附表1 锆石U-Pb年龄数据表

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | Th | U | Th/U | 同位素比值 | | | | | |  | 年龄(Ma) | | | | | |
| ppm | ppm | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |  | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| 01 | 1810 | 1810 | 1.00 | 0.06485 | 0.00257 | 0.17378 | 0.00669 | 0.01944 | 0.00022 |  | 770 | 81 | 163 | 6 | 124 | 1 |
| 02 | 42 | 301 | 0.14 | 0.10833 | 0.00309 | 4.70104 | 0.13202 | 0.31481 | 0.00322 |  | 1771 | 51 | 1767 | 24 | 1764 | 16 |
| 04 | 36 | 372 | 0.10 | 0.18283 | 0.01059 | 0.99885 | 0.05378 | 0.03963 | 0.00093 |  | 2679 | 93 | 703 | 27 | 251 | 6 |
| 05 | 436 | 2827 | 0.15 | 0.07762 | 0.00167 | 0.43630 | 0.00906 | 0.04078 | 0.00034 |  | 1137 | 42 | 368 | 6 | 258 | 2 |
| 07 | 1730 | 5110 | 0.34 | 0.13541 | 0.00799 | 0.37299 | 0.02082 | 0.01998 | 0.00041 |  | 2169 | 99 | 322 | 15 | 128 | 3 |
| 08 | 218 | 447 | 0.49 | 0.03775 | 0.00950 | 0.10178 | 0.02549 | 0.01956 | 0.00051 |  | 0 | 61 | 98 | 23 | 125 | 3 |
| 09 | 193 | 295 | 0.65 | 0.08077 | 0.00591 | 0.46030 | 0.03264 | 0.04134 | 0.00083 |  | 1216 | 137 | 385 | 23 | 261 | 5 |
| 11 | 6880 | 9090 | 0.76 | 0.11698 | 0.00614 | 0.31418 | 0.01564 | 0.01948 | 0.00035 |  | 1911 | 91 | 277 | 12 | 124 | 2 |
| 12 | 153 | 320 | 0.48 | 0.05416 | 0.00869 | 0.14675 | 0.02312 | 0.01966 | 0.00062 |  | 377 | 326 | 139 | 20 | 126 | 4 |
| 13 | 6630 | 1186 | 5.59 | 0.11276 | 0.00402 | 0.30557 | 0.01040 | 0.01966 | 0.00025 |  | 1844 | 63 | 271 | 8 | 126 | 2 |
| 14 | 2578 | 887 | 2.91 | 0.12575 | 0.00762 | 0.33764 | 0.01946 | 0.01947 | 0.00039 |  | 2039 | 103 | 295 | 15 | 124 | 2 |
| 15 | 2367 | 7270 | 0.33 | 0.08688 | 0.00130 | 0.44764 | 0.00642 | 0.03737 | 0.00028 |  | 1358 | 29 | 376 | 5 | 237 | 2 |
| 16 | 570 | 1127 | 0.51 | 0.07324 | 0.00356 | 0.19804 | 0.00936 | 0.01961 | 0.00026 |  | 1021 | 95 | 184 | 8 | 125 | 2 |
| 17 | 1340 | 1440 | 0.93 | 0.06352 | 0.00248 | 0.24906 | 0.00944 | 0.02844 | 0.00032 |  | 726 | 81 | 226 | 8 | 181 | 2 |
| 18 | 1497 | 3135 | 0.48 | 0.04885 | 0.00428 | 0.13099 | 0.01123 | 0.01945 | 0.00038 |  | 141 | 194 | 125 | 10 | 124 | 2 |
| 19 | 247 | 486 | 0.51 | 0.13020 | 0.01632 | 0.35508 | 0.04244 | 0.01978 | 0.00078 |  | 2101 | 205 | 309 | 32 | 126 | 5 |
| 20 | 382 | 615 | 0.62 | 0.05112 | 0.00580 | 0.13725 | 0.01531 | 0.01947 | 0.00042 |  | 246 | 241 | 131 | 14 | 124 | 3 |
