

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 Benjaminitite	Cu _{0.5} Pb _{0.4} Ag _{2.3} Bi _{6.8} S ₁₂	<i>C 1 2/m 1</i>	ICSD-41752
15 Benjaminitite (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	$\text{Cu}_{0.38}\text{Ag}_{0.86}\text{Pb}_{6.63}\text{Bi}_{8.49}\text{Sb}_{0.89}\text{S}_{20}$	<i>P n m a</i>	ICSD-169948
43	Cosalite	$\text{Cu}_{0.96}\text{Ag}_{1.11}\text{Pb}_{6.87}\text{Bi}_{8.06}\text{S}_{20}$	<i>P n m a</i>	ICSD-169946
44	Crookesite	$\text{TiCu}_{6.52}\text{Se}_4$	<i>I 4/m</i>	ICSD-69106
45	Cupromakopavonite	$\text{Cu}_4\text{Ag}_{1.621}\text{Pb}_2\text{Bi}_{9.379}\text{S}_{19}$	<i>C 1 2/m 1</i>	ICSD-185802
46	Cupromakovickyite	$\text{Cu}_8\text{Ag}_{2.08}\text{Pb}_4\text{Bi}_{17.92}\text{S}_{36}$	<i>C 1 2/m 1</i>	ICSD-160421
47	Cuproneite	$\text{Cu}_{3.5}\text{Ag}_{0.44}\text{Pb}_{12.27}\text{Bi}_{13.19}\text{S}_{34}$	<i>C 1 2/m 1</i>	ICSD-185803
48	Cupropavonite (5,5P)	$\text{AgCu}_2\text{PbBiS}_{10}$	<i>C 1 2/m 1</i>	ICSD-259055-259056
49	Dadsonite	$\text{Pb}_{10.6}\text{Sb}_{13.4}\text{S}_{30}\text{Cl}_{0.5}$	<i>P -1</i>	ICSD-156239-156240
50	Dantopaite	$\text{Ag}_{2.1}\text{Cu}_{1.1}\text{Pb}_{0.9}\text{Bi}_{14.38}\text{S}_{22}$	<i>C 1 2/m 1</i>	ICSD-169962
51	Dekatriasartorite	$\text{TiPb}_{58}\text{As}_{97}\text{S}_{204}$	<i>P 2_1/c</i>	Topa, D. – PC
52	Dufrenoyite	$\text{Pb}_8\text{As}_8\text{S}_{20}$	<i>P 1 2_1 1</i>	ICSD-27301
53	Eclarite	$\text{Cu}_{0.81}\text{Fe}_{0.48}\text{Pb}_{8.14}\text{Bi}_{12.59}\text{S}_{28}$	<i>P m c n</i>	ICSD-185804
54	Eclarite	$\text{Cu}_{0.5}\text{Fe}_{0.5}\text{Pb}_9\text{Bi}_{12}\text{S}_{28}$	<i>P n m a</i>	ICSD-31382
55	Enneasartorite	$\text{Ti}_{1.50}\text{Pb}_8\text{As}_{17.50}\text{S}_{35}$	<i>P 2_1/c</i>	[43]
56	Freibergite	$\text{Ag}_{1.4}\text{Cu}_{10.6}\text{Sb}_4\text{S}_{13}$	<i>I -4 3 m</i>	ICSD-23644
57	Freibergite	$\text{Ag}_{4.32}\text{Cu}_6\text{Fe}_{1.68}\text{Sb}_4\text{S}_{13}$	<i>I -4 3 m</i>	ICSD-62115
58	Freieslebenite	PbAgSbS_3	<i>P 1 2_1/a 1</i>	ICSD-24257
59	Freieslebenite	PbAgSbS_3	<i>P 1 2_1/a 1</i>	ICSD-8166
60	Friedrichite	$\text{Cu}_{1.5}\text{Pb}_{1.5}\text{Bi}_2\text{S}_6$	<i>P b 21 m</i>	ICSD-107612
61	Fülöppite	$\text{Pb}_3\text{Sb}_8\text{S}_{15}$	<i>C 1 2/c 1</i>	ICSD-8168-41849
62	Galenobismutite	$\text{Pb}_{1.15}\text{Bi}_{1.82}\text{S}_{3.584}\text{Se}_{0.262}\text{Cl}_{0.156}$	<i>P n a m</i>	ICSD-156647-156648
