

Supplementary Materials: Charge Distribution and Bond Valence Sum Analysis of Sulfosalts. The ECoN21 computer program.

Gheorghe Ilinca

Table S1. Crystal Structures Used for Figure 12.

	Mineral	Structure-derived Formula	Space Group	Reference
1	Aikinite	PbCuBiS ₃	<i>P n m a</i>	ICSD-0009395
2	Andorite–VI	PbAgSb ₃ S ₆	<i>P n 2₁ a</i>	ICSD-65132
3	Andorite–VI	PbAgSb ₃ S ₆	<i>P n a 2₁</i>	Topa, D. – PC
4	Aramayoite	Ag _{0.83} Bi _{0.33} S ₂ Sb _{0.625}	<i>P 1</i>	ICSD-8165
5	Aramayoite	Ag ₃ BiSb ₂ S ₆	<i>P –1</i>	ICSD-94646
6	Argentobaumhauerite	Cu _{0.06} Ag _{1.20} As _{32.28} Tl _{0.18} Pb _{21.46} Sb _{0.56} S ₇₂	<i>P –1</i>	[41]
7	Argentoliveingite	Ag _{3.50} As _{51.50} Pb ₃₃ S ₁₁₂	<i>P –1</i>	[16]
8	Arsiccioite	Ag _{0.88} Hg _{1.91} TlAs _{1.58} Cu _{0.13} Sb _{0.42} Zn _{0.08} S ₆	<i>I –4 2 m</i>	ICSD-5319
9	Aschamalmite	Pb _{5.9} Bi _{2.082} S ₉	<i>C 1 2/m 1</i>	ICSD-166294
10	Barikaite	Ag ₃ Pb _{9.736} As _{11.59} Sb _{7.668} S ₄₀	<i>P 1 2₁/n 1</i>	ICSD-291507
11	Baumhauerite	Pb _{11.62} As _{16.6} S ₃₆	<i>P 1</i>	COD-9008167
12	Baumhauerite	As ₉ Pb ₅ S ₁₈	<i>P –1</i>	COD-9011046
13	Baumstarkite	Ag ₃ As _{0.04} Bi _{0.026} Sb _{2.934} S ₆	<i>P –1</i>	ICSD-94645
14	Benjaminite	Cu _{0.5} Pb _{0.4} Ag _{2.3} Bi _{6.8} S ₁₂	<i>C 1 2/m 1</i>	ICSD-41752
15	Benjaminite (unsubstituted)	Ag ₃ Bi ₇ S ₁₂	<i>C 1 2/m 1</i>	ICSD-100734
16	Bernardite	TlAs ₅ S ₈	<i>P 1 2₁/c 1</i>	ICSD-63481
17	Bernarlottiite	Pb _{11.93} As ₁₀ Sb _{6.07} S ₃₆	<i>P –1</i>	ICSD-230065
18	Berryite	Cu ₃ Ag ₂ Pb ₃ Bi ₇ S ₁₆	<i>P 1 2₁/m 1</i>	ICSD-156649
19	Berryite	Cu ₃ Ag ₂ Pb ₃ Bi ₇ S ₁₆	<i>P 2₁ m a</i>	ICSD-8757
20	Berthierite	FeS ₄ Sb ₂	<i>P n a m</i>	ICSD-56378-79675
21	Bismuthinite	Bi ₂ S ₃	<i>P b n m</i>	ICSD-30775
22	Bismuthinite	Bi ₂ S ₃	<i>P n m a</i>	AMCSD-0003562
23	Bohdanowiczite	AgBiSe ₂	<i>P –3 m 1</i>	ICSD-604856
24	Boscardinite	Tl _{1.23} Pb _{2.956} Ag _{0.29} As _{1.73} Sb _{7.794} S ₁₈	<i>P –1</i>	ICSD-185799
25	Boscardinite, (Tl,As)–enriched	Tl _{1.51} Pb _{2.1} Ag _{0.4} As _{2.86} Sb _{7.13} S ₁₈	<i>P –1</i>	ICSD-259026
