表1哈日扎-那更康切尔地区花岗岩、花岗斑岩锆石LA-ICP-MS测年结果

Table 1. Zircon LA-ICP-MS isotopic data for the granite and porphyritic granite at Harizha-Nagengkangqieer

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HI5-N1 | | | | | | | | | | | | | | | | |
| 01 | 18.2 | 215 | 369 | 0.58 | 0.05195 | 0.00109 | 0.28793 | 0.00649 | 0.04016 | 0.00037 | 283.0 | 48.2 | 256.9 | 5.1 | 253.8 | 2.3 |
| 02 | 14.9 | 220 | 279 | 0.79 | 0.05205 | 0.00136 | 0.29011 | 0.00745 | 0.04051 | 0.00046 | 287.8 | 59.7 | 258.6 | 5.9 | 256.0 | 2.8 |
| 03 | 8.02 | 74.8 | 163 | 0.46 | 0.05080 | 0.00127 | 0.28141 | 0.00694 | 0.04034 | 0.00033 | 231.8 | 57.5 | 251.8 | 5.5 | 255.0 | 2.0 |
| 04 | 18.2 | 208 | 355 | 0.59 | 0.05210 | 0.00120 | 0.29149 | 0.00743 | 0.04057 | 0.00037 | 289.7 | 52.5 | 259.7 | 5.8 | 256.3 | 2.3 |
| 05 | 19.1 | 250 | 383 | 0.65 | 0.05086 | 0.00103 | 0.28440 | 0.00630 | 0.04051 | 0.00034 | 234.4 | 46.9 | 254.1 | 5.0 | 256.0 | 2.1 |
| 06 | 19.2 | 253 | 380 | 0.66 | 0.05062 | 0.00089 | 0.28450 | 0.00591 | 0.04068 | 0.00038 | 223.5 | 40.8 | 254.2 | 4.7 | 257.0 | 2.4 |
| 07 | 14.0 | 220 | 264 | 0.83 | 0.05351 | 0.00117 | 0.29786 | 0.00745 | 0.04035 | 0.00038 | 350.4 | 49.2 | 264.7 | 5.8 | 255.0 | 2.4 |
| 08 | 14.2 | 194 | 275 | 0.71 | 0.05112 | 0.00103 | 0.28462 | 0.00622 | 0.04044 | 0.00034 | 246.4 | 46.6 | 254.3 | 4.9 | 255.6 | 2.1 |
| 09 | 7.72 | 79.7 | 154 | 0.52 | 0.05173 | 0.00202 | 0.28807 | 0.01245 | 0.04062 | 0.00081 | 273.5 | 89.3 | 257.0 | 9.8 | 256.7 | 5.0 |
| 10 | 13.3 | 200 | 262 | 0.76 | 0.05085 | 0.00138 | 0.28355 | 0.00851 | 0.04063 | 0.00064 | 233.9 | 62.6 | 253.5 | 6.7 | 256.7 | 4.0 |
| 11 | 13.0 | 176 | 258 | 0.68 | 0.05132 | 0.00094 | 0.28578 | 0.00557 | 0.04046 | 0.00042 | 255.1 | 42.1 | 255.2 | 4.4 | 255.7 | 2.6 |
| 12 | 12.8 | 195 | 237 | 0.82 | 0.05215 | 0.00177 | 0.28925 | 0.00915 | 0.04024 | 0.00059 | 292.0 | 77.5 | 258.0 | 7.2 | 254.3 | 3.7 |
| 13 | 12.9 | 210 | 243 | 0.86 | 0.05534 | 0.00158 | 0.31081 | 0.00944 | 0.04071 | 0.00050 | 425.9 | 63.5 | 274.8 | 7.3 | 257.2 | 3.1 |
| 14 | 17.8 | 249 | 350 | 0.71 | 0.04993 | 0.00089 | 0.27207 | 0.00544 | 0.03941 | 0.00026 | 191.8 | 41.5 | 244.3 | 4.3 | 249.2 | 1.6 |
| 15 | 15.4 | 224 | 292 | 0.77 | 0.05186 | 0.00144 | 0.28903 | 0.00813 | 0.04035 | 0.00045 | 279.1 | 63.5 | 257.8 | 6.4 | 255.0 | 2.8 |
| 16 | 12.6 | 173 | 242 | 0.72 | 0.05101 | 0.00124 | 0.28510 | 0.00712 | 0.04068 | 0.00033 | 241.4 | 55.9 | 254.7 | 5.6 | 257.0 | 2.0 |
| 17 | 17.4 | 249 | 339 | 0.73 | 0.05225 | 0.00090 | 0.29070 | 0.00589 | 0.04026 | 0.00031 | 296.5 | 39.5 | 259.1 | 4.6 | 254.4 | 1.9 |
| 18 | 17.8 | 198 | 355 | 0.56 | 0.05171 | 0.00094 | 0.28987 | 0.00601 | 0.04052 | 0.00035 | 272.7 | 41.6 | 258.5 | 4.7 | 256.1 | 2.2 |
| 19 | 11.4 | 178 | 222 | 0.80 | 0.05227 | 0.00115 | 0.29040 | 0.00657 | 0.04037 | 0.00044 | 297.4 | 50.1 | 258.9 | 5.2 | 255.1 | 2.7 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HI5-N1 | | | | | | | | | | | | | | | | |
| 20 | 11.8 | 153 | 224 | 0.68 | 0.05066 | 0.00152 | 0.28358 | 0.00871 | 0.04048 | 0.00046 | 225.4 | 69.6 | 253.5 | 6.9 | 255.8 | 2.8 |
| 21 | 19.4 | 234 | 381 | 0.62 | 0.05097 | 0.00125 | 0.28581 | 0.00634 | 0.04066 | 0.00052 | 239.6 | 56.4 | 255.3 | 5.0 | 256.9 | 3.2 |
| 22 | 15.2 | 207 | 303 | 0.68 | 0.05092 | 0.00122 | 0.28708 | 0.00640 | 0.04092 | 0.00056 | 237.3 | 55.4 | 256.3 | 5.1 | 258.5 | 3.5 |
| 23 | 17.4 | 197 | 351 | 0.56 | 0.05170 | 0.00085 | 0.28788 | 0.00517 | 0.04047 | 0.00038 | 272.0 | 37.6 | 256.9 | 4.1 | 255.7 | 2.4 |
| 24 | 20.9 | 279 | 405 | 0.69 | 0.05070 | 0.00102 | 0.29200 | 0.00568 | 0.04185 | 0.00051 | 227.0 | 46.4 | 260.1 | 4.5 | 264.3 | 3.2 |
| 25 | 7.62 | 71.7 | 157 | 0.46 | 0.05077 | 0.00159 | 0.28445 | 0.00930 | 0.04065 | 0.00061 | 230.2 | 72.4 | 254.2 | 7.4 | 256.9 | 3.8 |
| 26 | 8.45 | 105 | 168 | 0.62 | 0.05175 | 0.00136 | 0.28838 | 0.00772 | 0.04041 | 0.00045 | 274.2 | 60.3 | 257.3 | 6.1 | 255.4 | 2.8 |
| 27 | 15.4 | 219 | 311 | 0.70 | 0.05121 | 0.00120 | 0.28541 | 0.00722 | 0.04062 | 0.00070 | 250.4 | 53.9 | 254.9 | 5.7 | 256.7 | 4.3 |
| 28 | 10.8 | 98.0 | 218 | 0.45 | 0.05116 | 0.00124 | 0.28598 | 0.00686 | 0.04063 | 0.00045 | 248.2 | 55.8 | 255.4 | 5.4 | 256.7 | 2.8 |
| 29 | 14.9 | 227 | 286 | 0.79 | 0.05122 | 0.00099 | 0.28617 | 0.00565 | 0.04058 | 0.00036 | 250.8 | 44.6 | 255.5 | 4.5 | 256.4 | 2.2 |