| 21 | 357 | 431 | 0.83 | 0.07372 | 0.00473 | 0.40243 | 0.02510 | 0.03959 | 0.00067 |  | 1034 | 124 | 343 | 18 | 250 | 4 |
| 22 | 1393 | 2466 | 0.56 | 0.13845 | 0.00310 | 0.67815 | 0.01433 | 0.03552 | 0.00035 |  | 2208 | 38 | 526 | 9 | 225 | 2 |
| 23 | 412 | 734 | 0.56 | 0.06867 | 0.00658 | 0.18287 | 0.01708 | 0.01931 | 0.00045 |  | 889 | 186 | 171 | 15 | 123 | 3 |
| 24 | 57 | 828 | 0.07 | 0.08610 | 0.00208 | 1.67085 | 0.03901 | 0.14074 | 0.00133 |  | 1340 | 46 | 998 | 15 | 849 | 8 |
| 28 | 8830 | 10920 | 0.81 | 0.20182 | 0.00505 | 0.54819 | 0.01225 | 0.01970 | 0.00025 |  | 2841 | 40 | 444 | 8 | 126 | 2 |
| 30 | 2460 | 1906 | 1.29 | 0.16846 | 0.00304 | 1.71072 | 0.02748 | 0.07364 | 0.00073 |  | 2542 | 30 | 1013 | 11 | 458 | 4 |
| 31 | 473 | 1350 | 0.35 | 0.21519 | 0.00444 | 1.00665 | 0.01839 | 0.03392 | 0.00037 |  | 2945 | 33 | 707 | 10 | 215 | 2 |
| 33 | 269 | 754 | 0.36 | 0.39734 | 0.01062 | 2.13644 | 0.04791 | 0.03899 | 0.00062 |  | 3899 | 40 | 1161 | 16 | 247 | 4 |

附表2 全岩主微量元素和Nd同位素组成

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 样品编号 | ALWL01 | ALWL03 | ALWL04 | BEZ101 |
| SiO2 | 74.7 | 75.8 | 76.3 | 75.8 |
| TiO2 | 0.16 | 0.16 | 0.16 | 0.15 |
| Al2O3 | 10.3 | 10.6 | 10.6 | 10.6 |
| TFe2O3 | 4.81 | 4.81 | 4.62 | 4.32 |
| MnO | 0.07 | 0.08 | 0.07 | 0.07 |
| MgO | 0.03 | 0.02 | 0.02 | 0.02 |
| CaO | 0.11 | 0.08 | 0.05 | 0.11 |
| Na2O | 3.94 | 4.14 | 3.81 | 4.19 |
| K2O | 3.86 | 3.89 | 4.04 | 3.83 |
| P2O5 | <0.01 | 0.01 | 0.01 | <0.01 |
| LOI | 0.70 | 0.54 | 0.51 | 0.30 |
| Total | 98.67 | 100.10 | 100.22 | 99.34 |
|  |  |  |  |  |
| Li | 146 | 223 | 72.2 | 97.1 |
| Be | 20.7 | 19.0 | 20.0 | 24.5 |
| F | 750 | 1490 | 330 | 680 |
| S | <0.01 | <0.01 | <0.01 | 0.01 |
| Sc | 0.30 | 0.20 | 0.20 | <0.10 |
| V | <5.00 | <5.00 | 53.0 | 2.00 |
| Cr | 5.00 | 7.00 | 8.00 | 6.00 |
| Co | 0.20 | 0.20 | 0.40 | 0.30 |
| Ni | 1.50 | 2.80 | 1.00 | 2.70 |
| Cu | 4.90 | 4.50 | 4.40 | 1.60 |
| Zn | 373 | 408 | 330 | 412 |
| Ga | 41.4 | 42.7 | 42.1 | 39.7 |
| Ge | 0.47 | 0.53 | 0.60 | 0.31 |
| As | 0.50 | 1.00 | 0.20 | 0.20 |
| Se | <1.00 | <1.00 | <1.00 | <1.00 |
| Rb | 381 | 430 | 335 | 332 |
| Sr | 5.30 | 3.40 | 7.90 | 5.10 |
| Y | 161 | 176 | 187 | 129 |
| Zr | 3010 | 3020 | 2640 | 2360 |