26	Boulangerite	Pb ₅ Sb ₄ S ₁₁	<i>P 1 2₁/a 1</i>	ICSD-68663
27	Bournonite	CuPbSbS ₃	<i>P n 2₁ m</i>	ICSD-14303
28	Bournonite	CuPbSbS ₃	<i>P n 2₁ m</i>	ICSD-182267
29	Cannizzarite	Pb _{3.792} Cd _{0.812} In _{0.208} Bi _{6.188} S _{13.539} Se _{0.461}	<i>P 1 2₁/m 1</i>	ICSD-185805
30	Cannizzarite	Pb ₂₅ Bi ₂₇ S _{62.39} Se _{3.61}	<i>P 1 2₁/m 1</i>	COD-9015362
31	Cannizzarite	Pb ₄₆ Bi ₅₄ S ₁₂₇	<i>P 1 2₁/m 1</i>	ICSD-49716
32	Carducciite	Ag _{1.05} Pb _{5.84} Sb _{4.48} As _{4.63} S ₂₀	<i>P 1 2₁/c 1</i>	ICSD-239831
33	Chabourneite	Tl _{16.85} Pb _{6.13} As _{39.51} Sb _{41.51} S ₁₃₆	<i>P 1</i>	ICSD-242231
34	Chalcostibite	CuSbS ₂	<i>P n m a</i>	AMCSD-0010509
35	Chovanite	Pb _{13.43} Sb _{15.57} S ₃₆ O _{0.18}	<i>C 1 2/m 1</i>	ICSD-186039
36	Clino-oskarkempffite	Ag ₁₅ Pb ₆ Sb ₂₁ Bi ₁₈ S ₇₂	<i>P 2₁ / c</i>	[42]
37	Cosalite	Cu _{0.044} Ag _{0.02} Pb _{1.48} Sb _{0.149} Bi _{2.3} S ₅	<i>P n m a</i>	ICSD-760258
38	Cosalite	Cu _{0.36} Ag _{0.06} Pb _{7.8} Bi _{8.02} S ₂₀	<i>P n m a</i>	ICSD-169943
39	Cosalite	Cu _{1.14} Ag _{0.12} Pb _{7.38} Bi _{7.97} S ₂₀	<i>P n m a</i>	ICSD-169944
40	Cosalite	Cu _{0.12} Ag _{0.26} Pb _{7.6} Bi _{8.16} S ₂₀	<i>P n m a</i>	ICSD-169945
41	Cosalite	Cu _{0.92} Ag _{0.46} Pb _{7.12} Bi _{8.14} S ₂₀	<i>P n m a</i>	ICSD-169947

42	Cosalite	$\text{Cu}_{0.38}\text{Ag}_{0.86}\text{Pb}_{6.63}\text{Bi}_{8.49}\text{Sb}_{0.89}\text{S}_{20}$	$P n m a$	ICSD-169948
43	Cosalite	$\text{Cu}_{0.96}\text{Ag}_{1.11}\text{Pb}_{6.87}\text{Bi}_{8.06}\text{S}_{20}$	$P n m a$	ICSD-169946
44	Crookesite	$\text{TiCu}_{6.52}\text{Se}_4$	$I 4/m$	ICSD-69106
45	Cupromakopavonite	$\text{Cu}_4\text{Ag}_{1.621}\text{Pb}_2\text{Bi}_{9.379}\text{S}_{19}$	$C 1 2/m 1$	ICSD-185802
46	Cupromakovickyite	$\text{Cu}_8\text{Ag}_{2.08}\text{Pb}_4\text{Bi}_{17.92}\text{S}_{36}$	$C 1 2/m 1$	ICSD-160421
47	Cupronyite	$\text{Cu}_{3.5}\text{Ag}_{0.44}\text{Pb}_{12.27}\text{Bi}_{13.19}\text{S}_{34}$	$C 1 2/m 1$	ICSD-185803