| 30 | 13.0 | 166 | 249 | 0.67 | 0.05383 | 0.00109 | 0.29862 | 0.00594 | 0.04030 | 0.00040 | 364.0 | 45.7 | 265.3 | 4.6 | 254.7 | 2.5 |
| HI9-N1 | | | | | | | | | | | | | | | | |
| 01 | 15.4 | 200 | 291 | 0.69 | 0.05275 | 0.00142 | 0.29608 | 0.00895 | 0.04063 | 0.00054 | 318.2 | 61.3 | 263.3 | 7.0 | 256.7 | 3.3 |
| 02 | 11.6 | 170 | 226 | 0.75 | 0.05257 | 0.00108 | 0.29128 | 0.00606 | 0.04041 | 0.00054 | 310.4 | 46.9 | 259.6 | 4.8 | 255.4 | 3.3 |
| 03 | 14.7 | 203 | 295 | 0.69 | 0.05060 | 0.00112 | 0.28047 | 0.00678 | 0.04035 | 0.00056 | 222.5 | 51.4 | 251.0 | 5.4 | 255.0 | 3.4 |
| 04 | 16.4 | 261 | 307 | 0.85 | 0.05166 | 0.00119 | 0.28931 | 0.00848 | 0.04048 | 0.00061 | 270.3 | 52.7 | 258.0 | 6.7 | 255.8 | 3.8 |
| 05 | 12.4 | 190 | 244 | 0.78 | 0.05069 | 0.00123 | 0.28261 | 0.00764 | 0.04051 | 0.00057 | 226.6 | 56.1 | 252.7 | 6.1 | 256.0 | 3.5 |
| 06 | 8.23 | 97.2 | 164 | 0.59 | 0.05228 | 0.00137 | 0.29141 | 0.00777 | 0.04051 | 0.00041 | 297.8 | 59.9 | 259.7 | 6.1 | 256.0 | 2.6 |
| 07 | 12.6 | 183 | 252 | 0.73 | 0.05152 | 0.00101 | 0.27832 | 0.00542 | 0.03931 | 0.00039 | 264.3 | 45.1 | 249.3 | 4.3 | 248.5 | 2.4 |
| 08 | 15.0 | 227 | 280 | 0.81 | 0.05176 | 0.00104 | 0.28774 | 0.00539 | 0.04049 | 0.00043 | 275.0 | 46.2 | 256.8 | 4.2 | 255.9 | 2.7 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HI9-N1 | | | | | | | | | | | | | | | | |
| 09 | 17.6 | 282 | 339 | 0.83 | 0.05162 | 0.00096 | 0.28789 | 0.00552 | 0.04041 | 0.00036 | 268.7 | 42.7 | 256.9 | 4.4 | 255.4 | 2.2 |
| 10 | 15.2 | 209 | 291 | 0.72 | 0.05141 | 0.00118 | 0.28685 | 0.00641 | 0.04066 | 0.00071 | 259.4 | 52.6 | 256.1 | 5.1 | 256.9 | 4.4 |
| 11 | 27.8 | 372 | 562 | 0.66 | 0.05073 | 0.00078 | 0.28173 | 0.00481 | 0.04029 | 0.00035 | 228.4 | 35.3 | 252.0 | 3.8 | 254.6 | 2.2 |
| 12 | 8.05 | 93.3 | 158 | 0.59 | 0.05229 | 0.00128 | 0.29596 | 0.00665 | 0.04146 | 0.00045 | 298.3 | 56.0 | 263.2 | 5.2 | 261.9 | 2.8 |
| 13 | 27.1 | 382 | 516 | 0.74 | 0.05151 | 0.00095 | 0.28575 | 0.00495 | 0.04025 | 0.00034 | 263.8 | 42.5 | 255.2 | 3.9 | 254.4 | 2.1 |
| 14 | 10.6 | 166 | 208 | 0.80 | 0.05474 | 0.00136 | 0.29915 | 0.00726 | 0.03977 | 0.00040 | 401.6 | 55.5 | 265.7 | 5.7 | 251.4 | 2.5 |
| 15 | 7.77 | 91.7 | 166 | 0.55 | 0.05226 | 0.00195 | 0.28877 | 0.01091 | 0.04041 | 0.00075 | 296.8 | 84.9 | 257.6 | 8.6 | 255.4 | 4.6 |
| 16 | 12.1 | 184 | 236 | 0.78 | 0.05282 | 0.00124 | 0.29279 | 0.00685 | 0.04035 | 0.00051 | 321.0 | 53.2 | 260.8 | 5.4 | 255.0 | 3.2 |
| 17 | 16.5 | 235 | 319 | 0.74 | 0.05162 | 0.00133 | 0.28806 | 0.00708 | 0.04075 | 0.00060 | 268.8 | 59.2 | 257.0 | 5.6 | 257.5 | 3.7 |
| 18 | 11.3 | 177 | 226 | 0.78 | 0.05232 | 0.00153 | 0.28914 | 0.00862 | 0.04032 | 0.00068 | 299.5 | 66.8 | 257.9 | 6.8 | 254.8 | 4.2 |
| 19 | 14.1 | 234 | 264 | 0.88 | 0.05257 | 0.00102 | 0.29189 | 0.00574 | 0.04027 | 0.00035 | 310.2 | 44.0 | 260.0 | 4.5 | 254.5 | 2.2 |
| 20 | 18.3 | 176 | 362 | 0.49 | 0.05295 | 0.00185 | 0.29428 | 0.00954 | 0.04054 | 0.00058 | 326.6 | 79.5 | 261.9 | 7.5 | 256.2 | 3.6 |
| 21 | 15.9 | 267 | 310 | 0.86 | 0.07377 | 0.00396 | 0.41182 | 0.02311 | 0.04053 | 0.00076 | 1035.2 | 108.4 | 350.2 | 16.6 | 256.1 | 4.7 |
| 22 | 11.9 | 177 | 241 | 0.74 | 0.05140 | 0.00096 | 0.27699 | 0.00509 | 0.03918 | 0.00033 | 258.6 | 42.7 | 248.3 | 4.0 | 247.8 | 2.1 |
| 23 | 11.9 | 186 | 236 | 0.79 | 0.05101 | 0.00137 | 0.28243 | 0.00770 | 0.04034 | 0.00064 | 241.4 | 61.9 | 252.6 | 6.1 | 254.9 | 3.9 |
| 24 | 10.1 | 141 | 199 | 0.71 | 0.05235 | 0.00110 | 0.28874 | 0.00584 | 0.04019 | 0.00036 | 300.6 | 47.9 | 257.6 | 4.6 | 254.0 | 2.2 |
| 25 | 12.7 | 169 | 250 | 0.68 | 0.05341 | 0.00100 | 0.29763 | 0.00559 | 0.04046 | 0.00035 | 346.4 | 42.4 | 264.5 | 4.4 | 255.7 | 2.1 |
| 26 | 12.6 | 150 | 256 | 0.59 | 0.05207 | 0.00107 | 0.29082 | 0.00628 | 0.04049 | 0.00037 | 288.5 | 46.8 | 259.2 | 4.9 | 255.9 | 2.3 |
| 27 | 13.2 | 232 | 253 | 0.92 | 0.05622 | 0.00160 | 0.31282 | 0.01006 | 0.04057 | 0.00079 | 461.2 | 63.1 | 276.4 | 7.8 | 256.4 | 4.9 |
| 28 | 11.1 | 156 | 207 | 0.75 | 0.05162 | 0.00137 | 0.28839 | 0.00810 | 0.04041 | 0.00040 | 268.8 | 61.1 | 257.3 | 6.4 | 255.4 | 2.5 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HI9-N1 | | | | | | | | | | | | | | | | |
