_{4.15-4.30}$
Bornite II	$\text{Cu}_{4.91-5.05}\text{Fe}_{0.95-1.03}\text{Ag}_{0.00-0.04}\text{Bi}_{0.00-0.02}\text{S}_{3.81-4.06}$
Chalcocite	$(\text{Cu}_{1.99-2.00}\text{Fe}_{0.00-0.02}\text{Ag}_{0.00-0.01})_{\Sigma=2.00}\text{S}_{1.00-1.01}$
Betekhtinite	$(\text{Cu}_{9.6-9.76}\text{Pb}_{0.73-0.83}\text{Fe}_{0.41-0.44})_{\Sigma=10.90}\text{S}_{6.20-6.40}$
Wittichenite	$(\text{Cu}_{2.98-3.04}\text{Bi}_{0.93-0.96}\text{Pb}_{0.00-0.06}\text{Ag}_{0.00-0.03})_{\Sigma=4.00}(\text{S}_{2.86-2.94}\text{Se}_{0.00-0.04})_{\Sigma=2.90-2.94}$
Galena I	$(\text{Pb}_{0.90-0.99}\text{Bi}_{0.00-0.05}\text{Cu}_{0.00-0.03}\text{Fe}_{0.00-0.02}\text{Zn}_{0.00-0.01})_{\Sigma=1.00}\text{S}_{0.98-1.01}$
Galena II	$(\text{Pb}_{0.96-1.00}\text{Ag}_{0.00-0.04})_{\Sigma=1.00}(\text{S}_{0.96-1.00}\text{Se}_{0.00-0.02})_{\Sigma=0.98-1.00}$
Mawsonite I	$(\text{Cu}_{5.90-6.04}\text{Fe}_{1.93-2.06}\text{Sn}_{1.00-1.03}\text{Zn}_{0.00-0.03})_{\Sigma=9.00-9.02}\text{S}_{7.74-8.07}$
Mawsonite II	$(\text{Cu}_{5.80-6.09}\text{Fe}_{1.93-2.16}\text{Sn}_{0.95-1.04}\text{Ag}_{0.00-0.03})_{\Sigma=9.00}\text{S}_{7.49-8.12}$
Stannoidite I	$(\text{Cu}_{7.72-7.91}\text{Fe}_{2.50-2.70}\text{Sn}_{1.79-2.06}\text{Zn}_{0.53-0.79})_{\Sigma=13.00}\text{S}_{11.67-12.11}$
Stannoidite II	$(\text{Cu}_{7.97-8.20}\text{Fe}_{2.16-2.22}\text{Sn}_{1.93-1.99}\text{Zn}_{0.71-0.82})_{\Sigma=13.00}\text{S}_{11.26-11.59}$
Hessite	$(\text{Ag}_{1.99-2.00}\text{Sb}_{0.00-0.01})_{\Sigma=2.00}(\text{Te}_{0.99-1.00}\text{Se}_{0.00-0.01})_{\Sigma=1.00}$
Cervelleite	$\text{Ag}_{4.00}\text{Te}_{1.02}\text{S}_{0.95}$
Stromeyerite	$(\text{Ag}_{0.96-0.97}\text{Cu}_{1.02-1.04}\text{Fe}_{0.00-0.01})_{\Sigma=2.00}\text{S}_{0.97-1.03}$
Acanthite	$(\text{Ag}_{1.98-1.99}\text{Cu}_{0.00-0.02}\text{Fe}_{0.00-0.01})_{\Sigma=1.99-2.00}\text{S}_{1.04-1.32}$
Mckinstryite	$(\text{Ag}_{1.19}\text{Cu}_{0.78}\text{Fe}_{0.03})_{\Sigma=2.00}\text{S}_{1.00}$
Proustite	$(\text{Ag}_{2.93-2.95}\text{Cu}_{0.00-0.07}\text{Zn}_{0.00-0.02}\text{Fe}_{0.00-0.02}\text{Cd}_{0.00-0.01})_{\Sigma=3.00}\text{As}_{0.90-0.95}\text{S}_{2.73-2.94}$
Selenojalpaite	$(\text{Ag}_{2.72-3.02}\text{Cu}_{0.87-1.12}\text{Fe}_{0.07-0.16}\text{Bi}_{0.00-0.02}\text{Pb}_{0.00-0.02})_{\Sigma=4.00}\text{Se}_{2.80-2.87}\text{S}_{0.37-0.45}$
Naumannite	$(\text{Ag}_{1.99-2.00}\text{Cu}_{0.00-0.01})_{\Sigma=2.00}\text{Se}_{0.99-1.01}$
Löllingite	$(\text{Fe}_{0.90-0.99}\text{Cu}_{0.00-0.06}\text{Co}_{0.00-0.02}\text{Bi}_{0.00-0.02}\text{Ni}_{0.00-0.01})_{\Sigma=1.00}(\text{As}_{1.64-1.94}\text{S}_{0.02-0.30})_{\Sigma=1.94-1.96}$
Cubanite	$\text{Cu}_{0.98-1.04}\text{Fe}_{1.96-2.02}\text{S}_{2.91-2.96}$
Clausthalite	$(\text{Pb}_{0.84-0.94}\text{Cu}_{0.04-0.09}\text{Fe}_{0.00-0.05}\text{Bi}_{0.00-0.02}\text{Ag}_{0.00-0.02})_{\Sigma=1.00}(\text{Se}_{0.59-0.80}\text{S}_{0.26-0.40})_{\Sigma=0.97-0.99}$