

Table S1. Refined lattice parameters

Pressure (GPa)	Pressure error [^] (GPa)	<i>a</i> (Å)	<i>a</i> error (Å)	<i>b</i> (Å)	<i>b</i> error (Å)	<i>c</i> (Å)	<i>c</i> error (Å)	α^* (°)	α error (°)	β (°)	β error (°)	γ^* (°)	γ error (°)	Volume (Å ³)	Volume error (Å ³)
0.000 [#]	0.000	7.086	0.002	7.550	0.000	7.779	0.002	90.000	0.000	118.663	0.003	90.000	0.000	365.146	0.026
0.39	0.06	7.077	0.002	7.526	0.000	7.741	0.003	90.000	0.000	118.701	0.005	90.000	0.000	361.679	0.045
0.51	0.00	7.079	0.002	7.523	0.000	7.737	0.003	90.000	0.000	118.787	0.005	90.000	0.000	361.133	0.053
1.47	0.03	7.061	0.002	7.479	0.000	7.665	0.003	90.000	0.000	118.838	0.005	90.000	0.000	354.609	0.035
2.23	0.09	7.049	0.003	7.450	0.000	7.624	0.003	90.000	0.000	118.867	0.006	90.000	0.000	350.616	0.043
3.09	0.07	7.019	0.007	7.411	0.001	7.582	0.008	90.000	0.000	118.908	0.014	90.000	0.000	345.259	0.103
4.96	0.09	7.012	0.007	7.337	0.001	7.468	0.008	90.000	0.000	118.946	0.014	90.000	0.000	336.222	0.133
6.56 ^a	0.09	6.982	0.003	7.310	0.002	7.399	0.006	90.079	0.008	119.151	0.009	90.684	0.006	164.886	0.033
8.83	0.10	6.940	0.003	7.279	0.002	7.272	0.009	90.162	0.009	119.154	0.011	91.473	0.006	160.351	0.022
10.05	0.11	6.913	0.005	7.248	0.004	7.230	0.011	90.371	0.016	119.085	0.018	91.645	0.009	158.190	0.032
11.38	0.17	6.910	0.004	7.220	0.003	7.188	0.006	90.033	0.013	119.395	0.011	92.051	0.008	156.072	0.031
12.73	0.32	6.869	0.007	7.194	0.005	7.151	0.011	89.841	0.019	119.034	0.023	92.235	0.010	154.335	0.040
16.79 ^b	0.34	6.746	0.005	7.051	0.001	6.910	0.006	90.000	0.000	118.226	0.011	90.000	0.000	289.620	0.034
18.33	0.00	6.705	0.006	7.032	0.001	6.861	0.007	90.000	0.000	117.858	0.013	90.000	0.000	285.995	0.038
19.53	0.07	6.673	0.009	7.029	0.001	6.824	0.009	90.000	0.000	117.630	0.018	90.000	0.000	283.590	0.059
20.48	0.11	6.663	0.006	7.019	0.001	6.805	0.007	90.000	0.000	117.571	0.013	90.000	0.000	282.123	0.035
22.52	0.09	6.631	0.004	7.009	0.001	6.768	0.004	90.000	0.000	117.302	0.008	90.000	0.000	279.521	0.024
25.22	0.02	6.561	0.007	7.001	0.001	6.660	0.008	90.000	0.000	116.805	0.015	90.000	0.000	273.056	0.049
28.23	0.04	6.518	0.005	6.984	0.001	6.606	0.005	90.000	0.000	116.522	0.010	90.000	0.000	269.055	0.032
30.73	0.10	6.479	0.003	6.959	0.001	6.563	0.004	90.000	0.000	116.402	0.008	90.000	0.000	265.053	0.026
32.49	0.08	6.451	0.004	6.954	0.001	6.526	0.004	90.000	0.000	116.221	0.008	90.000	0.000	262.635	0.030
34.16	0.18	6.434	0.008	6.959	0.001	6.476	0.009	90.000	0.000	116.298	0.018	90.000	0.000	259.942	0.055
36.74	0.06	6.412	0.007	6.954	0.001	6.454	0.008	90.000	0.000	116.123	0.016	90.000	0.000	258.377	0.052
39.83	0.16	6.380	0.007	6.942	0.001	6.419	0.007	90.000	0.000	116.122	0.015	90.000	0.000	255.291	0.052
42.51	0.14	6.309	0.004	6.919	0.001	6.387	0.004	90.000	0.000	115.568	0.009	90.000	0.000	251.486	0.034