| 29 | 13.1 | 214 | 260 | 0.83 | 0.05309 | 0.00098 | 0.28323 | 0.00491 | 0.03886 | 0.00033 | 332.6 | 41.8 | 253.2 | 3.9 | 245.7 | 2.0 |
| 30 | 21.3 | 359 | 409 | 0.88 | 0.05301 | 0.00082 | 0.29475 | 0.00467 | 0.04041 | 0.00048 | 329.2 | 35.2 | 262.3 | 3.7 | 255.4 | 3.0 |
| HV3-N2 | | | | | | | | | | | | | | | | |
| 01 | 11.1 | 133 | 213 | 0.62 | 0.05034 | 0.00115 | 0.27388 | 0.00712 | 0.03936 | 0.00059 | 210.7 | 53.0 | 245.8 | 5.7 | 248.9 | 3.7 |
| 02 | 10.0 | 140 | 202 | 0.70 | 0.05148 | 0.00168 | 0.27695 | 0.00806 | 0.03945 | 0.00068 | 262.4 | 75.0 | 248.2 | 6.4 | 249.4 | 4.2 |
| 03 | 28.9 | 340 | 601 | 0.57 | 0.05067 | 0.00062 | 0.27207 | 0.00356 | 0.03889 | 0.00028 | 225.7 | 28.5 | 244.3 | 2.8 | 246.0 | 1.7 |
| 04 | 24.9 | 304 | 524 | 0.58 | 0.05286 | 0.00084 | 0.28541 | 0.00584 | 0.03895 | 0.00046 | 322.8 | 36.0 | 254.9 | 4.6 | 246.3 | 2.9 |
| 05 | 11.7 | 200 | 260 | 0.77 | 0.05111 | 0.00100 | 0.23932 | 0.00502 | 0.03397 | 0.00034 | 246.0 | 45.2 | 217.9 | 4.1 | 215.4 | 2.1 |
| 06 | 9.65 | 131 | 221 | 0.59 | 0.05147 | 0.00144 | 0.24961 | 0.00701 | 0.03545 | 0.00051 | 262.0 | 64.0 | 226.3 | 5.7 | 224.6 | 3.2 |
| 07 | 15.1 | 203 | 301 | 0.67 | 0.05125 | 0.00123 | 0.27893 | 0.00646 | 0.03945 | 0.00046 | 252.0 | 55.4 | 249.8 | 5.1 | 249.4 | 2.9 |
| 08 | 243 | 1124 | 1795 | 0.63 | 0.16841 | 0.00372 | 1.86540 | 0.02596 | 0.08002 | 0.00199 | 2541.9 | 37.0 | 1068.9 | 9.2 | 496.2 | 11.9 |
| 09 | 8.01 | 88.6 | 214 | 0.41 | 0.04972 | 0.00235 | 0.24061 | 0.01292 | 0.03519 | 0.00100 | 181.8 | 110.0 | 218.9 | 10.6 | 223.0 | 6.2 |
| 10 | 12.3 | 152 | 322 | 0.47 | 0.05034 | 0.00138 | 0.24436 | 0.00784 | 0.03519 | 0.00079 | 210.9 | 63.5 | 222.0 | 6.4 | 223.0 | 4.9 |
| 11 | 26.9 | 546 | 526 | 1.04 | 0.06032 | 0.00102 | 0.29699 | 0.00469 | 0.03576 | 0.00044 | 615.1 | 36.5 | 264.0 | 3.7 | 226.5 | 2.7 |
| 12 | 16.6 | 255 | 368 | 0.69 | 0.05332 | 0.00195 | 0.26192 | 0.00807 | 0.03588 | 0.00094 | 342.5 | 82.6 | 236.2 | 6.5 | 227.2 | 5.8 |
| 13 | 59.5 | 610 | 1257 | 0.49 | 0.05205 | 0.00111 | 0.27636 | 0.00461 | 0.03854 | 0.00066 | 287.8 | 48.9 | 247.8 | 3.7 | 243.8 | 4.1 |
| 14 | 30.9 | 422 | 656 | 0.64 | 0.05773 | 0.00081 | 0.30804 | 0.00551 | 0.03857 | 0.00049 | 519.4 | 30.8 | 272.7 | 4.3 | 244.0 | 3.0 |
| 15 | 9.01 | 157 | 210 | 0.74 | 0.05150 | 0.00171 | 0.24784 | 0.00841 | 0.03511 | 0.00091 | 263.5 | 76.2 | 224.8 | 6.8 | 222.5 | 5.7 |
| 16 | 10.3 | 100 | 216 | 0.46 | 0.05486 | 0.00167 | 0.29472 | 0.00826 | 0.03913 | 0.00056 | 406.5 | 68.0 | 262.3 | 6.5 | 247.4 | 3.5 |
| 17 | 40.5 | 524 | 1020 | 0.51 | 0.06207 | 0.00164 | 0.29952 | 0.00821 | 0.03516 | 0.00098 | 676.5 | 56.6 | 266.0 | 6.4 | 222.8 | 6.1 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HV3-N2 | | | | | | | | | | | | | | | | |
| 18 | 42.4 | 258 | 237 | 1.09 | 0.43576 | 0.01568 | 4.05701 | 0.21385 | 0.06667 | 0.00175 | 4037.3 | 53.7 | 1645.7 | 42.9 | 416.1 | 10.6 |
| 19 | 71.3 | 633 | 726 | 0.87 | 0.27602 | 0.00587 | 1.90711 | 0.04619 | 0.04993 | 0.00120 | 3340.5 | 33.3 | 1083.6 | 16.1 | 314.1 | 7.4 |
| 20 | 21.2 | 234 | 401 | 0.58 | 0.12998 | 0.00319 | 0.70785 | 0.01979 | 0.03914 | 0.00104 | 2097.7 | 43.2 | 543.5 | 11.8 | 247.5 | 6.5 |
| 21 | 18.9 | 199 | 358 | 0.56 | 0.05242 | 0.00086 | 0.31641 | 0.00485 | 0.04369 | 0.00042 | 303.8 | 37.5 | 279.1 | 3.7 | 275.7 | 2.6 |
| 22 | 20.3 | 260 | 461 | 0.56 | 0.05165 | 0.00091 | 0.25243 | 0.00500 | 0.03537 | 0.00022 | 270.1 | 40.6 | 228.5 | 4.1 | 224.1 | 1.4 |
| 23 | 19.6 | 237 | 499 | 0.47 | 0.05024 | 0.00148 | 0.25123 | 0.00749 | 0.03600 | 0.00079 | 206.2 | 68.3 | 227.6 | 6.1 | 228.0 | 4.9 |
| 24 | 13.7 | 234 | 330 | 0.71 | 0.04996 | 0.00159 | 0.24602 | 0.00675 | 0.03564 | 0.00083 | 193.2 | 73.9 | 223.3 | 5.5 | 225.7 | 5.2 |
| 25 | 24.6 | 275 | 575 | 0.48 | 0.05060 | 0.00068 | 0.24879 | 0.00389 | 0.03561 | 0.00026 | 222.6 | 31.2 | 225.6 | 3.2 | 225.6 | 1.6 |
| 26 | 6.36 | 83.3 | 141 | 0.59 | 0.05045 | 0.00143 | 0.24630 | 0.00739 | 0.03545 | 0.00032 | 215.8 | 65.9 | 223.6 | 6.0 | 224.6 | 2.0 |
| 27 | 7.06 | 91.1 | 160 | 0.57 | 0.05169 | 0.00134 | 0.24949 | 0.00671 | 0.03521 | 0.00037 | 271.9 | 59.2 | 226.2 | 5.5 | 223.0 | 2.3 |
| 28 | 12.9 | 293 | 264 | 1.11 | 0.05036 | 0.00101 | 0.24425 | 0.00538 | 0.03512 | 0.00043 | 211.8 | 46.7 | 221.9 | 4.4 | 222.5 | 2.6 |
