**Table 1.** Experimental partitioning results from the Fe-Ni system. All errors are ±2σ.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Run #** | **JG3** | **JG4** | **JG5** |  |
| **Temperature (˚C)** | 1500 | 1500 | 1500 |  |
| **Duration (hours)** | 7.5 | 7.5 | 12 |  |
| **Liquid Metal** |  |  |  |  |
| Fe (wt%) | 88.8 ± 0.5 | 87.4 ± 0.4 | 86.7 ± 0.5 |  |
| Ni (wt%) | 10.9 ± 0.3 | 11.9 ± 0.3 | 12.7 ± 0.4 |  |
| V (ppm) | 110 ± 30 | 120 ± 80 | 90 ± 40 |  |
| Cr (ppm) | 74 ± 13 | 80 ± 20 | 74 ± 12 |  |
| Mn (ppm) | 19 ± 2 | 22 ± 11 | 28 ± 12 |  |
| Co (ppm) | 220 ± 20 | 286 ± 9 | 235 ± 13 |  |
| Cu (ppm) | 170 ± 30 | 158 ± 9 | 140 ± 20 |  |
| Zn (ppm) | 130 ± 20 | 144 ±12 | 120 ± 30 |  |
| Ga (ppm) | 61 ± 8 | 81 ± 13 | 65 ± 2 |  |
| Ge (ppm) | 130 ± 30 | 140 ± 20 | 135 ± 14 |  |
| As (ppm) | 300 ± 70 | 270 ± 80 | 190 ± 60 |  |
| Mo (ppm) | 140 ± 20 | 200 ± 20 | 133 ± 10 |  |
| Ru (ppm) | 59 ± 2 | 82 ± 1 | 74 ± 5 |  |
| Rh (ppm) | 65 ± 2 | 104 ± 8 | 65 ± 3 |  |
| Pd (ppm) | 115 ± 1 | 126 ± 21 | 80 ± 14 |  |
| Ag (ppm) | 20 ± 11 | 11 ± 3 | - |  |
| Sn (ppm) | 710 ± 290 | 340 ± 110 | 390 ± 150 |  |
| Sb (ppm) | 570 ± 160 | 400 ± 120 | 370 ± 160 |  |
| W (ppm) | 45 ± 2 | 73 ± 6 | 53.1 ± 1.2 |  |
| Re (ppm) | 34 ± 3 | 59 ± 5 | 57 ± 11 |  |
| Os (ppm) | 31 ± 7 | 52 ± 2 | 46 ± 9 |  |
| Ir (ppm) | 39 ± 11 | 69 ± 3 | 62 ± 8 |  |
| Pt (ppm) | 62 ± 10 | 89 ± 9 | 70 ± 2 |  |
| Au (ppm) | 151 ± 20 | 215 ± 60 | 200 ± 50 |  |
| Pb (ppm) | 510 ± 430 | 70 ± 20 | 323 ± 34 |  |
| Bi (ppm) | 420 ± 370 | 59 ± 13 | 290 ± 110 |  |
| **Solid Metal** |  |  |  |  |
| Fe (wt%) | 90.2 ± 0.3 | 89.7 ± 0.2 | 88.32 ± 0.13 |  |
| Ni (wt%) | 9.7 ± 0.2 | 10.25 ± 0.13 | 11.32 ± 0.12 |  |
| V (ppm) | 65 ± 4 | 73 ± 3 | 46 ± 2 |  |
| Cr (ppm) | 63 ± 4 | 63 ± 8 | 57 ± 4 |  |
| Mn (ppm) | 13 ± 2 | 15 ± 1 | 15.8 ± 1.2 |  |
| Co (ppm) | 228 ± 12 | 273 ± 8 | 218 ± 6 |  |
| Cu (ppm) | 111 ± 6 | 122 ± 6 | 140 ± 20 |  |
| Zn (ppm) | 80 ± 30 | 97 ± 6 | 70 ± 20 |  |
| Ga (ppm) | 48 ± 6 | 61 ± 2 | 49.1 ± 1.4 |  |
| Ge (ppm) | 85 ± 3 | 89 ± 3 | 84 ± 4 |  |
| As (ppm) | 70 ± 8 | 69 ± 9 | 42.7 ± 0.9 |  |
| Mo (ppm) | 93 ± 14 | 145 ± 7 | 89 ± 3 |  |
| Ru (ppm) | 73 ± 7 | 96 ± 6 | 86 ± 4 |  |