48	Cupropavonite (5,5P)	$\text{AgCu}_2\text{PbBi}_5\text{S}_{10}$	$C 1 2/m 1$	ICSD-259055-259056
49	Dadsonite	$\text{Pb}_{10.6}\text{Sb}_{13.4}\text{S}_{30}\text{Cl}_{0.5}$	$P -1$	ICSD-156239-156240
50	Dantopaite	$\text{Ag}_{2.1}\text{Cu}_{1.1}\text{Pb}_{0.9}\text{Bi}_{14.38}\text{S}_{22}$	$C 1 2/m 1$	ICSD-169962
51	Dekatriasartorite	$\text{TiPb}_{58}\text{As}_{97}\text{S}_{204}$	$P 2_1/c$	Topa, D. – PC
52	Dufrenoyite	$\text{Pb}_8\text{As}_8\text{S}_{20}$	$P 1 2_1 1$	ICSD-27301
53	Eclarite	$\text{Cu}_{0.81}\text{Fe}_{0.48}\text{Pb}_{8.14}\text{Bi}_{12.59}\text{S}_{28}$	$P m c n$	ICSD-185804
54	Eclarite	$\text{Cu}_{0.5}\text{Fe}_{0.5}\text{Pb}_9\text{Bi}_{12}\text{S}_{28}$	$P n m a$	ICSD-31382
55	Enneasartorite	$\text{Ti}_{1.50}\text{Pb}_8\text{As}_{17.50}\text{S}_{35}$	$P 2_1/c$	[43]
56	Freibergite	$\text{Ag}_{1.4}\text{Cu}_{10.6}\text{Sb}_4\text{S}_{13}$	$I -4 3 m$	ICSD-23644
57	Freibergite	$\text{Ag}_{4.32}\text{Cu}_6\text{Fe}_{1.68}\text{Sb}_4\text{S}_{13}$	$I -4 3 m$	ICSD-62115
58	Freieslebenite	PbAgSbS_3	$P 1 2_1/a 1$	ICSD-24257
59	Freieslebenite	PbAgSbS_3	$P 1 2_1/a 1$	ICSD-8166
60	Friedrichite	$\text{Cu}_{1.5}\text{Pb}_{1.5}\text{Bi}_2\text{S}_6$	$P b 21 m$	ICSD-107612
61	Fülöppite	$\text{Pb}_3\text{Sb}_8\text{S}_{15}$	$C 1 2/c 1$	ICSD-8168-41849
62	Galenobismutite	$\text{Pb}_{1.15}\text{Bi}_{1.82}\text{S}_{3.584}\text{Se}_{0.262}\text{Cl}_{0.156}$	$P n a m$	ICSD-156647-156648
63	Galenobismutite	$\text{PbBi}_2\text{S}_{3.87}\text{Se}_{0.13}$	$P n a m$	ICSD-156634
64	Galenobismutite	PbBi_2S_4	$P n a m$	ICSD-23905
65	Galenobismutite	PbBi_2S_4	$P n m a$	ICSD-167007
66	Galenobismutite	PbBi_2S_4	$P n m a$	ICSD-31859
67	Geocronite	$\text{Pb}_{28}\text{As}_5\text{Sb}_7\text{S}_{46}$	$P 1 21/m 1$	ICSD-41808
68	Gladite	$\text{PbCuBi}_5\text{S}_9$	$P b n m$	ICSD-167
69	Gladite	$\text{CuPbBi}_5\text{S}_9$	$P b n m$	ICSD-41971
70	Gladite	$\text{Cu}_{1.63}\text{Pb}_{1.63}\text{Bi}_{6.37}\text{S}_{12}$	$P m c n$	ICSD-95923
71	Gladite	$\text{Cu}_{1.33}\text{Pb}_{1.33}\text{Bi}_{6.67}\text{S}_{12}$	$P m c n$	ICSD-95924