| Nb | 230 | 238 | 186 | 155 |
| Mo | 0.55 | 0.69 | 0.75 | 11.3 |
| Ag | 0.12 | 0.08 | 0.14 | 0.13 |
| Cd | 0.19 | 0.12 | 0.03 | 0.12 |
| In | 0.26 | 0.26 | 0.22 | 0.20 |
| Sn | 22 | 15 | 26 | 18 |
| Sb | 0.12 | 0.14 | 0.15 | 0.10 |
| Te | 0.07 | 0.08 | 0.08 | <0.05 |
| Cs | 1.62 | 1.82 | 1.30 | 0.87 |
| Ba | 28.9 | 49.0 | 8.80 | 23.7 |
| La | 94.6 | 78.7 | 128 | 97.9 |
| Ce | 238 | 225 | 321 | 243 |
| Pr | 29.4 | 28.3 | 38.3 | 28.7 |
| Nd | 114 | 117 | 145 | 101 |
| Sm | 28.1 | 31.2 | 36.0 | 22.4 |
| Eu | 0.18 | 0.2 | 0.27 | 0.13 |
| Gd | 24.1 | 28.7 | 32.2 | 19.6 |
| Tb | 4.35 | 5.18 | 5.31 | 3.41 |
| Dy | 27.9 | 33.1 | 33.3 | 21.8 |
| Ho | 5.84 | 7.13 | 6.53 | 4.56 |
| Er | 17.2 | 21.0 | 19.2 | 14.6 |
| Tm | 2.74 | 3.22 | 2.89 | 2.39 |
| Yb | 18.0 | 20.0 | 19.4 | 15.6 |
| Lu | 2.78 | 2.98 | 2.61 | 2.27 |
| Hf | 78 | 79 | 66 | 58 |
| Ta | 13.5 | 13.7 | 11.9 | 10.0 |
| W | 1 | 1.7 | 2.7 | 0.6 |
| Tl | 1.42 | 1.32 | 1.33 | 2.13 |
| Pb | 69.3 | 78.3 | 65.1 | 53.6 |
| Bi | 1.06 | 1.31 | 0.91 | 0.91 |
| Th | 68.7 | 60.2 | 61.9 | 44.5 |
| U | 13.0 | 13.3 | 13.5 | 12.0 |
| 147Sm/144Nd | 0.15 | 0.16 | 0.15 | 0.13 |
| 143Nd/144Nd | 0.512688 | 0.512699 | 0.512681 | 0.51267 |
| 2SE | 0.000005 | 0.000004 | 0.000004 | 0.000003 |
| εNd(t) | 1.8 | 1.8 | 1.7 | 1.6 |
| TDM1 (Ma) | 1092 | 1313 | 1136 | 921 |
| TDM2 (Ma) | 782 | 782 | 795 | 786 |

附表3 碱性角闪石主量元素数据

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | BEZ101i C-Arf1 | BEZ101i C-Arf2 | BEZ101i C-Arf3 | BEZ101i C-Arf4 | BEZ101j C-Arf1 | BEZ101j C-Arf2 | BEZ101o C-Arf1 | BEZ101o C-Arf2 | BEZ101o C-Arf3 | BEZ101o M-Arf1 | BEZ101i M-Arf3 | BEZ101i M-Arf2 | BEZ101j M-Arf1 | BEZ101j M-Arf2 | BEZ101j M-Arf3 |
| 采样位置 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 |
| 碱性角闪石类型 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 基质 | 基质 | 基质 | 基质 | 基质 | 基质 |
| K2O | 0.26 | 0.36 | 0.40 | 0.17 | 0.37 | 0.32 | 0.28 | 0.33 | 0.25 | 0.45 | 0.57 | 0.21 | 0.50 | 0.56 | 0.88 |
| CaO | 1.47 | 2.95 | 0.47 | 0.98 | 1.19 | 2.42 | 2.06 | 0.50 | 0.52 | 0.80 | 0.77 | 1.50 | 0.73 | 1.85 | 0.72 |
| TiO2 | 0.37 | 0.52 | 1.01 | 0.24 | 1.09 | 0.55 | 0.74 | 1.08 | 0.93 | 0.95 | 0.78 | 0.40 | 0.62 | 1.21 | 0.97 |
| Na2O | 5.17 | 4.78 | 5.86 | 5.75 | 5.43 | 5.00 | 5.26 | 6.16 | 5.90 | 5.84 | 5.81 | 5.28 | 5.64 | 5.14 | 6.25 |
