表3 苏云河钼矿床花岗斑岩、二长花岗斑岩、花岗岩、花岗闪长斑岩中锆石SIMS U-Pb定年结果

Table.1 SIMS U-Pb dating results of zircons from alkali-feldspar granite porphyry, monzonitic granite porphyry, granite, granodiorite porphyry in the Suyunhe Mo ore district.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测 点 | U  10-6 | Th  10-6 | Pb  10-6 | Th/U | *f*206  (%) | 同 位 素 比 值  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | | ρ | 同 位 素 年 龄  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | |
| 13SYH03 | 二长花岗斑岩(Ⅰ号) | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -01 | 363 | 150 | 21 | 0.414 | 0.00 | 0.33969 | 1.83 | 0.04772 | 1.51 | 0.05163 | 1.03 | 0.82612 | 296.9 | 4.7 | 300.5 | 4.4 | 268.9 | 23.4 |
| -02 | 529 | 281 | 30 | 0.532 | 0.09 | 0.34231 | 1.80 | 0.04737 | 1.50 | 0.05241 | 0.99 | 0.83557 | 298.9 | 4.7 | 298.3 | 4.4 | 303.4 | 22.4 |
| -03 | 1529 | 555 | 86 | 0.363 | 0.10 | 0.34589 | 1.68 | 0.04815 | 1.56 | 0.05210 | 0.62 | 0.92986 | 301.6 | 4.4 | 303.2 | 4.6 | 289.8 | 14.0 |
| -04 | 1379 | 403 | 71 | 0.292 | 0.01 | 0.32805 | 1.60 | 0.04487 | 1.50 | 0.05303 | 0.57 | 0.93550 | 288.1 | 4.0 | 282.9 | 4.2 | 329.9 | 12.8 |
| -05 | 440 | 249 | 25 | 0.566 | 0.23 | 0.33609 | 1.93 | 0.04599 | 1.54 | 0.05300 | 1.16 | 0.79794 | 294.2 | 4.9 | 289.8 | 4.4 | 328.9 | 26.1 |
| -06 | 845 | 416 | 48 | 0.492 | 0.00 | 0.33780 | 1.81 | 0.04695 | 1.50 | 0.05218 | 1.00 | 0.83112 | 295.5 | 4.6 | 295.8 | 4.3 | 293.3 | 22.8 |
| -07 | 1191 | 372 | 65 | 0.312 | 0.02 | 0.34221 | 1.61 | 0.04754 | 1.50 | 0.05221 | 0.57 | 0.93430 | 298.8 | 4.2 | 299.4 | 4.4 | 294.7 | 13.0 |
| -08 | 138 | 63 | 8 | 0.456 | 0.13 | 0.33456 | 2.28 | 0.04739 | 1.52 | 0.05120 | 1.70 | 0.66733 | 293.0 | 5.8 | 298.5 | 4.4 | 249.8 | 38.6 |
| -09 | 1215 | 361 | 67 | 0.297 | 0.05 | 0.34458 | 1.65 | 0.04783 | 1.53 | 0.05225 | 0.61 | 0.92888 | 300.6 | 4.3 | 301.2 | 4.5 | 296.2 | 13.9 |
| -10 | 511 | 331 | 31 | 0.647 | 0.14 | 0.35213 | 1.76 | 0.04849 | 1.55 | 0.05266 | 0.83 | 0.88094 | 306.3 | 4.7 | 305.3 | 4.6 | 314.2 | 18.9 |
| -11 | 549 | 137 | 28 | 0.250 | 0.05 | 0.32836 | 1.78 | 0.04574 | 1.51 | 0.05206 | 0.93 | 0.85032 | 288.3 | 4.5 | 288.3 | 4.3 | 288.1 | 21.2 |
| -12 | 334 | 84 | 18 | 0.250 | 0.07 | 0.33215 | 2.42 | 0.04637 | 1.51 | 0.05195 | 1.89 | 0.62393 | 291.2 | 6.1 | 292.2 | 4.3 | 283.3 | 42.7 |
