## 表格

附表 1 花岗伟晶岩和黝帘斜长角闪岩的主量（%）、微量元素（×10-6）组成

Table 1 Major element (wt%) and trace element (×10-6) compositions of the granitic pegmatite and the zoisite amphibolite

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **岩性** | 黝帘斜长角闪岩 | | | | | | | | 花岗伟晶岩 | | | | | | | |
| 编号 | MB1 | MB 2 | MB 3 | MB 4 | MB 5 | MB 6 | MB 7 | MB 8 | FL1 | FL 2 | FL 3 | FL 4 | FL 5 | FL 6 | FL 7 | FL 8 |
| SiO2 | 47.94 | 44.02 | 48.92 | 47.04 | 41.51 | 45.87 | 44.23 | 44.04 | 70.46 | 70.67 | 70.38 | 69.7 | 73.08 | 72.57 | 70.47 | 70.65 |
| TiO2 | 0.93 | 0.76 | 1.91 | 1.29 | 0.87 | 1.01 | 1.47 | 1.59 | 0.1 | 0.03 | 0.18 | 0.1 | 0.11 | 0.23 | 0.19 | 0.1 |
| Al2O3 | 13.49 | 13.94 | 13.38 | 13.68 | 13.18 | 13.66 | 10.66 | 11.20 | 15.45 | 15.26 | 15.56 | 14.98 | 14.25 | 13.99 | 15.02 | 15.36 |
| Fe2O3 | 13.59 | 12.92 | 12.85 | 13.94 | 12.64 | 12.59 | 11.34 | 11.74 | 0.91 | 0.52 | 1.24 | 1.02 | 0.91 | 1.56 | 1.49 | 1.07 |
| MnO | 0.15 | 0.12 | 0.12 | 0.16 | 0.14 | 0.13 | 0.12 | 0.13 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 |
| MgO | 7.89 | 8.48 | 5.78 | 8.19 | 11.90 | 9.36 | 13.65 | 13.00 | 0.24 | 0.1 | 0.45 | 0.3 | 0.28 | 0.56 | 0.49 | 0.29 |
| CaO | 9.05 | 17.00 | 10.35 | 8.89 | 14.85 | 13.45 | 14.25 | 14.45 | 0.45 | 0.24 | 0.71 | 1.26 | 0.84 | 1.1 | 1.6 | 0.74 |
| K2O | 1.57 | 0.34 | 1.22 | 1.64 | 0.76 | 0.69 | 0.93 | 0.88 | 8.53 | 9.86 | 7.85 | 7.56 | 5.96 | 5.59 | 5.27 | 8.1 |
| Na2O | 2.94 | 0.48 | 3.35 | 2.85 | 0.88 | 1.60 | 0.70 | 0.88 | 2.91 | 2.26 | 2.84 | 2.92 | 3.28 | 2.99 | 3.82 | 2.92 |
| P2O5 | 0.07 | 0.04 | 0.25 | 0.15 | 0.11 | 0.08 | 0.24 | 0.26 | 0.03 | 0.02 | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 | 0.05 |
| NiO | 0.04 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| LOI | 1.59 | 2.15 | 1.29 | 1.78 | 3.21 | 2.02 | 2.45 | 2.33 | 0.55 | 0.28 | 0.63 | 1.47 | 0.58 | 1.13 | 1.36 | 0.55 |
| Mg# | 53.73 | 56.76 | 47.36 | 54.02 | 65.31 | 59.79 | 70.65 | 68.89 | 22.66 | 17.61 | 28.74 | 24.63 | 25.48 | 28.51 | 26.76 | 23.14 |
| V | 287 | 304 | 383 | 326 | 297 | 297 | 195 | 210 | 15 | 7 | 27 | 16 | 7 | 15 | 14 | 7 |
| Cr | 100 | 260 | 110 | 110 | 90 | 210 | 40 | 40 | 140 | 190 | 40 | 60 | 30 | 30 | 30 | 20 |
| Ga | 16.2 | 23.9 | 21.5 | 18.0 | 18.8 | 18.7 | 16.7 | 17.3 | 17.6 | 15.5 | 19.1 | 21.5 | 18.2 | 20.9 | 23.5 | 19.5 |
| Rb | 45.9 | 7.2 | 25.0 | 50.6 | 25.0 | 15.7 | 29.9 | 25.2 | 369 | 430 | 342 | 375 | 303 | 263 | 253 | 344 |
| Sr | 264 | 662 | 281 | 182.0 | 284 | 254 | 215 | 233 | 195.5 | 195 | 276 | 191.5 | 271 | 235 | 249 | 198 |
| Y | 22.0 | 25.6 | 36.7 | 28.1 | 22.1 | 24.1 | 20.3 | 22.2 | 9.2 | 3.6 | 6.4 | 9.8 | 10.1 | 14 | 17.5 | 25.5 |