| Rh (ppm) | 64 ± 7 | 102 ± 3 | 62 ± 3 |  |
| Pd (ppm) | 62 ± 10 | 71 ± 5 | 42.2 ± 1.3 |  |
| Ag (ppm) | 3.6 ± 0.1 | 1.6 ± 0.3 | - |  |
| Sn (ppm) | 80 ± 20 | 50 ± 2 | 49 ± 2 |  |
| Sb (ppm) | 64 ± 4 | 59 ± 7 | 45 ± 2 |  |
| W (ppm) | 49 ± 5 | 68 ± 2 | 50 ± 3 |  |
| Re (ppm) | 66 ± 4 | 90 ± 3 | 90 ± 3 |  |
| Os (ppm) | 68 ± 2 | 89 ± 5 | 75 ± 3 |  |
| Ir (ppm) | 71 ± 4 | 103 ± 4 | 90 ± 4 |  |
| Pt (ppm) | 68 ± 6 | 87 ± 2 | 65 ± 3 |  |
| Au (ppm) | 57 ± 4 | 82 ± 9 | 70 ± 5 |  |
| Pb (ppm) | 15 ± 7 | 1.8 ± 0.6 | 7.3 ± 0.2 |  |
| Bi (ppm) | 6 ± 2 | 0.7 ± 0.2 | 3.1 ± 0.5 |  |
| **D(solid metal/liquid metal)** |  |  |  | **Weighted Average** |
| Ni | 0.89 ± 0.03 | 0.86 ± 0.02 | 0.89 ± 0.03 | 0.874 ± 0.015 |
| V | 0.6 ± 0.2 | 0.6 ± 0.4 | 0.5 ± 0.3 | 0.57 ± 0.15 |
| Cr | 0.9 ± 0.2 | 0.8 ± 0.2 | 0.77 ± 0.13 | 0.81 ± 0.10 |
| Mn | 0.68 ± 0.13 | 0.7 ± 0.3 | 0.6 ± 0.2 | 0.66 ± 0.10 |
| Co | 1.02 ± 0.11 | 0.95 ± 0.04 | 0.93 ± 0.06 | 0.95 ± 0.03 |
| Cu | 0.65 ± 0.13 | 0.77 ± 0.06 | 1.0 ± 0.2 | 0.77 ± 0.05 |
| Zn | 0.6 ± 0.3 | 0.67 ± 0.07 | 0.6 ± 0.2 | 0.66 ± 0.06 |
| Ga | 0.8 ± 0.2 | 0.75 ± 0.12 | 0.76 ± 0.03 | 0.76 ± 0.03 |
| Ge | 0.64 ± 0.12 | 0.64 ± 0.11 | 0.62 ± 0.07 | 0.63 ± 0.05 |
| As | 0.23 ± 0.06 | 0.26 ± 0.09 | 0.22 ± 0.07 | 0.23 ± 0.04 |
| Mo | 0.67 ± 0.13 | 0.72 ± 0.09 | 0.66 ± 0.05 | 0.67 ± 0.04 |
| Ru | 1.24 ± 0.13 | 1.16 ± 0.08 | 1.17 ± 0.09 | 1.18 ± 0.05 |
| Rh | 0.98 ± 0.12 | 0.98 ± 0.08 | 0.96 ± 0.06 | 0.97 ± 0.04 |
| Pd | 0.54 ± 0.08 | 0.56 ± 0.10 | 0.53 ± 0.09 | 0.54 ± 0.05 |
| Ag | 0.17 ± 0.10 | 0.14 ± 0.05 | - | 0.15 ± 0.04 |
| Sn | 0.11 ± 0.05 | 0.15 ± 0.05 | 0.12 ± 0.05 | 0.13 ± 0.03 |
| Sb | 0.11 ± 0.03 | 0.15 ± 0.05 | 0.12 ± 0.05 | 0.12 ± 0.02 |
| W | 1.08 ± 0.12 | 0.94 ± 0.08 | 0.93 ± 0.06 | 0.95 ± 0.04 |
| Re | 1.9 ± 0.2 | 1.53 ± 0.14 | 1.6 ± 0.3 | 1.65 ± 0.11 |
| Os | 2.2 ± 0.5 | 1.70 ± 0.12 | 1.6 ± 0.3 | 1.71 ± 0.11 |
| Ir | 1.8 ± 0.5 | 1.49 ± 0.08 | 1.4 ± 0.2 | 1.49 ± 0.07 |
| Pt | 1.1 ± 0.2 | 0.98 ± 0.10 | 0.94 ± 0.04 | 0.95 ± 0.04 |
| Au | 0.38 ± 0.06 | 0.38 ± 0.11 | 0.35 ± 0.10 | 0.37 ± 0.05 |
| Pb | 0.03 ± 0.03 | 0.027 ± 0.011 | 0.023 ± 0.009 | 0.025 ± 0.007 |
| Bi | 0.015 ± 0.013 | 0.012 ± 0.005 | 0.011 ± 0.004 | 0.012 ± 0.003 |