| 13SYH28 | 二长花岗斑岩(Ⅱ号) | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -01 | 158 | 59 | 9 | 0.374 | 0.00 | 0.33379 | 2.64 | 0.04748 | 1.60 | 0.05098 | 2.10 | 0.60680 | 292.5 | 6.7 | 299.1 | 4.7 | 240.1 | 47.6 |
| -02 | 491 | 180 | 27 | 0.366 | 0.02 | 0.34083 | 1.76 | 0.04711 | 1.50 | 0.05247 | 0.92 | 0.85124 | 297.8 | 4.6 | 296.8 | 4.4 | 305.9 | 20.9 |
| -03 | 1272 | 521 | 70 | 0.410 | 0.07 | 0.33855 | 1.64 | 0.04665 | 1.51 | 0.05264 | 0.65 | 0.91844 | 296.1 | 4.2 | 293.9 | 4.3 | 313.2 | 14.7 |
| -04 | 194 | 88 | 11 | 0.451 | 0.06 | 0.33872 | 2.50 | 0.04651 | 1.53 | 0.05282 | 1.97 | 0.61318 | 296.2 | 6.4 | 293.1 | 4.4 | 321.0 | 44.2 |
| -05 | 283 | 133 | 16 | 0.469 | 0.06 | 0.33574 | 1.91 | 0.04726 | 1.50 | 0.05152 | 1.18 | 0.78681 | 293.9 | 4.9 | 297.7 | 4.4 | 264.2 | 26.8 |
| -06 | 1482 | 363 | 78 | 0.245 | 0.01 | 0.33568 | 1.59 | 0.04651 | 1.50 | 0.05234 | 0.53 | 0.94303 | 293.9 | 4.1 | 293.1 | 4.3 | 300.5 | 12.0 |

续表1

Continued Table. 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测 点 | U  10-6 | Th  10-6 | Pb  10-6 | Th/U | *f*206  (%) | 同 位 素 比 值  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | | ρ | 同 位 素 年 龄  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | |
| -07 | 943 | 389 | 52 | 0.413 | 0.02 | 0.33756 | 1.64 | 0.04689 | 1.50 | 0.05222 | 0.66 | 0.91466 | 295.3 | 4.2 | 295.4 | 4.3 | 294.9 | 15.1 |
| -08 | 682 | 312 | 38 | 0.458 | 0.22 | 0.34617 | 1.73 | 0.04730 | 1.51 | 0.05308 | 0.83 | 0.87645 | 301.8 | 4.5 | 297.9 | 4.4 | 332.1 | 18.7 |
| 13SYH18 | 二长花岗斑岩(Ⅲ号) | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -01 | 125 | 51 | 7 | 0.407 | 0.09 | 0.33294 | 2.34 | 0.04632 | 1.52 | 0.05213 | 1.78 | 0.64976 | 291.8 | 6.0 | 291.9 | 4.3 | 290.9 | 40.2 |
| -02 | 559 | 205 | 30 | 0.367 | 0.95 | 0.33373 | 2.85 | 0.04616 | 1.51 | 0.05244 | 2.41 | 0.53002 | 292.4 | 7.3 | 290.9 | 4.3 | 304.5 | 54.1 |
| -03 | 488 | 191 | 27 | 0.392 | 0.11 | 0.33361 | 1.75 | 0.04653 | 1.50 | 0.05242 | 0.90 | 0.85918 | 294.4 | 4.5 | 293.2 | 4.3 | 303.9 | 20.3 |
| -04 | 346 | 140 | 20 | 0.404 | 0.07 | 0.34133 | 1.84 | 0.04766 | 1.50 | 0.05194 | 1.06 | 0.71781 | 298.2 | 4.8 | 300.1 | 4.4 | 282.9 | 24.0 |
| -05 | 736 | 330 | 41 | 0.449 | 0.06 | 0.33755 | 1.71 | 0.04655 | 1.50 | 0.05259 | 0.82 | 0.87752 | 295.3 | 4.4 | 293.3 | 4.3 | 311.3 | 18.6 |