| Zr | 60 | 60 | 189 | 100 | 62 | 81 | 116 | 121 | 279 | 328 | 327 | 252 | 107 | 166 | 1340 | 218 |
| Nb | 3.4 | 3.2 | 8.4 | 5.2 | 3.6 | 4.1 | 8.8 | 9.5 | 8.5 | 2.2 | 11.2 | 8.6 | 10.4 | 21.8 | 18.1 | 10.5 |
| Sn | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | <1 | 1 | 2 | 1 | 3 | 3 | 2 |
| Cs | 0.35 | 0.17 | 1.22 | 0.38 | 2.20 | 0.28 | 2.81 | 1.43 | 1.28 | 0.98 | 1.61 | 1.36 | 0.96 | 1.02 | 0.95 | 1.33 |
| Ba | 4960 | 313 | 4760 | 5230 | 1155 | 1850 | 1575 | 1265 | 1855 | 1845 | 1805 | 1705 | 1290 | 983 | 1000 | 1310 |
| Hf | 1.7 | 1.6 | 4.8 | 2.4 | 1.7 | 2.1 | 2.8 | 2.9 | 7.6 | 8.6 | 8.6 | 6.7 | 3.2 | 4.9 | 38.7 | 6.6 |
| Ta | 0.3 | 0.3 | 0.6 | 0.4 | 0.3 | 0.3 | 0.6 | 0.6 | 0.6 | 0.2 | 0.6 | 0.6 | 0.8 | 1.1 | 1 | 0.7 |
| W | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 4 | 2 |
| Th | 0.41 | 1.29 | 1.86 | 0.98 | 1.73 | 1.43 | 1.10 | 1.12 | 27.1 | 7.83 | 22.2 | 26.2 | 19.65 | 30.6 | 44.3 | 73.6 |
| U | 0.26 | 4.00 | 1.58 | 0.32 | 1.69 | 0.57 | 0.87 | 1.13 | 2.4 | 1.33 | 2.41 | 2.32 | 1.79 | 2.1 | 5.88 | 4.27 |
| La | 8.0 | 14.0 | 21.0 | 11.9 | 7.0 | 16.5 | 19.0 | 20.3 | 45.6 | 18.1 | 48.7 | 45.3 | 47.9 | 92.9 | 84.7 | 111 |
| Ce | 17.7 | 25.9 | 47.1 | 27.0 | 17.0 | 32.4 | 42.3 | 45.9 | 89.6 | 31.2 | 90 | 85.6 | 86.8 | 183.5 | 170 | 233 |
| Pr | 2.25 | 3.06 | 5.74 | 3.47 | 2.26 | 3.79 | 5.32 | 5.70 | 8.11 | 2.76 | 8.69 | 8.23 | 8.07 | 19.3 | 17.55 | 23.9 |
| Nd | 10.4 | 12.8 | 24.3 | 15.3 | 9.9 | 15.5 | 23.0 | 24.4 | 26.3 | 8.7 | 27.8 | 26.6 | 25.9 | 60.8 | 57.5 | 75.6 |
| Sm | 2.74 | 3.08 | 5.58 | 3.92 | 2.56 | 3.21 | 4.60 | 4.92 | 4.17 | 1.46 | 3.94 | 3.87 | 3.75 | 8.66 | 8.39 | 11.15 |
| Eu | 0.92 | 1.63 | 1.64 | 1.17 | 0.96 | 1.07 | 1.46 | 1.56 | 0.97 | 0.79 | 1.35 | 0.85 | 1.13 | 1.13 | 1.19 | 1.32 |
| Gd | 3.35 | 3.84 | 6.32 | 4.58 | 3.25 | 3.69 | 4.59 | 4.60 | 2.69 | 0.89 | 2.49 | 2.71 | 2.33 | 5.29 | 5.51 | 7.24 |
| Tb | 0.56 | 0.69 | 1.02 | 0.75 | 0.57 | 0.63 | 0.65 | 0.70 | 0.33 | 0.13 | 0.3 | 0.34 | 0.34 | 0.66 | 0.71 | 1 |
| Dy | 3.84 | 4.38 | 6.27 | 4.94 | 3.67 | 3.99 | 3.72 | 4.13 | 1.75 | 0.69 | 1.33 | 1.63 | 1.72 | 3.11 | 3.42 | 4.92 |
| Ho | 0.81 | 0.97 | 1.36 | 1.08 | 0.82 | 0.90 | 0.78 | 0.83 | 0.33 | 0.13 | 0.24 | 0.32 | 0.35 | 0.54 | 0.61 | 0.86 |
| Er | 2.38 | 2.71 | 3.82 | 3.03 | 2.36 | 2.57 | 2.02 | 2.23 | 0.86 | 0.35 | 0.59 | 0.85 | 0.96 | 1.2 | 1.48 | 2.21 |
| Tm | 0.35 | 0.39 | 0.57 | 0.45 | 0.35 | 0.37 | 0.29 | 0.32 | 0.12 | 0.05 | 0.08 | 0.12 | 0.14 | 0.15 | 0.19 | 0.3 |
| Yb | 2.22 | 2.36 | 3.59 | 2.75 | 2.16 | 2.31 | 1.76 | 1.87 | 0.76 | 0.31 | 0.51 | 0.79 | 0.96 | 0.91 | 1.21 | 1.66 |