72	Gustavite	$\text{PbAg}_{0.99}\text{Bi}_{2.9}\text{Sb}_{0.11}\text{S}_6$	$P 1 2_1/c 1$	ICSD-183561
73	Gustavite – Sb-rich	$\text{AgPbBi}_{1.998}\text{Sb}_{0.911}\text{S}_6$	$P 1 2_1/c 1$	ICSD-260613
74	Hammarite	$\text{Cu}_2\text{Pb}_2\text{Bi}_4\text{S}_9$	$P b n m$	ICSD-60156
75	Hendekasartorite	$\text{Ti}_2\text{Pb}_{48}\text{As}_{82}\text{S}_{172}$	$P 2_1/c$	[44]
76	Heptasartorite	$\text{Ti}_7\text{Pb}_{21.10}\text{As}_{55.70}\text{S}_{108}$	$P 2_1/c$	[43]
77	Heyrovskyite	$\text{Ag}_{1.31}\text{Pb}_{3.37}\text{Bi}_{3.32}\text{S}_9$	$C m c m$	ICSD-69962
78	Heyrovskyite	$\text{Pb}_6\text{Bi}_2\text{S}_9$	$B b m m$	COD-9012885
79	Heyrovskyite	$\text{Pb}_6\text{Bi}_2\text{S}_9$	$C m c m$	ICSD-186916
80	Heyrovskyite (Ag-free)	$\text{Pb}_{5.82}\text{Bi}_{2.12}\text{S}_{8.7}\text{Se}_{0.3}$	$B b m m$	ICSD-181335
81	Hodrushite	$\text{Cu}_{7.8}\text{Ag}_{0.42}\text{Bi}_{11.58}\text{S}_{22}$	$C 1 2/m 1$	ICSD-55313
82	Hodrushite (Cu-rich)	$\text{Cu}_{8.5}\text{Bi}_{11.75}\text{S}_{22}$	$C 1 2/m 1$	ICSD-55314
83	Hutchinsonite	$\text{TiPbAs}_{4.782}\text{Sb}_{0.218}\text{S}_9$	$P b c a$	ICSD-74765
84	Hutchinsonite	$\text{TiPbAs}_5\text{S}_9$	$P b c a$	ICSD-26785
85	Incomsartorite	$\text{Pb}_{1.13}\text{As}_{1.87}\text{S}_{3.97}$	$P 2_1/n$	[17]
86	Izoklakeite	$\text{Pb}_{51.3}\text{Sb}_{20.4}\text{Bi}_{19.5}\text{Ag}_{1.2}\text{Cu}_{2.9}\text{Fe}_{0.7}\text{S}_{114}$	$P n n m$	ICSD-30976
87	Izoklakeite	$\text{Pb}_{55.4}\text{Cu}_{2.6}\text{Fe}_{1.4}\text{Bi}_{23.1}\text{Sb}_{13.6}\text{S}_{114}$	$P n n m$	ICSD-202309
88	Jamesonite	$\text{FePb}_4\text{Sb}_6\text{S}_{14}$	$P 1 2_1/a 1$	ICSD-24256
89	Jamesonite	$\text{FePb}_4\text{Sb}_6\text{S}_{14}$	$P 1 2_1/c 1$	ICSD-98580
90	Jankovicite	$\text{Ti}_5\text{As}_{2.933}\text{Sb}_{10.067}\text{S}_{22}$	$P -1$	ICSD-79846
91	Jaskolskiite	$\text{Cu}_{0.16}\text{Pb}_{1.65}\text{Bi}_{1.04}\text{Sb}_{1.31}\text{S}_5$	$P b n m$	ICSD-30972