| -06 | 722 | 507 | 43 | 0.702 | 0.30 | 0.33350 | 1.93 | 0.04659 | 1.51 | 0.05192 | 1.21 | 0.77895 | 292.2 | 4.9 | 293.6 | 4.3 | 281.7 | 27.5 |
| -07 | 456 | 138 | 25 | 0.303 | 0.00 | 0.33261 | 1.76 | 0.04703 | 1.50 | 0.05184 | 0.92 | 0.85200 | 294.3 | 4.5 | 296.3 | 4.4 | 278.5 | 21.0 |
| -08 | 367 | 122 | 19 | 0.332 | 0.40 | 0.32561 | 2.43 | 0.04595 | 1.51 | 0.05140 | 1.91 | 0.61876 | 286.2 | 6.1 | 289.6 | 4.3 | 258.7 | 43.3 |
| -09 | 325 | 123 | 18 | 0.378 | 0.14 | 0.33839 | 2.12 | 0.04710 | 1.58 | 0.05211 | 1.42 | 0.74418 | 296.0 | 5.5 | 296.7 | 4.6 | 290.3 | 32.1 |
| -10 | 240 | 92 | 13 | 0.385 | 0.09 | 0.34291 | 2.08 | 0.04680 | 1.66 | 0.05314 | 1.26 | 0.79653 | 299.4 | 5.4 | 294.9 | 4.8 | 334.8 | 28.3 |
| -11 | 482 | 102 | 26 | 0.211 | 0.10 | 0.34983 | 1.75 | 0.04839 | 1.51 | 0.05244 | 0.88 | 0.86511 | 304.6 | 4.6 | 304.6 | 4.5 | 304.5 | 19.8 |
| -12 | 290 | 109 | 16 | 0.376 | 0.12 | 0.33057 | 1.91 | 0.04578 | 1.51 | 0.05237 | 1.16 | 0.79166 | 290.0 | 4.8 | 288.6 | 4.3 | 301.7 | 26.3 |
| 13SYH08 | 花岗斑岩(Ⅰ号) | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -01 | 1762 | 615 | 94 | 0.349 | 1.53 | 0.33121 | 2.17 | 0.04587 | 1.50 | 0.05236 | 1.57 | 0.68986 | 290.5 | 5.5 | 289.1 | 4.2 | 301.3 | 35.5 |
| -02 | 2638 | 643 | 141 | 0.244 | 0.03 | 0.34361 | 1.55 | 0.04766 | 1.50 | 0.05229 | 0.40 | 0.96604 | 299.9 | 4.0 | 300.1 | 4.4 | 298.2 | 9.1 |
| -03 | 557 | 213 | 30 | 0.382 | 0.05 | 0.33780 | 1.72 | 0.04657 | 1.51 | 0.05261 | 0.83 | 0.87527 | 295.5 | 4.4 | 293.4 | 4.3 | 312.1 | 18.8 |
| -04 | 285 | 61 | 15 | 0.212 | 0.04 | 0.33384 | 1.91 | 0.04647 | 1.51 | 0.05210 | 1.17 | 0.79130 | 292.5 | 4.9 | 292.8 | 4.3 | 289.7 | 26.4 |

续表1

Continued Table. 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测 点 | U  10-6 | Th  10-6 | Pb  10-6 | Th/U | *f*206  (%) | 同 位 素 比 值  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | | ρ | 同 位 素 年 龄  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | |
| -05 | 1098 | 383 | 59 | 0.349 | 0.09 | 0.33472 | 1.63 | 0.04657 | 1.51 | 0.05213 | 0.60 | 0.93044 | 293.2 | 4.2 | 293.4 | 4.3 | 291.2 | 13.6 |
| -06 | 4749 | 1700 | 268 | 0.358 | 0.00 | 0.34911 | 1.55 | 0.04847 | 1.51 | 0.05224 | 0.36 | 0.97254 | 304.1 | 4.1 | 305.1 | 4.5 | 296.0 | 8.2 |