| MgO | 0.02 | 0.03 | 0.01 | 0.01 | 0.02 | 0.00 | 0.04 | 0.01 | 0.02 | 0.02 | 0.01 | 0.05 | 0.04 | 0.03 | 0.03 |
| Al2O3 | 0.83 | 0.75 | 0.46 | 0.63 | 0.50 | 0.74 | 0.77 | 0.53 | 0.49 | 0.80 | 0.72 | 0.66 | 0.68 | 0.98 | 0.66 |
| SiO2 | 50.2 | 50.2 | 50.9 | 51.3 | 50.5 | 50.1 | 51.4 | 51.6 | 51.2 | 51.0 | 50.0 | 50.7 | 50.8 | 49.8 | 50.8 |
| FeO | 36.1 | 36.2 | 35.5 | 35.8 | 36.0 | 36.1 | 36.2 | 36.7 | 36.1 | 35.2 | 35.2 | 35.1 | 35.7 | 35.0 | 34.3 |
| MnO | 0.55 | 0.80 | 0.54 | 0.62 | 0.89 | 0.70 | 0.67 | 0.36 | 0.51 | 0.44 | 0.48 | 0.55 | 0.51 | 0.56 | 0.49 |
| F | 0.22 | 0.29 | 0.25 | 0.15 | 0.14 | 0.31 | 0.29 | 0.29 | 0.13 | 0.27 | 0.48 | 0.22 | 0.40 | 0.33 | 0.88 |
| Cl | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 |
| Total | 95.11 | 96.71 | 95.24 | 95.60 | 96.06 | 96.09 | 97.57 | 97.40 | 96.00 | 95.65 | 94.65 | 94.56 | 95.51 | 95.32 | 95.57 |

续表3

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | ALWL01b C-Arf1 | ALWL02b C-Arf4 | ALWL02b C-Arf5 | ALWL02b C-Arf6 | ALWL02b C-Arf8 | ALWL02b C-Arf7 | ALWL02b C-Arf3 | ALWL02b C-Arf10 | ALWL01b M-Arf1 | ALWL01b M-Arf2 | ALWL01b M-Arf3 |
| 采样位置 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 |
| 碱性角闪石类型 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 基质 | 基质 | 基质 |
| K2O | 1.20 | 1.04 | 1.11 | 1.13 | 0.99 | 1.23 | 0.87 | 0.55 | 1.11 | 1.45 | 1.20 |
| CaO | 0.60 | 3.04 | 2.63 | 1.51 | 1.58 | 0.55 | 1.32 | 0.26 | 0.59 | 0.04 | 1.18 |
| TiO2 | 0.86 | 1.22 | 1.32 | 0.97 | 1.08 | 0.83 | 0.66 | 0.32 | 0.96 | 1.14 | 0.99 |
| Na2O | 7.13 | 5.71 | 5.74 | 6.76 | 6.95 | 7.65 | 6.03 | 6.20 | 7.21 | 7.48 | 6.07 |
| MgO | 0.01 | 0.19 | 0.14 | 0.00 | 0.04 | 0.02 | 0.08 | 0.06 | 0.08 | 0.01 | 0.08 |
| Al2O3 | 0.76 | 1.64 | 1.12 | 1.08 | 0.84 | 0.80 | 0.83 | 0.65 | 0.58 | 0.44 | 0.91 |
| SiO2 | 49.4 | 47.7 | 49.1 | 50.0 | 49.4 | 50.7 | 50.0 | 51.5 | 51.3 | 51.6 | 50.8 |
| FeO | 34.7 | 33.5 | 33.6 | 34.3 | 35.6 | 33.8 | 34.6 | 35.7 | 33.3 | 32.7 | 33.8 |
| MnO | 0.44 | 0.56 | 0.60 | 0.52 | 0.56 | 0.50 | 0.65 | 0.94 | 0.50 | 0.46 | 0.50 |
| F | 1.65 | 1.40 | 1.50 | 1.54 | 1.51 | 2.00 | 1.31 | 0.64 | 1.89 | 2.04 | 1.29 |
| Cl | 0.02 | 0.05 | 0.06 | 0.02 | 0.03 | 0.01 | 0.02 | 0.00 | 0.01 | 0.00 | 0.03 |
| Total | 96.06 | 95.46 | 96.23 | 97.21 | 97.94 | 97.19 | 95.88 | 96.53 | 96.73 | 96.51 | 96.28 |