92	Jasrouxite	$\text{Pb}_{3.85}\text{Ag}_{19.09}\text{As}_{15.49}\text{Sb}_{21.57}\text{S}_{72}$	$P -1$	ICSD-190968

903	Jordanite	Pb ₂₈ As ₁₂ S ₄₆	<i>P</i> 1 2 ₁ / <i>m</i> 1	ICSD-8167
94	Jordanite	As _{3.5} Pb _{6.5} S _{11.75}	<i>P</i> 1 2 ₁ / <i>m</i> 1	ICSD-24451
95	Junoite	Cu ₂ Pb ₃ Bi ₈ S _{13.2} Se _{2.8}	<i>C</i> 1 2/ <i>m</i> 1	ICSD-30777
96	Kobellite	Cu _{1.12} Fe _{0.88} Pb ₁₂ Bi _{7.89} Sb _{6.11} S ₃₅	<i>P</i> <i>n n m</i>	ICSD-23595
97	Kobellite, selenian	Cu _{0.4} Fe _{0.3} Pb _{5.8} Bi _{3.413} Sb _{3.787} S _{15.99} Se _{1.46}	<i>P</i> <i>n n m</i>	ICSD-291435
98	Krupkaite	CuPbBi ₃ S ₆	<i>P</i> <i>b</i> 2 ₁ <i>m</i>	ICSD-41970
99	Krupkaite	CuPbBi ₃ S ₆	<i>P</i> <i>m c</i> 2 ₁	ICSD-30776
100	Krupkaite	Cu _{2.24} Pb _{2.36} Bi _{5.64} S ₁₂	<i>P</i> <i>m c</i> 2 ₁	ICSD-95925
101	Krupkaite	Cu _{1.95} Pb _{1.95} Bi _{6.05} S ₁₂	<i>P</i> <i>m c</i> 2 ₁	ICSD-95926
102	Krupkaite	Cu ₂ Pb ₂ Bi ₆ S ₁₂	<i>P</i> <i>m c</i> 2 ₁	ICSD-95927
103	Krupkaite	Cu ₂ Pb ₂ Bi ₆ S ₁₂	<i>P</i> <i>m c</i> 2 ₁	ICSD-160417
104	Krupkaite	Cu ₂ Pb ₂ Bi ₆ S ₁₂	<i>P</i> <i>m c</i> 2 ₁	ICSD-160419
105	Kudriavite	Cd _{0.5} In _{0.19} Pb _{0.53} Bi _{1.78} S _{3.8} Se _{0.2}	<i>C</i> 1 2/ <i>m</i> 1	ICSD-157295
106	Kupčikite	Cu _{3.42} Fe _{0.58} Bi ₅ S ₁₀	<i>C</i> 1 2/ <i>m</i> 1	ICSD-55302
107	Lillianite	Pb _{2.962} Bi _{1.962} S _{5.76} Se _{0.24}	<i>B</i> <i>b m m</i>	ICSD-156633
108	Lillianite	Bi ₂ Pb ₃ S ₆	<i>B</i> <i>b m m</i>	ICSD-158374
109	Lillianite	Pb ₃ Bi ₂ S ₆	<i>B</i> <i>b m m</i>	ICSD-2737
110	Lindströmite	Cu ₃ Pb ₃ Bi ₇ S ₁₅	<i>P</i> <i>m c</i> 2 ₁	ICSD-41892
111	Lindströmite	Cu _{2.5} Pb _{2.4} Bi _{5.6} S ₁₂	<i>P</i> <i>m c n</i>	ICSD-160416
112	Lindströmite	Cu _{2.66} Pb _{2.4} Bi _{5.6} S ₁₂	<i>P</i> <i>m c n</i>	ICSD-160418
113	Lindströmite	Cu ₃ Pb ₃ Bi ₇ S ₁₅	<i>P</i> <i>b n m</i>	ICSD-200113
114	Liveingite (Rathite II)	Pb _{18.5} As _{25.25} S ₅₆	<i>P</i> 1 2 ₁ 1	ICSD-14249
115	Makovickyite	Ag _{1.36} Cu _{2.124} Bi _{11.2} S ₁₈	<i>C</i> 1 2/ <i>m</i> 1	ICSD-160420