| -07 | 578 | 301 | 33 | 0.521 | 0.03 | 0.33771 | 1.72 | 0.04686 | 1.51 | 0.05227 | 0.82 | 0.87776 | 295.4 | 4.4 | 295.2 | 4.3 | 297.2 | 18.6 |
| -08 | 518 | 203 | 30 | 0.391 | 0.06 | 0.34682 | 1.73 | 0.04883 | 1.50 | 0.05151 | 0.85 | 0.86894 | 302.3 | 4.5 | 307.3 | 4.5 | 263.8 | 19.5 |
| -09 | 6310 | 2661 | 350 | 0.422 | 0.18 | 0.34276 | 1.67 | 0.04686 | 1.56 | 0.05305 | 0.58 | 0.93649 | 299.3 | 4.3 | 295.2 | 4.5 | 330.9 | 13.2 |
| -10 | 1046 | 445 | 58 | 0.425 | 0.04 | 0.33679 | 1.62 | 0.04714 | 1.50 | 0.05182 | 0.61 | 0.92632 | 294.7 | 4.2 | 296.9 | 4.4 | 277.4 | 13.9 |
| -11 | 556 | 298 | 31 | 0.537 | 0.08 | 0.33058 | 1.84 | 0.04593 | 1.56 | 0.05220 | 0.97 | 0.85047 | 290.0 | 4.6 | 289.5 | 4.4 | 294.3 | 21.9 |
| 13SYH10 | 花岗斑岩(Ⅱ号) | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -01 | 255 | 161 | 15 | 0.630 | 0.04 | 0.34547 | 2.01 | 0.04768 | 1.51 | 0.05255 | 1.32 | 0.75227 | 301.3 | 5.3 | 300.3 | 4.4 | 309.4 | 29.9 |
| -02 | 3761 | 878 | 200 | 0.233 | 0.14 | 0.34180 | 1.56 | 0.04721 | 1.51 | 0.05251 | 0.41 | 0.96512 | 298.5 | 4.0 | 297.3 | 4.4 | 307.8 | 9.3 |
| -03 | 3471 | 1200 | 196 | 0.346 | 0.04 | 0.34980 | 1.59 | 0.04839 | 1.53 | 0.05243 | 0.45 | 0.95882 | 304.6 | 4.2 | 304.6 | 4.5 | 304.2 | 10.3 |
| -04 | 5712 | 2993 | 340 | 0.524 | 0.06 | 0.35457 | 1.57 | 0.04866 | 1.50 | 0.05263 | 0.34 | 0.97593 | 308.2 | 4.1 | 307.5 | 4.5 | 312.8 | 7.6 |
| -05 | 509 | 125 | 27 | 0.244 | 0.06 | 0.34157 | 1.77 | 0.04738 | 1.55 | 0.05229 | 0.86 | 0.87353 | 298.4 | 4.6 | 298.4 | 4.5 | 298.1 | 19.6 |
| -06 | 3165 | 972 | 176 | 0.307 | 0.20 | 0.35472 | 1.59 | 0.04843 | 1.55 | 0.05312 | 0.34 | 0.97669 | 308.3 | 4.2 | 304.9 | 4.6 | 333.8 | 7.7 |
| -07 | 4842 | 1584 | 268 | 0.327 | 0.18 | 0.34460 | 1.55 | 0.04812 | 1.50 | 0.05194 | 0.37 | 0.97067 | 300.7 | 4.0 | 303.0 | 4.4 | 282.7 | 8.5 |
| -08 | 3823 | 1337 | 211 | 0.350 | 0.10 | 0.34408 | 1.64 | 0.04754 | 1.53 | 0.05249 | 0.59 | 0.93385 | 300.3 | 4.3 | 299.4 | 4.5 | 306.9 | 13.3 |
| -09 | 2904 | 945 | 158 | 0.326 | 0.01 | 0.33990 | 1.57 | 0.04721 | 1.50 | 0.05222 | 0.44 | 0.96001 | 297.1 | 4.0 | 297.3 | 4.4 | 295.2 | 10.0 |
| 13SYH01 | 花岗闪长斑岩 | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| -01 | 428 | 195 | 24 | 0.456 | 0.06 | 0.33965 | 1.89 | 0.04715 | 1.50 | 0.05225 | 1.14 | 0.79600 | 296.9 | 4.9 | 297.0 | 4.4 | 296.3 | 25.8 |