| Lu | 0.35 | 0.36 | 0.54 | 0.44 | 0.33 | 0.36 | 0.28 | 0.28 | 0.12 | 0.05 | 0.08 | 0.14 | 0.15 | 0.14 | 0.19 | 0.26 |
| ΣREE | 55.87 | 76.17 | 128.85 | 80.78 | 53.19 | 87.29 | 109.77 | 117.74 | 181.71 | 65.61 | 186.1 | 177.35 | 180.5 | 378.29 | 352.65 | 474.42 |
| LREE | 42.01 | 60.47 | 105.36 | 62.76 | 39.68 | 72.47 | 95.68 | 102.78 | 174.75 | 63.01 | 180.48 | 170.45 | 173.55 | 366.29 | 339.33 | 455.97 |
| HREE | 13.86 | 15.70 | 23.49 | 18.02 | 13.51 | 14.82 | 14.09 | 14.96 | 6.96 | 2.6 | 5.62 | 6.9 | 6.95 | 12 | 13.32 | 18.45 |
| LaN/YbN | 2.58 | 4.26 | 4.20 | 3.10 | 2.32 | 5.12 | 7.74 | 7.79 | 43.04 | 41.88 | 68.5 | 41.13 | 35.79 | 73.23 | 50.21 | 47.96 |
| δEu | 0.93 | 1.45 | 0.84 | 0.84 | 1.02 | 0.95 | 0.97 | 1.00 | 0.89 | 2.12 | 1.32 | 0.8 | 1.17 | 0.51 | 0.54 | 0.45 |
| δCe | 1.02 | 0.97 | 1.05 | 1.03 | 1.05 | 1.00 | 1.03 | 1.05 | 1.14 | 1.08 | 1.07 | 1.09 | 1.08 | 1.06 | 1.08 | 1.11 |

附表2 花岗伟晶岩和黝帘斜长角闪岩中锆石的微量元素组成（×10-6）

Table 2 The zircon trace element (×10-6) from the the granitic pegmatite and the zoisite amphibolite

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测点 | 位置 | La | Ce | Pr | Nd | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb |
| 花岗伟晶岩 | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01 | 核部 | 0.00 | 11.09 | 0.05 | 0.84 | 3.49 | 0.48 | 22.88 | 8.47 | 93.19 | 29.31 | 109.34 | 21.71 | 188.44 |
| 02 | 核部 | 0.10 | 16.76 | 0.17 | 1.91 | 4.09 | 0.50 | 19.95 | 5.87 | 54.55 | 15.13 | 51.68 | 9.67 | 79.03 |
| 03 | 幔部 | 37.85 | 304.75 | 36.93 | 212.47 | 101.67 | 23.74 | 146.06 | 31.11 | 283.81 | 91.78 | 387.16 | 82.40 | 757.74 |
| 04 | 核部 | 0.03 | 9.73 | 0.08 | 1.10 | 4.02 | 0.57 | 28.00 | 10.45 | 118.38 | 38.20 | 150.41 | 30.06 | 265.23 |
| 06 | 核部 | 0.06 | 11.82 | 0.09 | 1.07 | 2.56 | 0.42 | 15.10 | 5.51 | 60.60 | 19.08 | 74.96 | 15.51 | 136.86 |
| 07 | 幔部 | 15.59 | 185.04 | 18.42 | 100.79 | 64.84 | 26.13 | 105.25 | 26.62 | 233.33 | 66.92 | 273.38 | 59.93 | 569.26 |
| 08 | 核部 | 0.01 | 14.11 | 0.05 | 0.92 | 2.91 | 0.31 | 14.82 | 4.35 | 43.01 | 12.52 | 44.41 | 8.36 | 70.64 |
| 09 | 幔部 | 19.84 | 42.72 | 19.86 | 99.64 | 50.10 | 15.43 | 75.76 | 18.77 | 176.39 | 52.26 | 198.91 | 39.33 | 337.23 |
| 10 | 核部 | 0.21 | 12.61 | 0.29 | 2.24 | 4.68 | 0.94 | 27.31 | 10.15 | 112.50 | 35.06 | 136.66 | 27.48 | 241.35 |
| 12 | 核部 | 0.15 | 12.12 | 0.16 | 1.39 | 3.14 | 0.54 | 20.80 | 7.96 | 91.22 | 29.46 | 118.03 | 24.25 | 217.34 |
| 13 | 核部 | 0.25 | 14.43 | 0.30 | 2.50 | 4.27 | 0.69 | 21.64 | 8.29 | 94.13 | 30.52 | 123.31 | 25.35 | 221.82 |
| 14 | 核部 | 0.05 | 11.05 | 0.07 | 0.93 | 2.19 | 0.24 | 10.17 | 3.16 | 31.54 | 9.26 | 33.72 | 6.63 | 57.76 |
| 15 | 幔部 | 5.80 | 49.53 | 3.80 | 20.60 | 12.82 | 3.12 | 25.25 | 6.48 | 58.91 | 16.46 | 60.34 | 11.84 | 104.09 |