45.08	0.17	6.274	0.005	6.901	0.001	6.351	0.005	90.000	0.000	115.437	0.011	90.000	0.000	248.332	0.034
48.36	0.36	6.252	0.004	6.885	0.001	6.326	0.005	90.000	0.000	115.498	0.010	90.000	0.000	245.790	0.034
50.14	0.32	6.231	0.005	6.878	0.001	6.314	0.005	90.000	0.000	115.553	0.010	90.000	0.000	244.147	0.036
53.54	0.34	6.197	0.005	6.853	0.001	6.275	0.005	90.000	0.000	115.446	0.011	90.000	0.000	240.607	0.037
54.73	0.12	6.171	0.005	6.844	0.001	6.254	0.005	90.000	0.000	115.449	0.010	90.000	0.000	238.486	0.033
58.35	0.19	6.153	0.005	6.838	0.001	6.241	0.005	90.000	0.000	115.494	0.011	90.000	0.000	237.048	0.036
61.94	0.15	6.122	0.005	6.821	0.001	6.202	0.005	90.000	0.000	115.272	0.011	90.000	0.000	234.211	0.035
64.62	0.15	6.124	0.004	6.803	0.001	6.200	0.005	90.000	0.000	115.365	0.010	90.000	0.000	233.400	0.033
67.41	0.06	6.086	0.004	6.802	0.001	6.168	0.005	90.000	0.000	115.278	0.010	90.000	0.000	230.869	0.036
71.10	0.01	6.065	0.006	6.777	0.001	6.136	0.006	90.000	0.000	115.128	0.012	90.000	0.000	228.344	0.043
80.40	0.17	6.005	0.004	6.751	0.001	6.081	0.004	90.000	0.000	115.085	0.009	90.000	0.000	223.263	0.037
82.85	0.00	6.000	0.005	6.733	0.001	6.076	0.005	90.000	0.000	115.134	0.011	90.000	0.000	222.241	0.043

Unit-cell parameters and errors determined from GSAS-II. Errors were artificially increased for equation of state fitting.

^aOnset of the *P*-1 phase. Lattice parameters are transformed into the monoclinic setting

^bOnset of the *P*₂ phase.

*Fixed at 90° except for data in the transformed *P*-1 phase from 6.56-12.73 GPa.

[#]For the ambient pressure measurement powdered szomolnokite was loaded into a Kapton tube

[^]Pressure errors determined from two tungsten XRD measurements taken before XRD data collection on the sample and immediately after. The only exception is the last compression point (82.85 GPa), where only one XRD measurement was collected on tungsten.