| 29 | 20.4 | 171 | 485 | 0.35 | 0.05120 | 0.00145 | 0.24674 | 0.00682 | 0.03491 | 0.00043 | 250.0 | 65.3 | 223.9 | 5.6 | 221.2 | 2.7 |
| 30 | 13.6 | 148 | 314 | 0.47 | 0.05043 | 0.00121 | 0.24178 | 0.00576 | 0.03480 | 0.00040 | 214.9 | 55.7 | 219.9 | 4.7 | 220.5 | 2.5 |
| HV7-N1 | | | | | | | | | | | | | | | | |
| 01 | 21.9 | 273 | 524 | 0.52 | 0.05060 | 0.00085 | 0.24513 | 0.00501 | 0.03505 | 0.00042 | 222.7 | 38.9 | 222.6 | 4.1 | 222.1 | 2.6 |
| 02 | 151 | 986 | 2560 | 0.39 | 0.12702 | 0.00382 | 0.73525 | 0.02925 | 0.04178 | 0.00073 | 2057.2 | 53.0 | 559.6 | 17.1 | 263.9 | 4.5 |
| 03 | 25.5 | 352 | 556 | 0.63 | 0.05104 | 0.00086 | 0.25178 | 0.00424 | 0.03586 | 0.00031 | 242.7 | 38.7 | 228.0 | 3.4 | 227.1 | 2.0 |
| 04 | 15.6 | 244 | 338 | 0.72 | 0.05105 | 0.00108 | 0.24723 | 0.00560 | 0.03520 | 0.00031 | 243.1 | 48.8 | 224.3 | 4.6 | 223.0 | 1.9 |
| 05 | 18.8 | 236 | 441 | 0.53 | 0.05088 | 0.00085 | 0.24657 | 0.00390 | 0.03523 | 0.00032 | 235.4 | 38.6 | 223.8 | 3.2 | 223.2 | 2.0 |
| 06 | 18.2 | 242 | 445 | 0.54 | 0.05078 | 0.00102 | 0.24560 | 0.00627 | 0.03519 | 0.00059 | 230.9 | 46.2 | 223.0 | 5.1 | 222.9 | 3.7 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HV7-N1 | | | | | | | | | | | | | | | | |
| 07 | 6.65 | 53.2 | 88.6 | 0.60 | 0.20134 | 0.00750 | 1.22319 | 0.04385 | 0.04458 | 0.00120 | 2837.1 | 60.7 | 811.2 | 20.0 | 281.2 | 7.4 |
| 08 | 12.0 | 169 | 285 | 0.59 | 0.05124 | 0.00124 | 0.24589 | 0.00536 | 0.03524 | 0.00049 | 251.6 | 55.9 | 223.2 | 4.4 | 223.3 | 3.1 |
| 09 | 18.6 | 176 | 459 | 0.38 | 0.05080 | 0.00090 | 0.24642 | 0.00499 | 0.03519 | 0.00036 | 231.6 | 40.7 | 223.7 | 4.1 | 222.9 | 2.2 |
| 10 | 20.0 | 286 | 494 | 0.58 | 0.05146 | 0.00156 | 0.24714 | 0.00887 | 0.03525 | 0.00073 | 261.5 | 69.6 | 224.3 | 7.2 | 223.3 | 4.5 |
| 11 | 26.9 | 297 | 675 | 0.44 | 0.05327 | 0.00096 | 0.26095 | 0.00577 | 0.03574 | 0.00065 | 340.5 | 40.6 | 235.4 | 4.6 | 226.4 | 4.1 |
| 12 | 20.7 | 331 | 474 | 0.70 | 0.05072 | 0.00091 | 0.24466 | 0.00390 | 0.03510 | 0.00043 | 227.9 | 41.5 | 222.2 | 3.2 | 222.4 | 2.7 |
| 13 | 23.3 | 226 | 566 | 0.40 | 0.05282 | 0.00080 | 0.25631 | 0.00445 | 0.03519 | 0.00034 | 321.2 | 34.5 | 231.7 | 3.6 | 222.9 | 2.1 |
| 14 | 8.91 | 109 | 201 | 0.54 | 0.05161 | 0.00226 | 0.24775 | 0.01033 | 0.03510 | 0.00056 | 268.4 | 100.4 | 224.7 | 8.4 | 222.4 | 3.5 |
| 15 | 17.0 | 206 | 419 | 0.49 | 0.05123 | 0.00107 | 0.24723 | 0.00562 | 0.03518 | 0.00072 | 251.0 | 48.3 | 224.3 | 4.6 | 222.9 | 4.5 |
| 16 | 32.5 | 10.1 | 441 | 0.02 | 0.05592 | 0.00086 | 0.52447 | 0.01078 | 0.06791 | 0.00073 | 449.3 | 34.3 | 428.1 | 7.2 | 423.6 | 4.4 |
| 17 | 30.3 | 449 | 701 | 0.64 | 0.05074 | 0.00093 | 0.24464 | 0.00432 | 0.03499 | 0.00043 | 229.1 | 42.5 | 222.2 | 3.5 | 221.7 | 2.7 |
| 18 | 9.93 | 108 | 246 | 0.44 | 0.05130 | 0.00146 | 0.24557 | 0.00654 | 0.03498 | 0.00046 | 254.2 | 65.5 | 223.0 | 5.3 | 221.6 | 2.9 |
| 19 | 10.3 | 141 | 226 | 0.62 | 0.05130 | 0.00111 | 0.24805 | 0.00547 | 0.03517 | 0.00031 | 254.2 | 49.6 | 225.0 | 4.4 | 222.8 | 2.0 |
| 20 | 25.5 | 256 | 620 | 0.41 | 0.05053 | 0.00095 | 0.24535 | 0.00464 | 0.03512 | 0.00039 | 219.4 | 43.5 | 222.8 | 3.8 | 222.5 | 2.4 |
| 21 | 11.0 | 174 | 242 | 0.72 | 0.05096 | 0.00130 | 0.24539 | 0.00612 | 0.03504 | 0.00041 | 238.9 | 58.7 | 222.8 | 5.0 | 222.0 | 2.6 |
| 22 | 21.0 | 197 | 510 | 0.39 | 0.05059 | 0.00088 | 0.24600 | 0.00462 | 0.03517 | 0.00038 | 222.1 | 40.1 | 223.3 | 3.8 | 222.8 | 2.4 |
| 23 | 32.1 | 276 | 767 | 0.36 | 0.05081 | 0.00069 | 0.24598 | 0.00376 | 0.03511 | 0.00029 | 232.1 | 31.3 | 223.3 | 3.1 | 222.5 | 1.8 |
| 24 | 22.2 | 260 | 514 | 0.51 | 0.05097 | 0.00145 | 0.24561 | 0.00757 | 0.03493 | 0.00034 | 239.4 | 65.6 | 223.0 | 6.2 | 221.3 | 2.1 |
| 25 | 26.6 | 300 | 641 | 0.47 | 0.05090 | 0.00089 | 0.24650 | 0.00525 | 0.03510 | 0.00054 | 236.3 | 40.5 | 223.7 | 4.3 | 222.4 | 3.3 |
| 26 | 11.2 | 149 | 247 | 0.60 | 0.05050 | 0.00133 | 0.24434 | 0.00701 | 0.03507 | 0.00036 | 218.1 | 61.0 | 222.0 | 5.7 | 222.2 | 2.2 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| HV7-N1 | | | | | | | | | | | | | | | | |
| 27 | 14.1 | 149 | 350.27 | 0.43 | 0.05069 | 0.00128 | 0.24475 | 0.00766 | 0.03506 | 0.00071 | 226.9 | 58.6 | 222.3 | 6.3 | 222.2 | 4.5 |
| 28 | 19.2 | 323 | 408.45 | 0.79 | 0.04999 | 0.00132 | 0.24354 | 0.00675 | 0.03524 | 0.00042 | 194.3 | 61.2 | 221.3 | 5.5 | 223.3 | 2.6 |