63	Galenobismutite	$\text{PbBi}_2\text{S}_{3.87}\text{Se}_{0.13}$	<i>P n a m</i>	ICSD-156634
64	Galenobismutite	PbBi_2S_4	<i>P n a m</i>	ICSD-23905
65	Galenobismutite	PbBi_2S_4	<i>P n m a</i>	ICSD-167007
66	Galenobismutite	PbBi_2S_4	<i>P n m a</i>	ICSD-31859
67	Geocronite	$\text{Pb}_{28}\text{As}_5\text{Sb}_7\text{S}_{46}$	<i>P 1 2_1/m 1</i>	ICSD-41808
68	Gladite	$\text{PbCuBi}_5\text{S}_9$	<i>P b n m</i>	ICSD-167
69	Gladite	$\text{CuPbBi}_5\text{S}_9$	<i>P b n m</i>	ICSD-41971
70	Gladite	$\text{Cu}_{1.63}\text{Pb}_{1.63}\text{Bi}_{6.37}\text{S}_{12}$	<i>P m c n</i>	ICSD-95923
71	Gladite	$\text{Cu}_{1.33}\text{Pb}_{1.33}\text{Bi}_{6.67}\text{S}_{12}$	<i>P m c n</i>	ICSD-95924
72	Gustavite	$\text{PbAg}_{0.99}\text{Bi}_{2.9}\text{Sb}_{0.11}\text{S}_6$	<i>P 1 2_1/c 1</i>	ICSD-183561
73	Gustavite – Sb-rich	$\text{AgPbBi}_{1.998}\text{Sb}_{0.911}\text{S}_6$	<i>P 1 2_1/c 1</i>	ICSD-260613
74	Hammarite	$\text{Cu}_2\text{Pb}_2\text{Bi}_4\text{S}_9$	<i>P b n m</i>	ICSD-60156
75	Hendekasartorite	$\text{Ti}_2\text{Pb}_{48}\text{As}_{82}\text{S}_{172}$	<i>P 2_1/c</i>	[44]
76	Heptasartorite	$\text{Ti}_7\text{Pb}_{21.10}\text{As}_{55.70}\text{S}_{108}$	<i>P 2_1/c</i>	[43]
77	Heyrovskyite	$\text{Ag}_{1.31}\text{Pb}_{3.37}\text{Bi}_{3.32}\text{S}_9$	<i>C m c m</i>	ICSD-69962
78	Heyrovskyite	$\text{Pb}_6\text{Bi}_2\text{S}_9$	<i>B b m m</i>	COD-9012885
79	Heyrovskyite	$\text{Pb}_6\text{Bi}_2\text{S}_9$	<i>C m c m</i>	ICSD-186916
80	Heyrovskyite (Ag-free)	$\text{Pb}_{5.82}\text{Bi}_{2.12}\text{S}_{8.7}\text{Se}_{0.3}$	<i>B b m m</i>	ICSD-181335
81	Hodrushite	$\text{Cu}_{7.8}\text{Ag}_{0.42}\text{Bi}_{11.58}\text{S}_{22}$	<i>C 1 2/m 1</i>	ICSD-55313
82	Hodrushite (Cu-rich)	$\text{Cu}_{8.5}\text{Bi}_{11.75}\text{S}_{22}$	<i>C 1 2/m 1</i>	ICSD-55314
83	Hutchinsonite	$\text{TiPbAs}_{4.782}\text{Sb}_{0.218}\text{S}_9$	<i>P b c a</i>	ICSD-74765
84	Hutchinsonite	$\text{TiPbAs}_5\text{S}_9$	<i>P b c a</i>	ICSD-26785
85	Incomsartorite	$\text{Pb}_{1.13}\text{As}_{1.87}\text{S}_{3.97}$	<i>P 2_1/n</i>	[17]
86	Izoklakeite	$\text{Pb}_{51.3}\text{Sb}_{20.4}\text{Bi}_{19.5}\text{Ag}_{1.2}\text{Cu}_{2.9}\text{Fe}_{0.7}\text{S}_{114}$	<i>P n n m</i>	ICSD-30976
87	Izoklakeite	$\text{Pb}_{55.4}\text{Cu}_{2.6}\text{Fe}_{1.4}\text{Bi}_{23.1}\text{Sb}_{13.6}\text{S}_{114}$	<i>P n n m</i>	ICSD-202309