附表4 碱性角闪石微量元素数据

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | BEZ101i C-Arf1 | BEZ101i C-Arf2 | BEZ101i C-Arf3 | BEZ101i C-Arf4 | BEZ101j C-Arf1 | BEZ101j C-Arf2 | BEZ101o C-Arf1 | BEZ101o C-Arf2 | BEZ101o C-Arf3 |
|  |
| 采样位置 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 | 巴尔哲 |  |
| 碱性角闪石类型 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 |  |
| Li | 274 | 248 | 66 | 237 | 249 | 278 | 276 | 321 | 639 |  |
| Be | 120 | 103 | 5.83 | 95.8 | 110 | 85.7 | 107 | 259 | 77.8 |  |
| B | 3.66 | 17.7 | 1.65 | 13.6 | 2.89 | 26.5 | 0.00 | 0.17 | 0.00 |  |
| Sc | 1.69 | 1.42 | 2.41 | 1.58 | 0.80 | 1.68 | 1.59 | 2.31 | 3.75 |  |
| V | 40.2 | 39.6 | 2.81 | 51.1 | 26.2 | 35.2 | 59.2 | 61.5 | 20.3 |  |
| Cr | 0.29 | 3.86 | 0.00 | 1.79 | 0.00 | 2.05 | 1.37 | 1.54 | 3.57 |  |
| Co | 0.31 | 0.25 | 0.14 | 0.40 | 0.12 | 0.95 | 0.12 | 0.12 | 1.12 |  |
| Ni | 0.75 | 2.78 | 0.00 | 0.00 | 0.00 | 1.06 | 1.12 | 2.24 | 0.00 |  |
| Cu | 0.39 | 0.62 | 0.16 | 0.47 | 0.20 | 0.00 | 0.33 | 0.61 | 1.11 |  |
| Zn | 4412 | 4780 | 507 | 3438 | 4671 | 3605 | 3470 | 2590 | 3618 |  |
| Ga | 15.3 | 11.7 | 41.5 | 19.4 | 26.0 | 23.2 | 18.3 | 15.4 | 14.5 |  |
| As | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
| Rb | 4.47 | 1.22 | 629 | 5.73 | 95.6 | 7.38 | 16.6 | 9.85 | 21.2 |  |
| Sr | 3.26 | 2.84 | 3.06 | 3.19 | 3.63 | 3.86 | 4.35 | 5.13 | 3.56 |  |
| Y | 116 | 91.3 | 3.14 | 45.3 | 261 | 93.3 | 106 | 131 | 44.5 |  |
| Zr | 348 | 240 | 36 | 327 | 543 | 298 | 302 | 696 | 384 |  |
| Nb | 55.1 | 36.7 | 18.8 | 20.9 | 32.4 | 34.5 | 22.8 | 73.3 | 38.7 |  |
| Mo | 0.20 | 0.20 | 0.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
| Ag | 0.00 | 0.10 | 0.13 | 0.00 | 0.06 | 0.02 | 0.00 | 0.00 | 0.04 |  |
| Cd | 0.17 | 0.11 | 0.14 | 0.50 | 0.11 | 0.24 | 0.00 | 0.00 | 0.44 |  |
| Sn | 284 | 545 | 28.2 | 126 | 152 | 243 | 287 | 397 | 282 |  |
| Sb | 0.00 | 0.37 | 2.54 | 0.72 | 0.13 | 0.17 | 1.00 | 0.78 | 0.20 |  |
| Cs | 0.41 | 0.07 | 1.72 | 0.77 | 7.01 | 0.24 | 0.90 | 1.50 | 0.18 |  |
| Ba | 2.34 | 0.89 | 12.6 | 0.79 | 3.41 | 6.75 | 1.94 | 15.3 | 11.7 |  |
| La | 1.94 | 2.88 | 1.12 | 2.37 | 0.49 | 1.65 | 0.77 | 9.67 | 4.69 |  |
| Ce | 11.8 | 12.5 | 5.14 | 11.5 | 2.91 | 6.41 | 4.15 | 50.5 | 21.3 |  |
| Pr | 1.96 | 3.22 | 0.77 | 2.34 | 0.70 | 1.10 | 1.23 | 10.9 | 3.89 |  |