| 16 | 核部 | 0.01 | 9.72 | 0.04 | 0.81 | 3.33 | 0.50 | 22.93 | 9.05 | 101.17 | 32.38 | 126.70 | 26.51 | 237.62 |
| 17 | 核部 | 0.02 | 13.84 | 0.07 | 1.12 | 2.72 | 0.37 | 13.76 | 4.32 | 42.72 | 12.65 | 46.10 | 9.13 | 78.71 |
| 18 | 核部 | 0.01 | 16.68 | 0.09 | 1.78 | 5.38 | 0.48 | 27.12 | 7.92 | 72.69 | 19.26 | 65.74 | 12.24 | 105.30 |
| 19 | 核部 | 0.54 | 18.31 | 0.39 | 2.98 | 3.97 | 0.70 | 16.09 | 4.61 | 45.60 | 13.57 | 50.29 | 9.62 | 81.34 |
| 20 | 核部 | 0.80 | 13.53 | 0.64 | 4.03 | 4.30 | 1.02 | 19.88 | 7.14 | 78.90 | 24.70 | 96.91 | 19.68 | 176.26 |
| 21 | 核部 | 0.00 | 11.73 | 0.04 | 0.73 | 2.31 | 0.27 | 11.06 | 3.43 | 34.47 | 10.22 | 37.41 | 7.31 | 62.73 |
| 22 | 核部 | 0.25 | 12.96 | 0.39 | 3.33 | 4.56 | 0.95 | 19.80 | 6.77 | 71.02 | 21.68 | 82.47 | 16.41 | 149.59 |
| 23 | 核部 | 0.62 | 20.46 | 0.69 | 4.71 | 5.63 | 1.34 | 29.75 | 11.17 | 125.61 | 38.71 | 150.22 | 30.34 | 269.96 |
| 24 | 幔部 | 7.23 | 88.49 | 7.78 | 45.36 | 22.27 | 9.88 | 38.86 | 9.06 | 81.89 | 23.58 | 86.59 | 17.19 | 149.37 |
| 25 | 核部 | 0.63 | 15.21 | 0.55 | 3.36 | 3.87 | 0.79 | 18.64 | 6.78 | 74.11 | 23.12 | 88.14 | 18.15 | 165.69 |
| 26 | 核部 | 0.02 | 14.45 | 0.09 | 1.42 | 4.33 | 0.47 | 23.42 | 7.35 | 74.04 | 21.36 | 77.10 | 14.91 | 130.53 |
| 27 | 核部 | 0.82 | 17.50 | 0.74 | 5.00 | 6.11 | 0.92 | 27.04 | 9.69 | 106.53 | 33.86 | 130.35 | 26.70 | 245.47 |
| 29 | 核部 | 0.61 | 16.21 | 0.49 | 3.59 | 4.33 | 0.71 | 17.09 | 5.18 | 52.27 | 15.81 | 60.12 | 12.03 | 108.75 |
| 32 | 核部 | 0.19 | 11.72 | 0.21 | 1.64 | 3.78 | 0.61 | 22.64 | 8.42 | 95.97 | 30.46 | 118.94 | 24.65 | 228.65 |
| 33 | 核部 | 0.10 | 11.10 | 0.16 | 1.60 | 4.04 | 0.70 | 24.94 | 9.64 | 108.90 | 34.22 | 132.49 | 27.64 | 255.05 |
| 35 | 幔部 | 9.83 | 39.34 | 9.72 | 52.28 | 27.99 | 6.39 | 52.26 | 14.81 | 149.94 | 45.52 | 174.18 | 36.02 | 330.45 |
| 36 | 核部 | 0.04 | 14.63 | 0.10 | 1.36 | 3.40 | 0.46 | 17.12 | 5.41 | 53.78 | 16.42 | 60.40 | 11.69 | 100.87 |
| 37 | 核部 | 0.03 | 10.55 | 0.06 | 1.03 | 3.64 | 0.52 | 24.56 | 9.57 | 108.51 | 34.25 | 133.79 | 27.89 | 254.25 |
| 38 | 核部 | 0.01 | 13.63 | 0.05 | 1.19 | 3.52 | 0.38 | 16.34 | 5.11 | 52.13 | 15.50 | 56.09 | 11.35 | 104.16 |
| 39 | 幔部 | 8.54 | 54.39 | 5.83 | 29.41 | 18.30 | 7.16 | 35.98 | 10.14 | 95.43 | 26.82 | 97.20 | 19.49 | 173.00 |
| 40 | 核部 | 0.85 | 17.53 | 0.60 | 3.74 | 4.55 | 0.87 | 21.35 | 7.48 | 80.16 | 24.01 | 89.46 | 18.97 | 177.71 |
| 41 | 核部 | 0.02 | 15.94 | 0.07 | 1.09 | 2.64 | 0.35 | 13.04 | 4.24 | 46.28 | 14.78 | 58.30 | 12.37 | 119.28 |
| 42 | 核部 | 0.01 | 9.79 | 0.05 | 0.87 | 3.54 | 0.54 | 23.44 | 9.21 | 105.59 | 34.59 | 139.28 | 29.98 | 281.92 |