Table S2. Refined lattice parameters of the *P2/m* space group

Pressure (GPa)	Pressure error ^a (GPa)	<i>a</i> (Å)	<i>a</i> error (Å)	<i>b</i> (Å)	<i>b</i> error (Å)	<i>c</i> (Å)	<i>c</i> error (Å)	α (°)	α error (°)	β (°)	β error (°)	γ (°)	γ error (°)	Volume (Å ³)	Volume error (Å ³)
16.79	0.34	6.745	0.006	7.051	0.001	6.911	0.007	90.000	0.000	118.225	0.013	90.000	0.000	289.608	0.038
18.33	0.00	6.705	0.006	7.031	0.001	6.862	0.007	90.000	0.000	117.860	0.013	90.000	0.000	285.980	0.035
19.53	0.07	6.672	0.007	7.025	0.001	6.827	0.008	90.000	0.000	117.633	0.015	90.000	0.000	283.473	0.044
20.48	0.11	6.663	0.006	7.019	0.001	6.805	0.007	90.000	0.000	117.572	0.013	90.000	0.000	282.122	0.035
22.52	0.09	6.632	0.006	7.009	0.001	6.769	0.007	90.000	0.000	117.314	0.013	90.000	0.000	279.546	0.036
25.22	0.02	6.563	0.006	7.001	0.000	6.661	0.006	90.000	0.000	116.837	0.013	90.000	0.000	273.058	0.029
28.23	0.04	6.518	0.005	6.984	0.001	6.606	0.005	90.000	0.000	116.535	0.010	90.000	0.000	269.027	0.033
30.73	0.10	6.479	0.003	6.959	0.001	6.563	0.004	90.000	0.000	116.401	0.008	90.000	0.000	265.041	0.026
32.49	0.08	6.451	0.004	6.954	0.001	6.526	0.004	90.000	0.000	116.215	0.008	90.000	0.000	262.651	0.030
34.16	0.18	6.434	0.008	6.962	0.001	6.476	0.008	90.000	0.000	116.304	0.017	90.000	0.000	260.050	0.048
36.74	0.06	6.408	0.007	6.959	0.001	6.448	0.007	90.000	0.000	116.114	0.015	90.000	0.000	258.196	0.046
39.83	0.16	6.368	0.008	6.938	0.001	6.405	0.008	90.000	0.000	116.050	0.016	90.000	0.000	254.235	0.045
42.51	0.14	6.309	0.004	6.918	0.001	6.387	0.004	90.000	0.000	115.574	0.009	90.000	0.000	251.470	0.034
45.08	0.17	6.274	0.005	6.900	0.001	6.352	0.005	90.000	0.000	115.454	0.010	90.000	0.000	248.294	0.032
48.36	0.36	6.252	0.004	6.884	0.001	6.327	0.005	90.000	0.000	115.504	0.010	90.000	0.000	245.789	0.034
50.14	0.32	6.232	0.005	6.878	0.001	6.314	0.005	90.000	0.000	115.554	0.010	90.000	0.000	244.177	0.036
53.54	0.34	6.197	0.005	6.852	0.001	6.275	0.005	90.000	0.000	115.452	0.011	90.000	0.000	240.588	0.037
54.73	0.12	6.171	0.005	6.845	0.001	6.254	0.005	90.000	0.000	115.461	0.010	90.000	0.000	238.508	0.032
58.35	0.19	6.153	0.005	6.839	0.001	6.241	0.005	90.000	0.000	115.500	0.011	90.000	0.000	237.033	0.037
61.94	0.15	6.131	0.004	6.816	0.001	6.208	0.004	90.000	0.000	115.331	0.009	90.000	0.000	234.463	0.033
64.62	0.15	6.125	0.005	6.802	0.001	6.200	0.005	90.000	0.000	115.370	0.010	90.000	0.000	233.379	0.033
67.41	0.06	6.089	0.004	6.796	0.001	6.174	0.004	90.000	0.000	115.376	0.009	90.000	0.000	230.844	0.032
71.10	0.01	6.065	0.006	6.777	0.001	6.136	0.006	90.000	0.000	115.128	0.012	90.000	0.000	228.344	0.043
80.40	0.17	6.005	0.004	6.751	0.001	6.081	0.005	90.000	0.000	115.091	0.010	90.000	0.000	223.278	0.038
82.85	0.00	6.000	0.005	6.731	0.001	6.078	0.005	90.000	0.000	115.170	0.011	90.000	0.000	222.132	0.039

Table S3. Refined lattice parameters of the P-1 space group

Pressure (GPa)	Pressure error [^] (GPa)	<i>a</i> (Å)	<i>a</i> error (Å)	<i>b</i> (Å)	<i>b</i> error (Å)	<i>c</i> (Å)	<i>c</i> error (Å)	α (°)	α error (°)	β (°)	β error (°)	γ (°)	γ error (°)	Volume (Å ³)	Volume error (Å ³)
6.56	0.09	5.024	0.003	5.084	0.002	7.399	0.006	109.480	0.008	109.845	0.009	92.626	0.006	164.886	0.025
8.83	0.10	4.964	0.003	5.093	0.002	7.272	0.009	109.263	0.009	110.037	0.011	92.734	0.006	160.351	0.023
10.05	0.11	4.936	0.005	5.080	0.004	7.230	0.011	109.037	0.016	110.192	0.018	92.712	0.009	158.190	0.034
11.38	0.17	4.906	0.004	5.085	0.003	7.188	0.006	109.454	0.013	110.245	0.011	92.516	0.008	156.073	0.032
12.73	0.32	4.876	0.007	5.069	0.005	7.151	0.011	109.316	0.019	109.866	0.023	92.654	0.010	154.334	0.034