| Nd | 10.0 | 18.1 | 3.68 | 14.0 | 5.77 | 7.52 | 7.85 | 64.3 | 23.5 |  |
| Sm | 5.72 | 9.43 | 0.87 | 5.41 | 5.25 | 4.62 | 7.10 | 25.6 | 9.19 |  |
| Eu | 0.04 | 0.08 | 0.00 | 0.08 | 0.04 | 0.05 | 0.00 | 0.05 | 0.10 |  |
| Gd | 8.67 | 11.0 | 0.51 | 6.56 | 8.94 | 6.07 | 11.4 | 26.8 | 11.8 |  |
| Tb | 1.83 | 2.27 | 0.08 | 1.61 | 2.22 | 1.22 | 2.26 | 4.44 | 1.79 |  |
| Dy | 11.5 | 13.9 | 0.74 | 10.2 | 17.9 | 10.1 | 14.8 | 31.0 | 10.7 |  |
| Ho | 3.00 | 3.46 | 0.08 | 1.82 | 7.37 | 2.87 | 3.09 | 6.18 | 1.79 |  |
| Er | 10.2 | 16.2 | 0.59 | 7.06 | 47.4 | 14.3 | 13.2 | 15.1 | 6.72 |  |
| Tm | 1.88 | 3.60 | 0.04 | 0.83 | 10.9 | 3.26 | 2.45 | 2.03 | 0.94 |  |
| Yb | 15.8 | 32.0 | 1.31 | 6.97 | 66.3 | 29.6 | 17.5 | 12.2 | 7.48 |  |
| Lu | 2.05 | 5.03 | 0.21 | 1.49 | 6.01 | 3.31 | 2.74 | 1.56 | 1.24 |  |
| Hf | 11.8 | 9.25 | 1.27 | 11.0 | 12.3 | 8.73 | 10.3 | 35.1 | 17.1 |  |
| Ta | 7.05 | 4.55 | 0.64 | 1.76 | 5.13 | 5.67 | 6.09 | 10.8 | 3.70 |  |
| W | 0.00 | 0.05 | 0.03 | 0.00 | 0.02 | 0.05 | 0.12 | 0.00 | 0.20 |  |
| Hg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
| Tl | 0.09 | 0.00 | 3.87 | 0.08 | 0.83 | 0.01 | 0.18 | 0.08 | 0.10 |  |
| Bi | 0.14 | 0.04 | 0.00 | 0.06 | 0.03 | 0.06 | 0.00 | 0.00 | 0.39 |  |
| Pb | 15.2 | 8.68 | 24.0 | 6.30 | 9.40 | 28.4 | 9.45 | 16.6 | 14.5 |  |
| Th | 2.87 | 1.09 | 1.98 | 0.33 | 0.90 | 3.08 | 0.46 | 4.33 | 0.89 |  |
| U | 0.07 | 0.05 | 0.53 | 0.02 | 0.17 | 0.09 | 0.07 | 0.05 | 0.24 |  |

续表4

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | ALWL02b C-Arf3 | ALWL02b C-Arf4 | ALWL02b C-Arf5 | ALWL02b C-Arf6 | ALWL02b C-Arf7 | ALWL02b C-Arf8 | ALWL02b C-Arf10 |
|  |
| 采样位置 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 | 阿里乌拉 |  |
| 碱性角闪石类型 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 | 聚晶 |  |
| Li | 3131 | 2139 | 2590 | 916 | 4032 | 438 | 2489 |  |
| Be | 81.8 | 20.8 | 26.6 | 14.6 | 13.6 | 12.3 | 84.1 |  |
| B | 4.36 | 6.03 | 10.7 | 2.70 | 0.00 | 3.08 | 0.87 |  |
| Sc | 4.07 | 10.1 | 7.31 | 7.80 | 2.07 | 6.48 | 2.00 |  |
| V | 2.47 | 3.01 | 1.34 | 3.57 | 0.85 | 1.32 | 1.51 |  |
| Cr | 12.1 | 0.66 | 53.4 | 3.21 | 4.84 | 3.93 | 5.88 |  |
| Co | 1.53 | 1.12 | 0.69 | 0.78 | 0.27 | 0.86 | 0.79 |  |
| Ni | 7.07 | 0.00 | 0.00 | 18.4 | 1.9 | 2.6 | 1.1 |  |