| 43 | 核部 | 0.02 | 14.83 | 0.07 | 1.26 | 3.29 | 0.35 | 15.58 | 4.86 | 49.09 | 13.85 | 49.76 | 9.94 | 90.06 |
| 44 | 核部 | 0.01 | 15.27 | 0.11 | 1.82 | 5.21 | 0.48 | 24.75 | 7.64 | 72.49 | 19.93 | 67.78 | 13.17 | 115.95 |
| 黝帘斜长角闪岩 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01 |  | 0.00 | 4.33 | 0.02 | 0.21 | 0.46 | 0.29 | 3.16 | 1.21 | 17.01 | 7.17 | 37.39 | 8.78 | 89.53 |
| 02 |  | 0.03 | 7.11 | 0.03 | 0.65 | 1.49 | 0.89 | 10.28 | 3.47 | 45.81 | 17.86 | 87.54 | 19.27 | 188.66 |
| 03 |  | 0.00 | 3.56 | 0.01 | 0.12 | 0.35 | 0.26 | 2.64 | 0.99 | 14.42 | 6.17 | 33.05 | 7.81 | 83.31 |
| 04 |  | 0.00 | 4.60 | 0.01 | 0.14 | 0.41 | 0.30 | 3.35 | 1.31 | 18.42 | 8.06 | 41.74 | 10.13 | 104.94 |
| 05 |  | 0.00 | 5.08 | 0.04 | 0.72 | 1.38 | 0.82 | 7.52 | 2.46 | 31.84 | 12.27 | 59.71 | 13.62 | 134.75 |
| 06 |  | 0.01 | 5.61 | 0.02 | 0.43 | 1.06 | 0.70 | 8.24 | 3.03 | 39.79 | 16.00 | 78.90 | 17.77 | 175.91 |
| 07 |  | 0.00 | 4.09 | 0.03 | 0.46 | 0.92 | 0.62 | 5.69 | 2.05 | 25.48 | 10.32 | 52.16 | 11.68 | 119.16 |
| 08 |  | 0.10 | 4.15 | 0.03 | 0.20 | 0.51 | 0.36 | 3.78 | 1.34 | 19.16 | 8.06 | 41.16 | 9.57 | 96.90 |
| 09 |  | 0.00 | 4.65 | 0.04 | 0.73 | 1.51 | 0.94 | 9.11 | 3.12 | 37.82 | 14.68 | 69.47 | 15.52 | 153.83 |
| 10 |  | 0.00 | 3.48 | 0.02 | 0.15 | 0.29 | 0.20 | 1.99 | 0.82 | 11.62 | 5.13 | 27.46 | 6.70 | 70.59 |
| 11 |  | 0.00 | 4.69 | 0.04 | 0.73 | 1.40 | 0.98 | 7.18 | 2.58 | 32.23 | 12.49 | 60.84 | 13.58 | 135.90 |
| 12 |  | 0.01 | 5.39 | 0.04 | 0.83 | 1.55 | 0.94 | 8.84 | 3.14 | 39.57 | 16.05 | 77.80 | 17.94 | 184.86 |
| 13 |  | 0.03 | 2.31 | 0.03 | 0.18 | 0.29 | 0.20 | 2.64 | 1.17 | 17.13 | 8.27 | 47.51 | 12.45 | 147.39 |
| 14 |  | 0.01 | 5.68 | 0.03 | 0.38 | 0.63 | 0.52 | 5.11 | 1.88 | 25.73 | 11.21 | 56.22 | 13.30 | 140.01 |
| 15 |  | 0.00 | 4.20 | 0.01 | 0.23 | 0.38 | 0.25 | 2.29 | 0.89 | 11.64 | 5.11 | 26.34 | 6.54 | 72.71 |
| 16 |  | 0.00 | 5.39 | 0.02 | 0.34 | 0.62 | 0.46 | 4.49 | 1.71 | 22.53 | 9.72 | 49.39 | 11.97 | 127.38 |
| 17 |  | 0.00 | 7.24 | 0.01 | 0.39 | 1.13 | 0.66 | 7.67 | 2.97 | 38.83 | 16.19 | 80.12 | 18.57 | 190.00 |
| 18 |  | 0.00 | 4.72 | 0.02 | 0.19 | 0.48 | 0.34 | 3.21 | 1.28 | 17.65 | 7.60 | 39.59 | 9.80 | 105.19 |
| 19 |  | 0.00 | 3.94 | 0.01 | 0.12 | 0.28 | 0.24 | 2.46 | 1.01 | 14.76 | 6.59 | 35.03 | 8.46 | 91.01 |
| 20 |  | 0.02 | 9.27 | 0.02 | 0.38 | 0.94 | 0.51 | 6.62 | 2.68 | 36.60 | 15.74 | 79.45 | 18.56 | 191.75 |
| 21 |  | 0.00 | 4.87 | 0.01 | 0.20 | 0.47 | 0.38 | 3.71 | 1.43 | 20.43 | 8.99 | 47.01 | 11.42 | 122.18 |
| 22 |  | 0.01 | 5.06 | 0.02 | 0.27 | 0.37 | 0.30 | 3.85 | 1.58 | 21.57 | 9.56 | 49.43 | 11.92 | 126.22 |
