**Supplementary Materials**

**Kufahrite, PtPb, a new mineral from Ledyanoy Creek placer, Galmoenan ultramafic complex, Koryak Highlands, Russia**

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Table S1. The theoretical powder diffraction patterns for PtPb, (Pt0.6Pb0.3Sb0.1)(Pb0.5Pt0.4Sb0.1) and (Pt0.95Rh0.05)(Pb0.80Sb0.20).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PtPb (idealized),  A site = 78 ē, B site = 82 ē | | | | | (Pt0.6Pb0.3Sb0.1)(Pb0.5Pt0.4Sb0.1),  A site = 76 ē, B site = 77 ē | | (Pt0.95Rh0.05)(Pb0.80Sb0.20),  A site = 76 ē, B site = 76 ē | |
| *h* | *k* | *l* | *d* (Å) | *I*rel | *d* (Å) | *I*rel | *d* (Å) | *I*rel |
| 0 | 1 | 0 | 3.645101 | 21 | 3.645101 | 23 | 3.645101 | 24 |
| 0 | 1 | 1 | 3.034330 | 94 | 3.034330 | 89 | 3.034330 | 88 |
| 0 | 0 | 2 | 2.738000 | 0 | 2.738000 | 0 | 2.738000 | 0 |
| 0 | 1 | 2 | 2.189196 | 100 | 2.189196 | 100 | 2.189196 | 100 |
| 1 | 1 | 0 | 2.104500 | 80 | 2.104500 | 79 | 2.104500 | 78 |
| 0 | 2 | 0 | 1.822551 | 3 | 1.822551 | 3 | 1.822551 | 3 |
| 0 | 2 | 1 | 1.729287 | 16 | 1.729287 | 15 | 1.729287 | 15 |
| 1 | 1 | 2 | 1.668564 | 0 | 1.668564 | 0 | 1.668564 | 0 |
| 0 | 1 | 3 | 1.632129 | 13 | 1.632129 | 12 | 1.632129 | 12 |
| 0 | 2 | 2 | 1.517165 | 28 | 1.517165 | 28 | 1.517165 | 28 |
| 1 | 2 | 0 | 1.377719 | 2 | 1.377719 | 2 | 1.377719 | 2 |
| 0 | 0 | 4 | 1.369000 | 6 | 1.369000 | 6 | 1.369000 | 6 |
| 1 | 2 | 1 | 1.336081 | 13 | 1.336081 | 13 | 1.336081 | 12 |
| 0 | 2 | 3 | 1.289721 | 6 | 1.289721 | 6 | 1.289721 | 6 |
| 0 | 1 | 4 | 1.281593 | 2 | 1.281593 | 2 | 1.281593 | 2 |
| 1 | 2 | 2 | 1.230697 | 30 | 1.230697 | 30 | 1.230697 | 30 |
| 0 | 3 | 0 | 1.215034 | 13 | 1.215034 | 13 | 1.215034 | 13 |
| 0 | 3 | 1 | 1.186185 | 0 | 1.186185 | 0 | 1.186185 | 0 |
| 1 | 1 | 4 | 1.147561 | 24 | 1.147561 | 23 | 1.147561 | 23 |
| 0 | 3 | 2 | 1.110591 | 0 | 1.110591 | 0 | 1.110591 | 0 |
| 1 | 2 | 3 | 1.099649 | 9 | 1.099649 | 9 | 1.099649 | 8 |
| 0 | 2 | 4 | 1.094598 | 1 | 1.094598 | 1 | 1.094598 | 1 |
| 2 | 2 | 0 | 1.052250 | 12 | 1.052250 | 11 | 1.052250 | 11 |
| 0 | 1 | 5 | 1.048879 | 5 | 1.048879 | 4 | 1.048879 | 4 |
| 0 | 3 | 3 | 1.011443 | 0 | 1.011443 | 0 | 1.011443 | 0 |
| 1 | 3 | 0 | 1.010969 | 1 | 1.010969 | 1 | 1.010969 | 1 |
| 1 | 3 | 1 | 0.994169 | 10 | 0.994169 | 10 | 0.994169 | 9 |