88	Jamesonite	$\text{FePb}_4\text{Sb}_6\text{S}_{14}$	<i>P 1 2_1/a 1</i>	ICSD-24256
89	Jamesonite	$\text{FePb}_4\text{Sb}_6\text{S}_{14}$	<i>P 1 2_1/c 1</i>	ICSD-98580
90	Jankovicite	$\text{Ti}_5\text{As}_{2.933}\text{Sb}_{10.067}\text{S}_{22}$	<i>P -1</i>	ICSD-79846
91	Jaskolskiite	$\text{Cu}_{0.16}\text{Pb}_{1.65}\text{Bi}_{1.04}\text{Sb}_{1.31}\text{S}_5$	<i>P b n m</i>	ICSD-30972
92	Jasrouxite	$\text{Pb}_{3.85}\text{Ag}_{19.09}\text{As}_{15.49}\text{Sb}_{21.57}\text{S}_{72}$	<i>P -1</i>	ICSD-190968

903	Jordanite	Pb ₂₈ As ₁₂ S ₄₆	<i>P 1 2₁/m 1</i>	ICSD-8167
94	Jordanite	As _{3.5} Pb _{6.5} S _{11.75}	<i>P 1 2₁/m 1</i>	ICSD-24451
95	Junoite	Cu ₂ Pb ₃ Bi ₈ S _{13.2} Se _{2.8}	<i>C 1 2/m 1</i>	ICSD-30777
96	Kobellite	Cu _{1.12} Fe _{0.88} Pb ₁₂ Bi _{7.89} Sb _{6.11} S ₃₅	<i>P 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 n n m</i>	ICSD-291435
98	Krupkaite	CuPbBi ₃ S ₆	<i>P b 2₁ m</i>	ICSD-41970
99	Krupkaite	CuPbBi ₃ S ₆	<i>P m c 2₁</i>	ICSD-30776
100	Krupkaite	Cu _{2.24} Pb _{2.36} Bi _{5.64} S ₁₂	<i>P m c 2₁</i>	ICSD-95925
101	Krupkaite	Cu _{1.95} Pb _{1.95} Bi _{6.05} S ₁₂	<i>P m c 2₁</i>	ICSD-95926
102	Krupkaite	Cu ₂ Pb ₂ Bi ₆ S ₁₂	<i>P m c 2₁</i>	ICSD-95927
103	Krupkaite	Cu ₂ Pb ₂ Bi ₆ S ₁₂	<i>P m c 2₁</i>	ICSD-160417
104	Krupkaite	Cu ₂ Pb ₂ Bi ₆ S ₁₂	<i>P m c 2₁</i>	ICSD-160419
105	Kudriavite	Cd _{0.5} In _{0.19} Pb _{0.53} Bi _{1.78} S _{3.8} Se _{0.2}	<i>C 1 2/m 1</i>	ICSD-157295
106	Kupčikite	Cu _{3.42} Fe _{0.58} Bi ₅ S ₁₀	<i>C 1 2/m 1</i>	ICSD-55302
107	Lillianite	Pb _{2.962} Bi _{1.962} S _{5.76} Se _{0.24}	<i>B b m m</i>	ICSD-156633
108	Lillianite	Bi ₂ Pb ₃ S ₆	<i>B b m m</i>	ICSD-158374
109	Lillianite	Pb ₃ Bi ₂ S ₆	<i>B b m m</i>	ICSD-2737
110	Lindströmite	Cu ₃ Pb ₃ Bi ₇ S ₁₅	<i>P m c 2₁</i>	ICSD-41892
111	Lindströmite	Cu _{2.5} Pb _{2.4} Bi _{5.6} S ₁₂	<i>P m c n</i>	ICSD-160416
112	Lindströmite	Cu _{2.66} Pb _{2.4} Bi _{5.6} S ₁₂	<i>P m c n</i>	ICSD-160418
113	Lindströmite	Cu ₃ Pb ₃ Bi ₇ S ₁₅	<i>P b n m</i>	ICSD-200113
114	Liveingite (Rathite II)	Pb _{18.5} As _{25.25} S ₅₆	<i>P 1 2₁ 1</i>	ICSD-14249
115	Makovickyite	Ag _{1.36} Cu _{2.124} Bi _{11.2} S ₁₈	<i>C 1 2/m 1</i>	ICSD-160420
116	Menchettiite	AgPb _{2.40} Mn _{1.60} Sb ₃ As ₂ S ₁₂	<i>P 1 2₁/n 1</i>	COD-9015852