| 24 |  | 0.00 | 4.40 | 0.01 | 0.21 | 0.46 | 0.32 | 3.55 | 1.40 | 19.08 | 8.39 | 42.15 | 10.09 | 108.32 |
| 25 |  | 0.01 | 11.05 | 0.04 | 0.72 | 2.07 | 1.23 | 13.95 | 5.08 | 64.12 | 26.14 | 127.43 | 28.42 | 286.93 |
| 26 |  | 0.00 | 4.32 | 0.01 | 0.24 | 0.68 | 0.42 | 4.68 | 1.87 | 24.71 | 10.52 | 52.32 | 12.18 | 127.65 |
| 34 |  | 0.00 | 4.61 | 0.02 | 0.22 | 0.53 | 0.41 | 4.23 | 1.66 | 22.45 | 9.66 | 49.67 | 11.75 | 126.34 |
| 35 |  | 0.00 | 6.10 | 0.01 | 0.28 | 0.83 | 0.47 | 5.09 | 2.14 | 29.78 | 13.06 | 67.10 | 15.91 | 170.76 |

附表3 花岗伟晶岩和黝帘斜长角闪岩中锆石的LA-ICP-MS U-Pb同位素测试结果

Table 3 In-situ LA-ICP-MS U-Pb dating results for the zircon from the the granitic pegmatite and the zoisite amphibolite

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Pb | Th | U | Th/U | 207Pb/206Pb | | 207Pb/235U | | 206Pb/238U | | 207Pb/206Pb | | 207Pb/235U | | 206Pb/238U | |
| 测点 | 位置 | （10-6） | | | Ratio | 1sigma | Ratio | 1sigma | Ratio | 1sigma | Age (Ma) | 1σ | Age (Ma) | 1σ | Age (Ma) | 1σ |
| 花岗伟晶岩 | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01 | 核 | 456 | 113 | 1117 | 0.10 | 0.11154 | 0.00104 | 5.63785 | 0.05473 | 0.36500 | 0.00219 | 1824 | 17 | 1922 | 8 | 2006 | 10 |
| 02 | 核 | 366 | 185 | 865 | 0.21 | 0.11250 | 0.00097 | 5.56352 | 0.05014 | 0.35713 | 0.00205 | 1840 | 17 | 1910 | 8 | 1969 | 10 |
| 03 | 边 | 608 | 225 | 1672 | 0.13 | 0.12261 | 0.00108 | 4.78005 | 0.04642 | 0.28154 | 0.00191 | 1995 | 11 | 1781 | 8 | 1599 | 10 |
| 04 | 核 | 572 | 128 | 1320 | 0.10 | 0.10901 | 0.00097 | 5.86464 | 0.05182 | 0.38849 | 0.00205 | 1783 | 16 | 1956 | 8 | 2116 | 10 |
| 06 | 核 | 364 | 94 | 892 | 0.11 | 0.11150 | 0.00100 | 5.62264 | 0.05475 | 0.36421 | 0.00247 | 1824 | 16 | 1920 | 8 | 2002 | 12 |
| 07 | 边 | 515 | 151 | 1299 | 0.12 | 0.11758 | 0.00119 | 5.33925 | 0.05553 | 0.32801 | 0.00241 | 1920 | 19 | 1875 | 9 | 1829 | 12 |
| 08 | 核 | 275 | 136 | 640 | 0.21 | 0.11120 | 0.00116 | 5.60250 | 0.06012 | 0.36402 | 0.00263 | 1820 | 14 | 1916 | 9 | 2001 | 12 |
| 09 | 边 | 712 | 128 | 1640 | 0.08 | 0.10837 | 0.00107 | 5.79996 | 0.05647 | 0.38673 | 0.00256 | 1772 | 18 | 1946 | 9 | 2108 | 12 |
| 10 | 核 | 508 | 127 | 1197 | 0.11 | 0.10842 | 0.00100 | 5.68783 | 0.05449 | 0.37901 | 0.00221 | 1773 | 12 | 1930 | 8 | 2072 | 10 |
| 12 | 核 | 440 | 98 | 1082 | 0.09 | 0.11184 | 0.00097 | 5.62954 | 0.05090 | 0.36405 | 0.00234 | 1829 | 21 | 1921 | 8 | 2001 | 11 |
| 13 | 核 | 496 | 105 | 1191 | 0.09 | 0.10988 | 0.00098 | 5.66922 | 0.05004 | 0.37297 | 0.00196 | 1798 | 16 | 1927 | 8 | 2043 | 9 |
| 14 | 核 | 194 | 79 | 457 | 0.17 | 0.11318 | 0.00105 | 5.57445 | 0.05556 | 0.35620 | 0.00234 | 1851 | 49 | 1912 | 9 | 1964 | 11 |