| 29 | 30.0 | 288 | 748.28 | 0.38 | 0.05071 | 0.00075 | 0.24629 | 0.00553 | 0.03517 | 0.00054 | 227.5 | 34.3 | 223.6 | 4.5 | 222.8 | 3.4 |
| 30 | 15.8 | 213 | 368.64 | 0.58 | 0.05080 | 0.00097 | 0.24612 | 0.00531 | 0.03509 | 0.00037 | 231.9 | 44.0 | 223.4 | 4.3 | 222.4 | 2.3 |
| N372N1 | | | | | | | | | | | | | | | | |
| 01 | 7.01 | 115 | 151 | 0.76 | 0.05139 | 0.00276 | 0.24368 | 0.01222 | 0.03491 | 0.00075 | 258.6 | 123.4 | 221.4 | 10.0 | 221.2 | 4.6 |
| 02 | 6.54 | 110 | 151 | 0.73 | 0.05150 | 0.00238 | 0.24325 | 0.00958 | 0.03500 | 0.00059 | 263.4 | 105.9 | 221.1 | 7.8 | 221.8 | 3.7 |
| 03 | 9.67 | 207 | 193 | 1.08 | 0.05055 | 0.00190 | 0.24136 | 0.00876 | 0.03470 | 0.00043 | 220.4 | 87.1 | 219.5 | 7.2 | 219.9 | 2.7 |
| 04 | 5.34 | 89.3 | 130 | 0.69 | 0.05091 | 0.00206 | 0.24118 | 0.01028 | 0.03470 | 0.00075 | 236.8 | 93.3 | 219.4 | 8.4 | 219.9 | 4.7 |
| 05 | 6.92 | 126 | 148 | 0.85 | 0.05142 | 0.00192 | 0.24260 | 0.00860 | 0.03457 | 0.00043 | 259.9 | 85.6 | 220.5 | 7.0 | 219.1 | 2.7 |
| 06 | 6.04 | 94.2 | 140 | 0.67 | 0.05088 | 0.00194 | 0.24023 | 0.00887 | 0.03423 | 0.00046 | 235.2 | 87.9 | 218.6 | 7.3 | 217.0 | 2.9 |
| 07 | 5.80 | 108 | 141 | 0.76 | 0.05109 | 0.00268 | 0.24088 | 0.01367 | 0.03443 | 0.00084 | 245.0 | 121.0 | 219.1 | 11.2 | 218.2 | 5.2 |
| 08 | 5.76 | 91.3 | 136 | 0.67 | 0.05108 | 0.00196 | 0.24328 | 0.01069 | 0.03466 | 0.00067 | 244.5 | 88.2 | 221.1 | 8.7 | 219.7 | 4.2 |
| 09 | 9.77 | 196 | 212 | 0.92 | 0.05153 | 0.00228 | 0.24667 | 0.01151 | 0.03519 | 0.00080 | 264.6 | 101.4 | 223.9 | 9.4 | 223.0 | 5.0 |
| 10 | 6.23 | 106 | 141 | 0.75 | 0.05084 | 0.00182 | 0.24296 | 0.00875 | 0.03471 | 0.00038 | 233.4 | 82.8 | 220.8 | 7.1 | 220.0 | 2.4 |
| 11 | 5.07 | 79.1 | 117 | 0.67 | 0.05035 | 0.00203 | 0.23833 | 0.00970 | 0.03452 | 0.00057 | 211.3 | 93.3 | 217.1 | 8.0 | 218.8 | 3.5 |
| 12 | 7.07 | 120 | 157 | 0.76 | 0.05080 | 0.00204 | 0.24404 | 0.00987 | 0.03497 | 0.00049 | 231.7 | 92.8 | 221.7 | 8.1 | 221.6 | 3.0 |
| 13 | 26.9 | 632 | 472 | 1.34 | 0.05107 | 0.00087 | 0.26710 | 0.00462 | 0.03797 | 0.00033 | 244.0 | 39.1 | 240.4 | 3.7 | 240.3 | 2.1 |
| 14 | 15.4 | 351 | 317 | 1.11 | 0.05070 | 0.00136 | 0.24324 | 0.00583 | 0.03489 | 0.00037 | 227.3 | 61.8 | 221.1 | 4.8 | 221.1 | 2.3 |
| 15 | 6.92 | 126 | 148 | 0.85 | 0.05108 | 0.00140 | 0.24011 | 0.00631 | 0.03442 | 0.00035 | 244.4 | 63.0 | 218.5 | 5.2 | 218.1 | 2.2 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | 含量（ppm） | | | Th/U | 同位素比值 | | | | | | 年龄（Ma） | | | | | |
| Pb | Th | U | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ | 207Pb/206Pb | 1σ | 207Pb/235U | 1σ | 206Pb/238U | 1σ |
| N372N1 | | | | | | | | | | | | | | | | |
| 16 | 5.27 | 90.9 | 121 | 0.75 | 0.05041 | 0.00346 | 0.23116 | 0.01626 | 0.03334 | 0.00072 | 214.0 | 158.9 | 211.2 | 13.4 | 211.4 | 4.5 |
| 17 | 6.64 | 110.9 | 153 | 0.73 | 0.05047 | 0.00140 | 0.23289 | 0.00642 | 0.03361 | 0.00037 | 216.6 | 64.0 | 212.6 | 5.3 | 213.1 | 2.3 |
| 18 | 11.9 | 341 | 221 | 1.55 | 0.05052 | 0.00112 | 0.24015 | 0.00535 | 0.03462 | 0.00032 | 218.8 | 51.4 | 218.5 | 4.4 | 219.4 | 2.0 |
| 19 | 5.55 | 97.5 | 136 | 0.72 | 0.05050 | 0.00235 | 0.24116 | 0.01256 | 0.03486 | 0.00087 | 217.9 | 107.7 | 219.4 | 10.3 | 220.9 | 5.5 |
| 20 | 5.57 | 109 | 132 | 0.83 | 0.05099 | 0.00267 | 0.24096 | 0.01392 | 0.03474 | 0.00083 | 240.5 | 120.9 | 219.2 | 11.4 | 220.2 | 5.2 |
| 21 | 6.19 | 129 | 133 | 0.97 | 0.05135 | 0.00172 | 0.24310 | 0.00756 | 0.03467 | 0.00038 | 256.7 | 76.8 | 221.0 | 6.2 | 219.7 | 2.4 |
| 22 | 5.86 | 93.0 | 132 | 0.70 | 0.05145 | 0.00206 | 0.24356 | 0.00937 | 0.03455 | 0.00049 | 261.2 | 91.9 | 221.3 | 7.6 | 219.0 | 3.0 |
| 23 | 7.03 | 106 | 159 | 0.66 | 0.05102 | 0.00135 | 0.24355 | 0.00599 | 0.03483 | 0.00034 | 241.6 | 61.1 | 221.3 | 4.9 | 220.7 | 2.1 |
| 24 | 4.82 | 101 | 108 | 0.93 | 0.04979 | 0.00248 | 0.24219 | 0.01461 | 0.03490 | 0.00094 | 185.4 | 116.1 | 220.2 | 11.9 | 221.1 | 5.9 |
| 25 | 4.12 | 68.5 | 94.6 | 0.72 | 0.05164 | 0.00218 | 0.24379 | 0.01042 | 0.03460 | 0.00057 | 269.7 | 96.9 | 221.5 | 8.5 | 219.3 | 3.6 |
| 26 | 10.4 | 196 | 230 | 0.85 | 0.05068 | 0.00114 | 0.24328 | 0.00569 | 0.03490 | 0.00036 | 226.4 | 52.1 | 221.1 | 4.6 | 221.1 | 2.2 |