116	Menchettiite	AgPb _{2.40} Mn _{1.60} Sb ₃ As ₂ S ₁₂	<i>P</i> 1 2 ₁ / <i>n</i> 1	COD-9015852
117	Meneghinite (Cu–poor)	Cu _{0.58} Pb _{12.72} (Sb _{7.04} Bi _{0.24})S ₂₄	<i>P</i> <i>n m a</i>	ICSD-97027
118	Moëloite	Pb ₆ Sb ₃ S ₁₇	<i>P</i> 2 ₁ 2 2 ₁	ICSD-94852
119	Nuffieldite	Pb _{2.37} Cu _{1.37} Bi _{2.39} Sb _{0.24} S ₇	<i>P</i> <i>b n m</i>	ICSD-84625
120	Nuffieldite	Pb _{2.5} CuBi _{2.5} S ₇	<i>P</i> <i>b n m</i>	ICSD-15229
121	Owyheeite	Ag _{1.5} Pb _{4.43} Sb _{6.07} S ₁₄	<i>P</i> 1 2 ₁ / <i>c</i> 1	ICSD-158202
122	Oyonite	Cu _{0.38} Ag _{2.48} Mn _{1.75} Pb _{3.79} Sb _{7.55} As _{4.05} S _{24.12}	<i>P</i> 2 ₁ / <i>n</i>	[45]
123	Paarite	Cu _{1.6} Pb _{1.6} Bi _{6.4} S ₁₂	<i>P</i> <i>m c n</i>	ICSD-92980
124	Padëraite	Cu _{7.09} Ag _{0.2} Pb _{1.37} Bi _{11.34} S ₂₂	<i>P</i> 1 2 ₁ / <i>m</i> 1	ICSD-156650
125	Padëraite	Cu _{7.32} Pb _{1.34} Bi _{11.34} S ₂₂	<i>P</i> 1 2 ₁ / <i>m</i> 1	ICSD-156651
126	Padëraite	Cu ₆ AgPbBi ₁₂ S ₂₂	<i>P</i> 1 2 ₁ / <i>m</i> 1	ICSD-63260
127	Parapierrotite	TlSb ₅ S ₈	<i>P</i> 1 <i>n</i> 1	ICSD-9008291
128	Parasterryite	Ag ₄ Pb _{20.21} As _{10.23} Sb _{13.56} S ₅₈	<i>P</i> 1 2 ₁ / <i>c</i> 1	ICSD-11023
129	Pavonite 4P	AgBi ₆ S ₉	<i>C</i> 1 2/ <i>m</i> 1	ICSD-69454
130	Pavonite 4P, cuprian	Ag _{0.2} Cu _{1.08} Bi ₆ S ₉	<i>C</i> 1 2/ <i>m</i> 1	ICSD-69455
131	Pavonite 4P, cuprian	Ag _{0.6} Cu _{0.48} Bi ₆ S ₉	<i>C</i> 1 2/ <i>m</i> 1	ICSD-69456
132	Pavonite 8P	Ag _{0.88} Cu _{0.22} Bi _{3.5} Pb _{0.9} S _{6.5}	<i>C</i> 1 2/ <i>m</i> 1	ICSD-69458
133	Pekoite	Cu _{0.7} Pb _{0.7} Bi _{11.3} S _{14.94} Se _{3.06}	<i>P</i> 2 ₁ <i>a m</i>	ICSD-60151
134	Pellouxite	Ag _{0.26} Cu _{0.68} Pb _{10.44} Sb _{11.56} S _{27.5} Cl _{0.5} O _{0.5}	<i>C</i> 1 2/ <i>m</i> 1	ICSD-171096
135	Pierrotite	Tl ₂ Sb ₆ As ₄ S ₁₆	<i>P</i> <i>n a</i> 2 ₁	ICSD-31358
136	Pizgrischite	Cu _{14.77} Fe _{0.23} PbBi ₁₇ S ₃₅	<i>C</i> 1 2/ <i>m</i> 1	ICSD-158481
137	Protochabournéite	Tl _{1.7} Pb _{1.6} As _{0.9} Sb _{8.8} S ₁₇	<i>P</i> –1	ICSD-189253