| 15 | 边 | 238 | 97 | 582 | 0.17 | 0.11411 | 0.00108 | 5.47725 | 0.05448 | 0.34720 | 0.00218 | 1866 | 17 | 1897 | 9 | 1921 | 10 |
| 16 | 核 | 501 | 109 | 1206 | 0.09 | 0.11162 | 0.00114 | 5.72695 | 0.06250 | 0.37115 | 0.00252 | 1826 | 19 | 1935 | 10 | 2035 | 12 |
| 17 | 核 | 273 | 131 | 653 | 0.20 | 0.11374 | 0.00114 | 5.55707 | 0.05986 | 0.35353 | 0.00245 | 1861 | 19 | 1909 | 9 | 1951 | 12 |
| 18 | 核 | 359 | 181 | 832 | 0.22 | 0.11492 | 0.00116 | 5.66607 | 0.05815 | 0.35714 | 0.00258 | 1880 | 19 | 1926 | 9 | 1969 | 12 |
| 19 | 核 | 246 | 136 | 584 | 0.23 | 0.11359 | 0.00100 | 5.48632 | 0.05304 | 0.34946 | 0.00235 | 1858 | 15 | 1898 | 8 | 1932 | 11 |
| 20 | 核 | 367 | 77 | 945 | 0.08 | 0.11525 | 0.00099 | 5.43336 | 0.04788 | 0.34116 | 0.00205 | 1884 | 15 | 1890 | 8 | 1892 | 10 |
| 21 | 核 | 244 | 99 | 584 | 0.17 | 0.11301 | 0.00102 | 5.58804 | 0.05585 | 0.35760 | 0.00231 | 1850 | 16 | 1914 | 9 | 1971 | 11 |
| 22 | 核 | 361 | 88 | 871 | 0.10 | 0.11424 | 0.00106 | 5.75944 | 0.05683 | 0.36475 | 0.00244 | 1933 | 17 | 1940 | 9 | 2005 | 12 |
| 23 | 核 | 569 | 121 | 1328 | 0.09 | 0.10993 | 0.00109 | 5.78616 | 0.06030 | 0.38054 | 0.00228 | 1798 | 18 | 1944 | 9 | 2079 | 11 |
| 24 | 边 | 280 | 145 | 693 | 0.21 | 0.11749 | 0.00133 | 5.24878 | 0.06777 | 0.32293 | 0.00271 | 1918 | 21 | 1861 | 11 | 1804 | 13 |
| 25 | 核 | 392 | 88 | 999 | 0.09 | 0.11425 | 0.00114 | 5.50230 | 0.06200 | 0.34827 | 0.00271 | 1933 | 19 | 1901 | 10 | 1926 | 13 |
| 26 | 核 | 380 | 132 | 922 | 0.14 | 0.11387 | 0.00104 | 5.63190 | 0.05526 | 0.35769 | 0.00242 | 1862 | 12 | 1921 | 9 | 1971 | 12 |
| 27 | 核 | 536 | 124 | 1302 | 0.09 | 0.11226 | 0.00107 | 5.68924 | 0.05603 | 0.36664 | 0.00244 | 1836 | 17 | 1930 | 9 | 2014 | 12 |
| 28 | 边 | 328 | 94 | 834 | 0.11 | 0.11519 | 0.00109 | 5.50725 | 0.05617 | 0.34549 | 0.00206 | 1883 | 17 | 1902 | 9 | 1913 | 10 |
| 29 | 核 | 218 | 115 | 530 | 0.22 | 0.11427 | 0.00101 | 5.44496 | 0.05140 | 0.34440 | 0.00223 | 1868 | 15 | 1892 | 8 | 1908 | 11 |
| 32 | 核 | 650 | 128 | 1535 | 0.08 | 0.10980 | 0.00112 | 5.81924 | 0.06356 | 0.38322 | 0.00297 | 1796 | 19 | 1949 | 10 | 2091 | 14 |
| 33 | 核 | 592 | 122 | 1419 | 0.09 | 0.11071 | 0.00120 | 5.78710 | 0.06981 | 0.37793 | 0.00331 | 1811 | 20 | 1944 | 11 | 2067 | 16 |
| 35 | 边 | 715 | 119 | 1708 | 0.07 | 0.10995 | 0.00105 | 5.77510 | 0.06024 | 0.38008 | 0.00302 | 1798 | 18 | 1943 | 9 | 2077 | 14 |
| 36 | 核 | 251 | 141 | 617 | 0.23 | 0.11443 | 0.00104 | 5.41107 | 0.05293 | 0.34183 | 0.00215 | 1872 | 17 | 1887 | 8 | 1895 | 10 |
| 37 | 核 | 510 | 115 | 1266 | 0.09 | 0.11258 | 0.00099 | 5.65056 | 0.05692 | 0.36303 | 0.00274 | 1843 | 16 | 1924 | 9 | 1997 | 13 |