| 27 | 6.50 | 120 | 148 | 0.81 | 0.05094 | 0.00159 | 0.24263 | 0.00792 | 0.03457 | 0.00038 | 237.9 | 71.9 | 220.6 | 6.5 | 219.1 | 2.4 |
| 28 | 6.66 | 115 | 155 | 0.74 | 0.05172 | 0.00156 | 0.24359 | 0.00744 | 0.03430 | 0.00056 | 273.2 | 68.9 | 221.4 | 6.1 | 217.4 | 3.5 |
| 29 | 5.71 | 100 | 131 | 0.76 | 0.05045 | 0.00216 | 0.24072 | 0.01075 | 0.03477 | 0.00070 | 215.6 | 99.1 | 219.0 | 8.8 | 220.3 | 4.4 |
| 30 | 16.3 | 167 | 373 | 0.45 | 0.05100 | 0.00137 | 0.27917 | 0.00965 | 0.03989 | 0.00087 | 241.0 | 61.8 | 250.0 | 7.7 | 252.2 | 5.4 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

表2东昆仑哈日扎-那更康切尔矿区花岗岩与花岗斑岩样品主量元素（单位：％）与微量元素（单位：ppm）含量

Table 2．Major (unit:％) and trace elements (unit: ppm) of the granites and porphyritic granites at Harizha-Nagengkangqieer

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | HV7Q1-1 | HV7Q1-2 | HV7Q1-3 | HV7Q1-4 | HV7Q1-5 | N372Q1 | N372Q2 | N372Q3 | N372Q4 | N372Q5 | HV3Q2-1 | HV3Q2-2 | HV3Q2-3 |
| 岩性 | 花岗斑岩 | | | | | | | | | | | | |
| SiO2 | 73.44 | 75.01 | 74.67 | 74.04 | 74.08 | 81.75 | 80.20 | 80.45 | 79.07 | 80.78 | 79.72 | 79.59 | 79.61 |
| Al2O3 | 13.63 | 12.84 | 12.86 | 13.41 | 13.06 | 11.86 | 12.41 | 12.00 | 12.88 | 12.45 | 12.66 | 12.89 | 12.78 |
| CaO | 0.79 | 1.24 | 1.17 | 1.00 | 0.90 | 0.06 | 0.04 | 0.04 | 0.05 | 0.05 | 0.10 | 0.13 | 0.07 |
| K2O | 4.68 | 5.67 | 5.36 | 5.31 | 5.18 | 3.76 | 4.65 | 5.07 | 4.99 | 4.54 | 3.91 | 3.75 | 3.83 |
| TFe2O3 | 1.90 | 1.07 | 1.22 | 1.26 | 1.33 | 0.15 | 0.07 | 0.04 | 0.09 | 0.06 | 1.18 | 1.24 | 1.43 |
| FeO | 0.57 | 0.30 | 0.36 | 0.73 | 0.74 | 0.13 | 0.13 | 0.09 | 0.11 | 0.13 | - | 0.24 | 0.12 |
| MgO | 0.22 | 0.19 | 0.23 | 0.30 | 0.31 | 0.24 | 0.21 | 0.18 | 0.21 | 0.23 | 0.21 | 0.21 | 0.24 |
| MnO | 0.03 | 0.02 | 0.03 | 0.05 | 0.04 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 |
| Na2O | 3.77 | 2.09 | 2.99 | 2.64 | 2.90 | 0.11 | 0.14 | 0.15 | 0.14 | 0.11 | 0.08 | 0.09 | 0.07 |
| P2O5 | 0.04 | 0.02 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 |
| TiO2 | 0.16 | 0.12 | 0.10 | 0.12 | 0.13 | 0.12 | 0.13 | 0.12 | 0.12 | 0.13 | 0.02 | 0.02 | 0.03 |
| LOI | 1.41 | 1.84 | 1.28 | 1.25 | 1.28 | 1.83 | 1.72 | 1.57 | 2.18 | 1.16 | 1.75 | 1.88 | 1.52 |
| Total | 100.07 | 100.09 | 99.94 | 99.40 | 99.24 | 100.03 | 99.73 | 99.74 | 99.87 | 99.67 | 99.64 | 99.83 | 99.59 |
| Sc | 2.46 | 2.46 | 2.54 | 2.85 | 2.61 | 3.01 | 3.05 | 2.89 | 3.15 | 3.56 | 2.44 | 2.23 | 2.02 |
| Ti | 637 | 682 | 558 | 708 | 731 |  |  |  |  |  | 141 | 135 | 130 |
| V | 5.34 | 5.81 | 4.81 | 7.45 | 6.85 | 0.79 | 0.76 | 0.68 | 0.75 | 1.02 | 2.69 | 2.99 | 1.10 |
| Mn | 292 | 164 | 249 | 320 | 300 | 37.1 | 39.3 | 44.6 | 40.5 | 47.6 | 119 | 153 | 109 |

续表2

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | HV3Q2-4 | HV3Q2-5 | HI5Q1-1 | HI5Q1-2 | HI5Q1-3 | HI5Q1-4 | HI5Q1-5 | HI9Q1-1 | HI9Q1-2 | HI9Q1-3 | HI9Q1-4 | HI9Q1-5 |
| 岩性 | 花岗斑岩 | | 花岗岩 | | | | | | | | | |
| SiO2 | 80.61 | 80.52 | 75.16 | 75.08 | 75.81 | 75.18 | 74.75 | 75.99 | 74.59 | 75.71 | 74.43 | 75.35 |
| Al2O3 | 12.41 | 12.65 | 12.31 | 12.55 | 12.32 | 12.50 | 13.02 | 11.64 | 12.75 | 12.60 | 13.08 | 12.53 |
| CaO | 0.05 | 0.05 | 0.71 | 0.63 | 0.68 | 1.17 | 0.70 | 0.63 | 0.97 | 0.74 | 0.73 | 0.55 |
| K2O | 3.91 | 3.77 | 5.25 | 5.48 | 5.30 | 7.14 | 6.36 | 4.66 | 7.34 | 7.11 | 7.18 | 5.39 |
| TFe2O3 | 0.88 | 1.04 | 1.28 | 1.12 | 0.80 | 0.27 | 0.94 | 1.83 | 1.50 | 1.44 | 2.39 | 1.34 |
| FeO | 0.14 | 0.10 | 0.21 | 0.24 | 0.28 | - | 0.11 | 1.07 | 0.90 | 0.78 | 1.47 | 0.66 |
| MgO | 0.19 | 0.21 | 0.14 | 0.19 | 0.14 | 0.15 | 0.20 | 0.12 | 0.16 | 0.17 | 0.17 | 0.15 |
| MnO | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.05 | 0.02 | 0.01 | 0.01 | 0.01 |
| Na2O | 0.10 | 0.11 | 3.33 | 3.38 | 3.34 | 1.53 | 1.89 | 3.24 | 0.22 | 0.22 | 0.21 | 3.14 |
| P2O5 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| TiO2 | 0.03 | 0.03 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.15 | 0.15 | 0.14 | 0.16 |
| LOI | 1.60 | 1.74 | 1.40 | 1.04 | 1.24 | 1.56 | 1.78 | 1.48 | 2.02 | 1.78 | 0.88 | 1.13 |
| Total | 99.81 | 100.15 | 99.78 | 99.65 | 99.82 | 99.69 | 99.84 | 99.82 | 99.72 | 99.94 | 99.24 | 99.75 |
| Sc | 2.09 | 2.23 | 2.87 | 2.74 | 2.35 | 1.52 | 2.62 | 2.73 | 2.82 | 2.41 | 2.36 | 2.48 |
| Ti | 128 | 132 | 1034 | 1011 | 985 | 1078 | 1016 | 1004 | 1014 | 962 | 901 | 921 |