138	Proudite	Cu ₂ Pb ₁₆ Bi ₂₀ S _{28.58} Se _{18.42}	<i>C</i> 1 2/ <i>m</i> 1	ICSD-163135
139	Proudite	Cu _{0.75} Pb _{7.5} Bi _{9.35} S ₁₅ Se ₇	<i>C</i> 1 2/ <i>m</i> 1	ICSD-30778
140	Raberite	Tl ₅ Ag ₄ As _{5.78} Sb _{1.22} S ₁₅	<i>P</i> –1	ICSD-190363
141	Ramdohrite	Pb ₆ Sb _{11.57} Ag _{2.43} S ₂₄	<i>P</i> 1 2 ₁ / <i>n</i> 1	ICSD-31237
142	Ramdohrite	Pb _{5.9} Fe _{0.1} Mn _{0.1} In _{0.1} Cd _{0.2} Ag _{2.8} Sb _{10.8} S ₂₄	<i>P</i> 1 2 ₁ / <i>n</i> 1	ICSD-187591
143	Rathite	Tl _{0.04} Pb _{12.47} Ag _{1.70} As _{15.88} Sb _{1.75} S _{40.17}	<i>P</i> 2 ₁ / <i>c</i>	[34]

144	Rathite	$\text{Tl}_{0.42}\text{Pb}_{11.84}\text{Ag}_{1.73}\text{As}_{17.73}\text{Sb}_{0.28}\text{S}_{40}$	$P\ 2_1/c$	[34]
145	Rathite	$\text{Tl}_{0.84}\text{Pb}_{10.71}\text{Ag}_{1.73}\text{As}_{18.18}\text{Sb}_{0.41}\text{S}_{40.13}$	$P\ 2_1/c$	[34]
146	Rathite	$\text{Tl}_{2.91}\text{Pb}_{6.67}\text{Ag}_{1.76}\text{As}_{19.77}\text{Sb}_{0.90}\text{S}_{40.17}$	$P\ 2_1/c$	[34]
147	Rathite	$\text{Tl}_{2.16}\text{Pb}_{7.79}\text{Ag}_{1.89}\text{As}_{20}\text{Sb}_{0.9}\text{S}_{40.11}$	$P\ 2_1/c$	[34]
148	Rathite	$\text{Pb}_{10.96}\text{Ag}_{1.9}\text{As}_{18.09}\text{Sb}_{1.06}\text{S}_{40}$	$P\ 1\ 2_1/c\ 1$	ICSD-95878
149	Rathite I	$\text{Pb}_3\text{As}_5\text{S}_{10}$	$P\ 1\ 2_1/a\ 1$	ICSD-26778
150	Rebulite	$\text{Tl}_5\text{Sb}_{4.45}\text{As}_{8.55}\text{S}_{22}$	$P\ 1\ 2_1/c\ 1$	ICSD-17065
151	Robinsonite	$\text{Pb}_{4.03}\text{Sb}_{5.97}\text{S}_{13}$	$I\ 1\ 2/m\ 1$	ICSD-151564
152	Routhierite	$\text{Cu}_{0.847}\text{Ag}_{0.153}\text{TlHg}_2\text{As}_{1.274}\text{Sb}_{0.726}\text{S}_6$	$I\ -4\ 2\ m$	ICSD-190970
153	Routhierite	$\text{TlCu}_{0.64}\text{Ag}_{0.36}\text{Hg}_{1.7}\text{As}_{1.7}\text{Sb}_{0.3}\text{Zn}_{0.3}\text{S}_6$	$I\ -4\ 2\ m$	ICSD-260077
154	Routhierite	TlHgAsS_3	$I\ -4\ 2\ m$	ICSD-610665
155	Salzburgite	$\text{Cu}_{1.435}\text{Pb}_{1.5}\text{Bi}_{6.5}\text{S}_{12}$	$P\ m\ c\ 2_1$	ICSD-89857
156	Sartorite	$\text{Tl}_{1.46}\text{Pb}_{8.08}\text{As}_{17.46}\text{S}_{35}$	$P\ 1\ 2_1/c\ 1$	ICSD-98138