| -02 | 528 | 163 | 28 | 0.309 | 0.04 | 0.33190 | 1.80 | 0.04590 | 1.52 | 0.05245 | 0.97 | 0.84184 | 291.0 | 4.6 | 289.3 | 4.3 | 304.9 | 22.0 |
| -03 | 1694 | 556 | 91 | 0.328 | 0.06 | 0.33804 | 1.59 | 0.04678 | 1.50 | 0.05241 | 0.52 | 0.94466 | 295.7 | 4.1 | 294.7 | 4.3 | 303.3 | 11.8 |
| -04 | 831 | 455 | 47 | 0.547 | 0.05 | 0.33205 | 1.97 | 0.04587 | 1.51 | 0.05251 | 1.27 | 0.76607 | 291.1 | 5.0 | 289.1 | 4.3 | 307.6 | 28.6 |
| -05 | 237 | 80 | 13 | 0.338 | 0.08 | 0.33528 | 2.01 | 0.04664 | 1.50 | 0.05214 | 1.33 | 0.74802 | 293.6 | 5.1 | 293.9 | 4.3 | 291.4 | 30.2 |
| -06 | 1381 | 1151 | 85 | 0.833 | 0.60 | 0.34274 | 2.07 | 0.04706 | 1.56 | 0.05282 | 1.36 | 0.75241 | 299.2 | 5.4 | 296.5 | 4.5 | 321.0 | 30.7 |

续表1

Continued Table. 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测 点 | U  10-6 | Th  10-6 | Pb  10-6 | Th/U | *f*206  (%) | 同 位 素 比 值  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | | ρ | 同 位 素 年 龄  207Pb/235U σ 206Pb/238U σ 207Pb/206Pb σ | | | | | |
| -07 | 370 | 267 | 22 | 0.722 | 0.00 | 0.33745 | 1.84 | 0.04719 | 1.51 | 0.05186 | 1.06 | 0.81860 | 295.2 | 4.7 | 297.2 | 4.4 | 279.4 | 24.0 |
| -08 | 1152 | 333 | 63 | 0.290 | 0.00 | 0.34121 | 1.63 | 0.04764 | 1.52 | 0.05194 | 0.60 | 0.93101 | 298.1 | 4.2 | 300.0 | 4.5 | 282.8 | 13.6 |
| -09 | 510 | 225 | 29 | 0.441 | 0.01 | 0.34039 | 1.77 | 0.04714 | 1.51 | 0.05237 | 0.93 | 0.85116 | 297.5 | 4.6 | 296.9 | 4.4 | 301.7 | 21.0 |
| -10 | 1132 | 515 | 64 | 0.455 | 0.19 | 0.34393 | 1.69 | 0.04804 | 1.50 | 0.05192 | 0.78 | 0.88705 | 300.1 | 4.4 | 302.5 | 4.4 | 281.9 | 17.8 |
| -11 | 366 | 195 | 21 | 0.532 | 0.05 | 0.33500 | 2.21 | 0.04644 | 1.54 | 0.05232 | 1.59 | 0.69531 | 293.4 | 5.7 | 292.6 | 4.4 | 299.5 | 35.9 |
| -12 | 1431 | 511 | 76 | 0.357 | 0.34 | 0.32642 | 1.77 | 0.04603 | 1.51 | 0.05144 | 0.93 | 0.85034 | 286.8 | 4.4 | 290.1 | 4.3 | 260.5 | 21.3 |
| -13 | 1410 | 241 | 75 | 0.171 | 0.02 | 0.34244 | 1.60 | 0.04790 | 1.50 | 0.05185 | 0.54 | 0.94205 | 299.0 | 4.1 | 301.6 | 4.4 | 278.7 | 12.2 |
| -14 | 277 | 147 | 16 | 0.530 | 0.04 | 0.33645 | 1.99 | 0.04624 | 1.51 | 0.05277 | 1.29 | 0.76064 | 294.5 | 5.1 | 291.4 | 4.3 | 319.1 | 29.0 |
| -15 | 576 | 228 | 32 | 0.396 | 0.01 | 0.34028 | 1.73 | 0.04679 | 1.50 | 0.05264 | 0.85 | 0.86957 | 297.8 | 4.5 | 295.9 | 4.3 | 313.2 | 19.3 |