| V | 0.89 | 2.11 | 2.99 | 3.82 | 2.45 | 3.18 | 2.21 | 2.20 | 3.30 | 1.74 | 1.23 | 1.38 |
| Mn | 124 | 98.3 | 78.0 | 101 | 57.2 | 49.1 | 60.4 | 350 | 97.3 | 80.3 | 86.2 | 113 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED。

续表2

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | HV7Q1-1 | HV7Q1-2 | HV7Q1-3 | HV7Q1-4 | HV7Q1-5 | N372Q1 | N372Q2 | N372Q3 | N372Q4 | N372Q5 | HV3Q2-1 | HV3Q2-2 | HV3Q2-3 |
| 岩性 | 花岗斑岩 | | | | | | | | | | | | |
| Co | 1.48 | 1.41 | 1.17 | 2.38 | 1.57 | 0.07 | 0.06 | 0.10 | 0.09 | 0.15 | 0.79 | 0.58 | 0.70 |
| Ni | 2.02 | 4.45 | 4.06 | 43.0 | 21.4 | 0.65 | 0.87 | 2.31 | 1.89 | 4.60 | 5.55 | 4.41 | 12.7 |
| Cu | 11.5 | 8.33 | 17.6 | 15.2 | 11.8 | 1.78 | 1.70 | 1.80 | 3.44 | 1.99 | 169 | 28.2 | 42.6 |
| Zn | 88.0 | 18.1 | 38.8 | 84.4 | 69.1 | 5.84 | 5.32 | 6.04 | 8.54 | 6.62 | 459 | 699 | 627 |
| Ga | 15.4 | 14.0 | 14.1 | 14.9 | 14.9 | 13.9 | 13.9 | 12.4 | 13.8 | 12.7 | 17.2 | 17.1 | 16.6 |
| As | 10.9 | 4.42 | 14.6 | 8.89 | 9.88 | 1.61 | 1.15 | 1.10 | 1.28 | 1.13 | 131 | 122 | 119 |
| Rb | 235 | 263 | 241 | 226 | 228 | 160 | 198 | 186 | 204 | 191 | 233 | 238 | 231 |
| Sr | 90.8 | 63.6 | 82.4 | 97.8 | 78.8 | 39.5 | 40.7 | 41.6 | 42.7 | 47.0 | 7.77 | 5.96 | 6.38 |
| Y | 36.8 | 36.8 | 39.3 | 35.9 | 38.5 | 28.6 | 26.1 | 21.0 | 24.6 | 22.6 | 38.2 | 36.0 | 33.6 |
| Zr | 96.7 | 108 | 112 | 91.9 | 99.1 | 198 | 219 | 208 | 212 | 207 | 69.3 | 66.6 | 66.6 |
| Nb | 12.4 | 12.4 | 12.1 | 11.7 | 12.5 | 15.0 | 16.1 | 16.2 | 16.7 | 16.5 | 14.7 | 14.7 | 13.6 |
| Mo | 0.84 | 0.50 | 1.06 | 1.69 | 1.29 | 0.89 | 0.82 | 0.80 | 0.94 | 0.67 | 3.25 | 2.08 | 2.49 |
| Cd | 2.22 | 0.24 | 0.47 | 1.87 | 0.49 | 1.27 | 1.41 | 1.23 | 1.39 | 1.29 | 71.2 | 3.05 | 4.12 |
| In | 0.09 | 0.04 | 0.08 | 0.05 | 0.03 | 3.01 | 3.05 | 2.89 | 3.15 | 3.56 | 0.57 | 0.34 | 0.74 |
| Cs | 3.96 | 6.47 | 4.10 | 4.06 | 5.00 | 4.42 | 5.70 | 4.26 | 5.48 | 4.34 | 3.51 | 5.01 | 4.08 |
| Ba | 188 | 235 | 154 | 214 | 168 | 528 | 1115 | 1544 | 1286 | 1398 | 53.2 | 33.2 | 49.1 |
| La | 22.7 | 21.5 | 14.9 | 20.7 | 17.0 | 47.0 | 48.9 | 46.5 | 47.9 | 47.7 | 11.2 | 8.91 | 8.55 |
| Ce | 51.6 | 48.6 | 37.9 | 48.9 | 42.9 | 98.3 | 97.4 | 93.6 | 99.1 | 95.1 | 30.6 | 26.0 | 23.6 |
| Pr | 6.42 | 6.02 | 4.90 | 6.02 | 5.41 | 10.9 | 11.1 | 10.2 | 10.8 | 10.2 | 4.26 | 3.39 | 3.16 |
| Nd | 24.0 | 23.2 | 21.4 | 23.0 | 23.1 | 38.6 | 38.5 | 35.3 | 37.7 | 35.0 | 17.3 | 13.8 | 13.2 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表2

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | HV3Q2-4 | HV3Q2-5 | HI5Q1-1 | HI5Q1-2 | HI5Q1-3 | HI5Q1-4 | HI5Q1-5 | HI9Q1-1 | HI9Q1-2 | HI9Q1-3 | HI9Q1-4 | HI9Q1-5 |
| 岩性 | 花岗斑岩 | | 花岗岩 | | | | | | | | | |
| Co | 0.63 | 0.55 | 0.39 | 0.47 | 0.48 | 0.36 | 0.57 | 0.20 | 0.58 | 0.56 | 0.31 | 0.35 |
| Ni | 3.17 | 3.35 | 4.43 | 3.79 | 6.69 | 1.06 | 1.79 | 1.72 | 3.68 | 7.05 | 1.11 | 7.43 |
| Cu | 104 | 114 | 31.8 | 32.3 | 25.5 | 17.5 | 38.1 | 3.51 | 38.6 | 32.2 | 36.2 | 14.5 |
| Zn | 450 | 649 | 15.1 | 36.5 | 23.5 | 34.2 | 19.3 | 31.0 | 185 | 160 | 164 | 18.4 |
| Ga | 16.3 | 17.2 | 21.3 | 21.6 | 19.4 | 17.8 | 18.8 | 20.7 | 21.2 | 20.6 | 21.0 | 19.9 |
| As | 40.7 | 75.2 | 24.1 | 21.7 | 9.00 | 22.5 | 38.5 | 5.02 | 7.53 | 6.91 | 11.8 | 4.48 |
| Rb | 226 | 231 | 186 | 194 | 188 | 246 | 231 | 171 | 277 | 267 | 264 | 193 |
| Sr | 7.83 | 6.16 | 53.0 | 50.6 | 53.3 | 112 | 67.3 | 41.2 | 100 | 92.0 | 91.1 | 44.6 |
| Y | 33.2 | 41.1 | 53.1 | 55.0 | 55.9 | 51.7 | 49.7 | 60.2 | 58.0 | 56.5 | 52.1 | 55.4 |
| Zr | 65.4 | 64.2 | 511 | 544 | 615 | 535 | 497 | 549 | 497 | 462 | 496 | 522 |
| Nb | 13.2 | 14.1 | 37.4 | 44.7 | 45.4 | 42.5 | 37.9 | 41.2 | 43.1 | 39.8 | 39.0 | 36.7 |
| Mo | 1.95 | 2.01 | 2.90 | 2.73 | 3.26 | 2.42 | 2.69 | 2.41 | 3.30 | 3.64 | 3.91 | 2.61 |
| Cd | 2.70 | 3.32 | 0.37 | 0.52 | 0.66 | 0.67 | 0.41 | 0.60 | 2.18 | 1.89 | 1.90 | 0.32 |
| In | 0.26 | 0.44 | 0.05 | 0.07 | 0.08 | 0.05 | 0.05 | 0.11 | 0.08 | 0.09 | 0.09 | 0.07 |
| Cs | 3.79 | 4.02 | 2.38 | 2.34 | 2.43 | 3.68 | 3.78 | 2.58 | 3.33 | 3.41 | 3.34 | 2.13 |
| Ba | 48.8 | 41.6 | 169 | 129 | 158 | 690 | 426 | 67.8 | 459 | 395 | 358 | 97.8 |
| La | 9.61 | 5.61 | 78.2 | 79.5 | 80.5 | 82.4 | 79.0 | 75.1 | 84.5 | 77.3 | 71.6 | 70.6 |
| Ce | 25.4 | 15.0 | 161 | 164 | 170 | 167 | 164 | 154 | 172 | 159 | 150 | 145 |