157	Sartorite	PbAs_2S_4	$P\ 1\ 2_1/n\ 1$	ICSD-15464
158	Sartorite	PbAs_2S_4	$P\ 1\ 2_1/n\ 1$	ICSD-24449
159	Semseyite	$\text{Pb}_9\text{Sb}_8\text{S}_{21}$	$C\ 1\ 2/c\ 1$	ICSD-38838
160	Semseyite	$\text{Pb}_9\text{Sb}_8\text{S}_{21}$	$C\ 1\ 2/c\ 1$	ICSD-263528
161	Senandorite (subcell)	$\text{Ag}_4\text{Pb}_4\text{Sb}_{12}\text{S}_{24}$	$B\ b\ m\ m$	ICSD-23666
162	Terrywallaceite	$\text{Ag}_{1.02}\text{Pb}_{0.87}\text{As}_{0.06}\text{Bi}_{1.47}\text{Sb}_{1.54}\text{S}_{5.94}$	$P\ 1\ 2_1/c\ 1$	COD-1557015
163	Thallium triantimony sulfide	TlSb_3S_5	$P\ 1\ 2_1/c\ 1$	ICSD-17058
164	Uchucchacuaite	$\text{Ag}_{1.041}\text{Mn}_{0.919}\text{Pb}_3\text{Sb}_{5.041}\text{S}_{12}$	$P\ 1\ 2_1/n\ 1$	ICSD-107242
165	Uchucchacuaite	$\text{Ag}_{1.049}\text{Mn}_{0.901}\text{Pb}_3\text{Sb}_{5.049}\text{S}_{12}$	$P\ 1\ 2_1/n\ 1$	ICSD-107354
166	Uchucchacuaite	$\text{Ag}_{1.049}\text{Mn}_{0.901}\text{Pb}_3\text{Sb}_{5.049}\text{S}_{12}$	$P\ 1\ 2_1/n\ 1$	ICSD-107240
167	Unnamed_lillianite homologue	$\text{Ag}_{0.71}\text{Pb}_{1.52}\text{Bi}_{1.32}\text{Sb}_{1.45}\text{S}_6$	$C\ m\ c\ m$	ICSD-169975
168	Vikingite	$\text{Ag}_{3.56}\text{Pb}_{10.88}\text{Bi}_{11.56}\text{S}_{30}$	$C\ 1\ 2/m\ 1$	ICSD-72805
169	Vikingite Sb-rich	$\text{Ag}_{2.85}\text{Pb}_{12.35}\text{Bi}_{9.52}\text{Sb}_{1.27}\text{S}_{30}$	$C\ 1\ 2/m\ 1$	[39]
170	Watkinsonite	$\text{Cu}_{1.68}\text{Ag}_{0.32}\text{PbBi}_4\text{Se}_8$	$P\ 1\ 2_1/m\ 1$	ICSD-169942
171	Weibullite	$\text{Ag}_{0.32}\text{Pb}_{5.09}\text{Bi}_{8.55}\text{Se}_{6.03}\text{S}_{11.97}$	$P\ n\ m\ a$	ICSD-60147
172	Wittichenite	Cu_3BiS_3	$P\ 2_1\ 2_1\ 2_1$	ICSD-616615
173	Wittichenite	Cu_3BiS_3	$P\ 2_1\ 2_1\ 2_1$	ICSD-14305
174	Wittichenite	Cu_3BiS_3	$P\ 2_1\ 2_1\ 2_1$	ICSD-23645
175	Zinkenite	$\text{Cu}_{1.56}\text{Pb}_{38}\text{Sb}_{86}\text{S}_{168}$	$P\ 1$	ICSD-263526

Abbreviations:

AMCSD	American Mineralogist Crystal Structure Database
COD	Crystallography Open Database
ICSD	International Crystal Structure Database
PC	Personal Communication