117	Meneghinite (Cu–poor)	Cu _{0.58} Pb _{12.72} (Sb _{7.04} Bi _{0.24})S ₂₄	<i>P n m a</i>	ICSD-97027
118	Moëloite	Pb ₆ Sb ₅ S ₁₇	<i>P 2₁ 2 2₁</i>	ICSD-94852
119	Nuffieldite	Pb _{2.37} Cu _{1.37} Bi _{2.39} Sb _{0.24} S ₇	<i>P b n m</i>	ICSD-84625
120	Nuffieldite	Pb _{2.5} CuBi _{2.5} S ₇	<i>P b n m</i>	ICSD-15229
121	Owyheeite	Ag _{1.5} Pb _{4.43} Sb _{6.07} S ₁₄	<i>P 1 2₁/c 1</i>	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 2₁/n</i>	[45]
123	Paarite	Cu _{1.6} Pb _{1.6} Bi _{6.4} S ₁₂	<i>P m c n</i>	ICSD-92980
124	Padëraite	Cu _{7.09} Ag _{0.2} Pb _{1.37} Bi _{11.34} S ₂₂	<i>P 1 2₁/m 1</i>	ICSD-156650
125	Padëraite	Cu _{7.32} Pb _{1.34} Bi _{11.34} S ₂₂	<i>P 1 2₁/m 1</i>	ICSD-156651
126	Padëraite	Cu ₆ AgPbBi ₁₂ S ₂₂	<i>P 1 2₁/m 1</i>	ICSD-63260
127	Parapierrrotite	TlSb ₅ S ₈	<i>P 1 n 1</i>	ICSD-9008291
128	Parasterryite	Ag ₄ Pb _{20.21} As _{10.23} Sb _{13.56} S ₅₈	<i>P 1 2₁/c 1</i>	ICSD-11023
129	Pavonite 4P	AgBi ₆ S ₉	<i>C 1 2/m 1</i>	ICSD-69454
130	Pavonite 4P, cuprian	Ag _{0.2} Cu _{1.08} Bi ₆ S ₉	<i>C 1 2/m 1</i>	ICSD-69455
131	Pavonite 4P, cuprian	Ag _{0.6} Cu _{0.48} Bi ₆ S ₉	<i>C 1 2/m 1</i>	ICSD-69456
132	Pavonite 8P	Ag _{0.88} Cu _{0.22} Bi _{3.5} Pb _{0.9} S _{6.5}	<i>C 1 2/m 1</i>	ICSD-69458
133	Pekoite	Cu _{0.7} Pb _{0.7} Bi _{11.3} S _{14.94} Se _{3.06}	<i>P 2₁ 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 1 2/m 1</i>	ICSD-171096
135	Pierrotite	Tl ₂ Sb ₆ As ₄ S ₁₆	<i>P n a 2₁</i>	ICSD-31358
136	Pizgrischite	Cu _{14.77} Fe _{0.23} PbBi ₁₇ S ₃₅	<i>C 1 2/m 1</i>	ICSD-158481
137	Protochabournéite	Tl _{1.7} Pb _{1.6} As _{0.9} Sb _{8.8} S ₁₇	<i>P –1</i>	ICSD-189253
138	Proudite	Cu ₂ Pb ₁₆ Bi ₂₀ S _{28.58} Se _{18.42}	<i>C 1 2/m 1</i>	ICSD-163135
139	Proudite	Cu _{0.75} Pb _{7.5} Bi _{9.35} S ₁₅ Se ₇	<i>C 1 2/m 1</i>	ICSD-30778
140	Raberite	Tl ₅ Ag ₄ As _{5.78} Sb _{1.22} S ₁₅	<i>P –1</i>	ICSD-190363
141	Ramdohrite	Pb ₆ Sb _{11.57} Ag _{2.43} S ₂₄	<i>P 1 2₁/n 1</i>	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 1 2₁/n 1</i>	ICSD-187591
143	Rathite	Tl _{0.04} Pb _{12.47} Ag _{1.70} As _{15.88} Sb _{1.75} S _{40.17}	<i>P 2₁/c</i>	[34]

144	Rathite	$Tl_{0.42}Pb_{11.84}Ag_{1.73}As_{17.73}Sb_{0.28}S_{40}$	<i>P 2₁/c</i>	[34]
145	Rathite	$Tl_{0.84}Pb_{10.71}Ag_{1.73}As_{18.18}Sb_{0.41}S_{40.13}$	<i>P 2₁/c</i>	[34]
146	Rathite	$Tl_{2.91}Pb_{6.67}Ag_{1.76}As_{19.77}Sb_{0.90}S_{40.17}$	<i>P 2₁/c</i>	[34]