| Pr | 3.48 | 2.28 | 17.6 | 17.6 | 18.0 | 19.7 | 18.4 | 16.6 | 20.2 | 18.4 | 15.7 | 15.1 |
| Nd | 14.3 | 9.14 | 59.4 | 59.0 | 60.2 | 63.3 | 59.7 | 57.5 | 65.0 | 58.4 | 54.0 | 52.1 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表2

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | HV7Q1-1 | HV7Q1-2 | HV7Q1-3 | HV7Q1-4 | HV7Q1-5 | N372Q1 | N372Q2 | N372Q3 | N372Q4 | N372Q5 | HV3Q2-1 | HV3Q2-2 | HV3Q2-3 |
| 岩性 | 花岗斑岩 | | | | | | | | | | | | |
| Sm | 6.50 | 6.22 | 5.86 | 6.58 | 6.21 | 7.28 | 7.30 | 6.47 | 7.02 | 6.58 | 5.94 | 4.99 | 4.62 |
| Eu | 0.44 | 0.50 | 0.38 | 0.49 | 0.43 | 0.97 | 1.09 | 1.12 | 1.10 | 1.07 | 0.14 | 0.11 | 0.12 |
| Gd | 5.18 | 5.13 | 4.55 | 5.05 | 4.77 | 7.36 | 6.90 | 5.93 | 6.72 | 6.04 | 4.64 | 4.03 | 3.76 |
| Tb | 1.15 | 1.15 | 1.12 | 1.16 | 1.16 | 1.07 | 0.99 | 0.85 | 0.95 | 0.88 | 0.96 | 0.89 | 0.83 |
| Dy | 7.04 | 6.90 | 7.20 | 6.90 | 7.25 | 5.97 | 5.44 | 4.59 | 5.22 | 4.71 | 6.75 | 6.33 | 6.06 |
| Ho | 1.20 | 1.20 | 1.29 | 1.19 | 1.29 | 1.20 | 1.14 | 0.91 | 1.09 | 0.96 | 1.20 | 1.12 | 1.08 |
| Er | 3.58 | 3.59 | 3.65 | 3.47 | 3.68 | 3.18 | 3.11 | 2.50 | 2.96 | 2.65 | 3.21 | 3.01 | 2.84 |
| Tm | 0.53 | 0.52 | 0.57 | 0.52 | 0.54 | 0.44 | 0.46 | 0.36 | 0.42 | 0.38 | 0.49 | 0.46 | 0.43 |
| Yb | 3.45 | 3.45 | 3.76 | 3.45 | 3.54 | 2.47 | 2.57 | 2.13 | 2.48 | 2.26 | 3.49 | 3.32 | 3.14 |
| Lu | 0.52 | 0.51 | 0.55 | 0.49 | 0.51 | 0.37 | 0.39 | 0.34 | 0.38 | 0.36 | 0.50 | 0.46 | 0.44 |
| Hf | 4.18 | 4.30 | 4.42 | 3.96 | 4.07 | 6.61 | 7.21 | 6.92 | 7.17 | 6.81 | 4.07 | 3.90 | 3.88 |
| Ta | 2.17 | 2.20 | 2.18 | 2.12 | 2.25 | 1.09 | 1.17 | 1.10 | 1.21 | 1.13 | 1.88 | 1.92 | 1.82 |
| W | 1.70 | 1.50 | 1.25 | 1.88 | 2.24 | 4.51 | 3.62 | 3.78 | 3.85 | 3.59 | 5.80 | 5.23 | 5.54 |
| Tl | 1.53 | 1.69 | 1.58 | 1.30 | 1.32 | 1.55 | 2.14 | 2.33 | 2.17 | 2.34 | 1.46 | 1.27 | 1.40 |
| Pb | 184 | 40.0 | 44.9 | 164 | 58.2 | 2.57 | 4.83 | 3.57 | 6.32 | 3.71 | 554 | 411 | 363 |
| Bi | 0.41 | 0.32 | 0.10 | 0.10 | 0.11 | 0.04 | 0.10 | 0.05 | 0.09 | 0.04 | 2.15 | 1.65 | 1.10 |
| Th | 33.2 | 33.0 | 33.3 | 31.4 | 31.9 | 11.8 | 12.7 | 11.9 | 12.9 | 12.0 | 20.6 | 19.7 | 18.0 |
| U | 8.35 | 14.7 | 6.39 | 9.19 | 8.64 | 2.23 | 2.23 | 2.48 | 2.26 | 2.46 | 5.83 | 4.93 | 6.22 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED

续表2

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | HV3Q2-4 | HV3Q2-5 | HI5Q1-1 | HI5Q1-2 | HI5Q1-3 | HI5Q1-4 | HI5Q1-5 | HI9Q1-1 | HI9Q1-2 | HI9Q1-3 | HI9Q1-4 | HI9Q1-5 |
| 岩性 | 花岗斑岩 | | 花岗岩 | | | | | | | | | |
| Sm | 4.90 | 3.67 | 12.7 | 12.4 | 12.9 | 13.5 | 12.7 | 12.4 | 14.0 | 12.7 | 12.0 | 11.5 |
| Eu | 0.12 | 0.10 | 0.20 | 0.18 | 0.19 | 0.56 | 0.39 | 0.12 | 0.40 | 0.34 | 0.32 | 0.15 |
| Gd | 3.79 | 3.04 | 12.0 | 12.1 | 12.6 | 13.0 | 12.1 | 11.9 | 13.3 | 12.6 | 11.6 | 11.2 |
| Tb | 0.81 | 0.87 | 1.79 | 1.75 | 1.87 | 1.93 | 1.83 | 1.82 | 2.09 | 1.95 | 1.79 | 1.76 |
| Dy | 5.63 | 6.92 | 9.80 | 9.68 | 10.1 | 9.93 | 9.42 | 10.7 | 10.9 | 10.4 | 9.70 | 9.75 |
| Ho | 1.04 | 1.28 | 2.02 | 2.06 | 2.12 | 2.02 | 1.95 | 2.28 | 2.24 | 2.15 | 2.04 | 2.08 |
| Er | 2.72 | 3.33 | 5.75 | 5.73 | 6.03 | 5.82 | 5.57 | 6.32 | 6.38 | 6.14 | 5.61 | 5.86 |
| Tm | 0.41 | 0.53 | 0.76 | 0.80 | 0.82 | 0.73 | 0.73 | 0.91 | 0.85 | 0.81 | 0.76 | 0.78 |
| Yb | 3.07 | 3.63 | 5.17 | 5.28 | 5.56 | 5.03 | 4.97 | 6.12 | 5.93 | 5.75 | 5.18 | 5.49 |
| Lu | 0.42 | 0.51 | 0.82 | 0.85 | 0.85 | 0.79 | 0.75 | 0.92 | 0.88 | 0.87 | 0.81 | 0.84 |
| Hf | 3.85 | 3.78 | 13.9 | 16.0 | 20.1 | 15.1 | 13.6 | 15.7 | 14.6 | 13.3 | 13.8 | 14.7 |
| Ta | 1.76 | 1.78 | 2.12 | 3.08 | 4.53 | 2.67 | 2.17 | 2.78 | 2.70 | 2.31 | 2.03 | 2.61 |
| W | 4.82 | 5.49 | 4.88 | 4.81 | 4.57 | 4.86 | 5.00 | 4.91 | 4.93 | 4.82 | 4.92 | 4.72 |
| Tl | 1.38 | 1.33 | 1.13 | 1.10 | 1.14 | 1.54 | 1.41 | 1.07 | 1.74 | 1.65 | 1.60 | 1.16 |
| Pb | 90.1 | 154 | 29.5 | 70.1 | 41.4 | 171 | 136 | 17.2 | 228 | 153 | 152 | 17.3 |
| Bi | 1.03 | 0.63 | 0.17 | 0.56 | 0.16 | 0.40 | 0.58 | 0.85 | 0.67 | 0.55 | 0.60 | 0.26 |
| Th | 17.5 | 18.3 | 29.4 | 28.2 | 32.1 | 28.5 | 29.5 | 42.5 | 28.7 | 22.5 | 24.9 | 32.6 |
| U | 3.91 | 5.07 | 5.42 | 8.53 | 10.3 | 7.53 | 6.07 | 8.51 | 16.1 | 14.5 | 8.74 | 8.19 |

注：样品号中HV7代表17HRZVZK7902，HV3代表17HRZVZK3505，HI5代表17HRZHVIZK1510，HI9代表17HRZHVIZK1908，N代表17NGKQED