| Cu | 11.1 | 4.46 | 2.52 | 85.8 | 3.32 | 4.61 | 8.08 |  |
| Zn | 3284 | 3629 | 3341 | 4266 | 5036 | 3602 | 8098 |  |
| Ga | 23.4 | 25.2 | 17.5 | 34.7 | 14.3 | 19.7 | 12.0 |  |
| As | 0.70 | 0.87 | 2.76 | 1.95 | 0.32 | 1.37 | 2.77 |  |
| Rb | 12.3 | 15.8 | 17.0 | 28.9 | 46.2 | 18.2 | 7.43 |  |
| Sr | 5.68 | 4.84 | 1.79 | 6.14 | 1.20 | 2.73 | 5.78 |  |
| Y | 141 | 76.7 | 97.5 | 81.0 | 25.9 | 62.7 | 31.6 |  |
| Zr | 598 | 732 | 2517 | 732 | 747 | 572 | 1070 |  |
| Nb | 65.3 | 117 | 113 | 212 | 69.3 | 60.2 | 3298 |  |
| Mo | 0.28 | 0.73 | 0.26 | 0.54 | 0.32 | 0.51 | 0.00 |  |
| Ag | 0.03 | 0.04 | 0.28 | 0.00 | 0.00 | 0.07 | 0.00 |  |
| Cd | 1.42 | 3.65 | 0.36 | 7.19 | 1.31 | 2.04 | 0.98 |  |
| Sn | 449 | 11.3 | 11.1 | 11.7 | 34.8 | 12.6 | 217 |  |
| Sb | 0.23 | 0.46 | 0.14 | 0.26 | 0.09 | 0.06 | 0.26 |  |
| Cs | 0.22 | 0.11 | 0.23 | 0.57 | 0.15 | 0.24 | 0.41 |  |
| Ba | 3.48 | 1.19 | 0.55 | 16.5 | 0.98 | 0.88 | 5.52 |  |
| La | 35.4 | 59.2 | 47.7 | 48.1 | 11.0 | 37.5 | 9.61 |  |
| Ce | 114 | 195 | 166 | 172 | 35.1 | 128 | 32.3 |  |
| Pr | 19.4 | 31.1 | 26.6 | 27.3 | 5.64 | 20.0 | 4.83 |  |
| Nd | 93.1 | 133.6 | 116.0 | 118.3 | 26.9 | 91.7 | 28.1 |  |
| Sm | 29.9 | 30.8 | 28.4 | 27.0 | 6.76 | 22.6 | 13.6 |  |
| Eu | 0.15 | 0.21 | 0.14 | 0.30 | 0.03 | 0.18 | 0.08 |  |
| Gd | 29.4 | 19.8 | 20.9 | 17.8 | 4.58 | 15.3 | 15.4 |  |
| Tb | 4.41 | 2.93 | 4.09 | 3.07 | 0.71 | 2.13 | 2.67 |  |
| Dy | 23.0 | 17.5 | 22.2 | 15.1 | 4.42 | 12.5 | 10.7 |  |
| Ho | 4.43 | 3.55 | 5.08 | 3.23 | 1.32 | 3.09 | 1.53 |  |
| Er | 14.0 | 13.8 | 18.5 | 12.7 | 5.56 | 11.6 | 3.18 |  |
| Tm | 3.01 | 3.50 | 4.04 | 3.15 | 1.85 | 2.86 | 0.35 |  |
| Yb | 29.6 | 36.0 | 49.9 | 33.8 | 21.4 | 35.0 | 3.87 |  |
| Lu | 7.13 | 8.34 | 9.95 | 7.71 | 4.72 | 7.82 | 0.95 |  |
| Hf | 26.0 | 51.5 | 77.1 | 33.4 | 24.5 | 19.7 | 153.4 |  |
| Ta | 1.86 | 2.24 | 3.12 | 3.33 | 1.62 | 0.79 | 100 |  |
| W | 0.00 | 0.29 | 0.00 | 0.00 | 0.14 | 0.00 | 3.85 |  |
| Hg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
| Tl | 0.03 | 0.09 | 0.00 | 0.04 | 0.09 | 0.05 | 0.00 |  |
| Bi | 0.00 | 0.31 | 0.22 | 6.66 | 0.06 | 0.12 | 4.31 |  |
| Pb | 16.0 | 54.2 | 9.31 | 506.0 | 15.3 | 15.2 | 296.0 |  |
| Th | 4.84 | 1.90 | 24.4 | 29.3 | 0.65 | 0.77 | 60.5 |  |
| U | 0.05 | 1.22 | 9.03 | 0.05 | 0.05 | 0.03 | 0.97 |  |