147	Rathite	$Tl_{2.16}Pb_{7.79}Ag_{1.89}As_{20}Sb_{0.9}S_{40.11}$	<i>P 2₁/c</i>	[34]
148	Rathite	$Pb_{10.96}Ag_{1.9}As_{18.09}Sb_{1.06}S_{40}$	<i>P 1 2₁/c 1</i>	ICSD-95878
149	Rathite I	$Pb_3As_5S_{10}$	<i>P 1 2₁/a 1</i>	ICSD-26778
150	Rebulite	$Tl_5Sb_{4.45}As_{8.55}S_{22}$	<i>P 1 2₁/c 1</i>	ICSD-17065
151	Robinsonite	$Pb_{4.03}Sb_{5.97}S_{13}$	<i>I 1 2₁/m 1</i>	ICSD-151564
152	Routhierite	$Cu_{0.847}Ag_{0.153}TlHg_2As_{1.274}Sb_{0.726}S_6$	<i>I -4 2 m</i>	ICSD-190970
153	Routhierite	$TlCu_{0.64}Ag_{0.36}Hg_{1.7}As_{1.7}Sb_{0.3}Zn_{0.3}S_6$	<i>I -4 2 m</i>	ICSD-260077
154	Routhierite	$TlHgAsS_3$	<i>I -4 2 m</i>	ICSD-610665
155	Salzburgite	$Cu_{1.435}Pb_{1.5}Bi_{6.5}S_{12}$	<i>P m c 2₁</i>	ICSD-89857
156	Sartorite	$Tl_{1.46}Pb_{8.08}As_{17.46}S_{35}$	<i>P 1 2₁/c 1</i>	ICSD-98138
157	Sartorite	$PbAs_2S_4$	<i>P 1 2₁/n 1</i>	ICSD-15464
158	Sartorite	$PbAs_2S_4$	<i>P 1 2₁/n 1</i>	ICSD-24449
159	Semseyite	$Pb_9Sb_8S_{21}$	<i>C 1 2/c 1</i>	ICSD-38838
160	Semseyite	$Pb_9Sb_8S_{21}$	<i>C 1 2/c 1</i>	ICSD-263528
161	Senandorite (subcell)	$Ag_4Pb_4Sb_{12}S_{24}$	<i>B b m m</i>	ICSD-23666
162	Terrywallaceite	$Ag_{1.02}Pb_{0.87}As_{0.06}Bi_{1.47}Sb_{1.54}S_{5.94}$	<i>P 1 2₁/c 1</i>	COD-1557015
163	Thallium triantimony sulfide	$TlSb_3S_5$	<i>P 1 2₁/c 1</i>	ICSD-17058
164	Uchucchacuaite	$Ag_{1.041}Mn_{0.919}Pb_3Sb_{5.041}S_{12}$	<i>P 1 2₁/n 1</i>	ICSD-107242
165	Uchucchacuaite	$Ag_{1.049}Mn_{0.901}Pb_3Sb_{5.049}S_{12}$	<i>P 1 2₁/n 1</i>	ICSD-107354
166	Uchucchacuaite	$Ag_{1.049}Mn_{0.901}Pb_3Sb_{5.049}S_{12}$	<i>P 1 2₁/n 1</i>	ICSD-107240
167	Unnamed_lillianite homologue	$Ag_{0.71}Pb_{1.52}Bi_{1.32}Sb_{1.45}S_6$	<i>C m c m</i>	ICSD-169975
168	Vikingite	$Ag_{3.56}Pb_{10.88}Bi_{11.56}S_{30}$	<i>C 1 2/m 1</i>	ICSD-72805
169	Vikingite Sb-rich	$Ag_{2.85}Pb_{12.35}Bi_{9.52}Sb_{1.27}S_{30}$	<i>C 1 2/m 1</i>	[39]
170	Watkinsonite	$Cu_{1.68}Ag_{0.32}PbBi_4Se_8$	<i>P 1 2₁/m 1</i>	ICSD-169942
171	Weibullite	$Ag_{0.32}Pb_{5.09}Bi_{8.55}Se_{6.03}S_{11.97}$	<i>P n m a</i>	ICSD-60147
172	Wittichenite	Cu_3BiS_3	<i>P 2₁ 2₁ 2₁</i>	ICSD-616615
173	Wittichenite	Cu_3BiS_3	<i>P 2₁ 2₁ 2₁</i>	ICSD-14305
174	Wittichenite	Cu_3BiS_3	<i>P 2₁ 2₁ 2₁</i>	ICSD-23645
175	Zinkenite	$Cu_{1.56}Pb_{38}Sb_{86}S_{168}$	<i>P 1</i>	ICSD-263526

Abbreviations:

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