| 38 | 核 | 262 | 119 | 629 | 0.19 | 0.11365 | 0.00101 | 5.59150 | 0.06135 | 0.35553 | 0.00274 | 1858 | 17 | 1915 | 10 | 1961 | 13 |
| 39 | 边 | 328 | 86 | 854 | 0.10 | 0.11687 | 0.00111 | 5.30203 | 0.05483 | 0.32845 | 0.00281 | 1909 | 17 | 1869 | 9 | 1831 | 14 |
| 40 | 核 | 443 | 116 | 1081 | 0.11 | 0.11267 | 0.00127 | 5.65373 | 0.07198 | 0.36339 | 0.00341 | 1843 | 16 | 1924 | 11 | 1998 | 16 |
| 41 | 核 | 246 | 125 | 569 | 0.22 | 0.11247 | 0.00109 | 5.60665 | 0.06069 | 0.36097 | 0.00274 | 1840 | 18 | 1917 | 9 | 1987 | 13 |
| 42 | 核 | 588 | 106 | 1412 | 0.07 | 0.11006 | 0.00097 | 5.75167 | 0.06028 | 0.37810 | 0.00287 | 1811 | 16 | 1939 | 9 | 2067 | 13 |
| 43 | 核 | 248 | 110 | 596 | 0.18 | 0.11309 | 0.00106 | 5.51058 | 0.05558 | 0.35335 | 0.00287 | 1850 | 17 | 1902 | 9 | 1951 | 14 |
| 44 | 核 | 400 | 160 | 957 | 0.17 | 0.11365 | 0.00104 | 5.66370 | 0.06758 | 0.36044 | 0.00333 | 1858 | 17 | 1926 | 10 | 1984 | 16 |
| 黝帘斜长角闪岩 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01 |  | 26 | 29 | 65 | 0.44 | 0.11240 | 0.00144 | 5.09967 | 0.06185 | 0.32866 | 0.00234 | 1839 | 22 | 1836 | 10 | 1832 | 11 |
| 02 |  | 44 | 52 | 101 | 0.51 | 0.11191 | 0.00132 | 5.17741 | 0.05958 | 0.33435 | 0.00240 | 1831 | 22 | 1849 | 10 | 1859 | 12 |
| 03 |  | 73 | 122 | 144 | 0.84 | 0.11005 | 0.00119 | 5.10159 | 0.05435 | 0.33432 | 0.00212 | 1811 | 20 | 1836 | 9 | 1859 | 10 |
| 04 |  | 34 | 48 | 74 | 0.65 | 0.10964 | 0.00155 | 5.05500 | 0.06960 | 0.33284 | 0.00253 | 1794 | 26 | 1829 | 12 | 1852 | 12 |
| 05 |  | 52 | 66 | 123 | 0.54 | 0.11350 | 0.00134 | 5.14817 | 0.05835 | 0.32733 | 0.00224 | 1857 | 21 | 1844 | 10 | 1825 | 11 |
| 06 |  | 39 | 54 | 86 | 0.62 | 0.11161 | 0.00147 | 5.14322 | 0.06738 | 0.33227 | 0.00268 | 1826 | 24 | 1843 | 11 | 1849 | 13 |
| 07 |  | 22 | 25 | 55 | 0.45 | 0.11005 | 0.00183 | 5.09710 | 0.07953 | 0.33464 | 0.00286 | 1811 | 31 | 1836 | 13 | 1861 | 14 |
| 08 |  | 35 | 49 | 78 | 0.63 | 0.11080 | 0.00156 | 5.07605 | 0.07119 | 0.32989 | 0.00269 | 1813 | 26 | 1832 | 12 | 1838 | 13 |
| 09 |  | 31 | 37 | 75 | 0.50 | 0.11171 | 0.00161 | 5.03047 | 0.07049 | 0.32526 | 0.00274 | 1828 | 21 | 1824 | 12 | 1815 | 13 |
| 10 |  | 25 | 35 | 56 | 0.62 | 0.11068 | 0.00167 | 5.01506 | 0.07670 | 0.32641 | 0.00255 | 1811 | 28 | 1822 | 13 | 1821 | 12 |
| 11 |  | 25 | 27 | 61 | 0.45 | 0.11152 | 0.00144 | 5.07740 | 0.06587 | 0.32845 | 0.00242 | 1824 | 18 | 1832 | 11 | 1831 | 12 |
| 12 |  | 114 | 205 | 215 | 0.95 | 0.11011 | 0.00107 | 5.00434 | 0.04826 | 0.32752 | 0.00205 | 1811 | 18 | 1820 | 8 | 1826 | 10 |
| 13 |  | 37 | 45 | 85 | 0.54 | 0.11107 | 0.00136 | 5.09897 | 0.06096 | 0.33205 | 0.00243 | 1817 | 22 | 1836 | 10 | 1848 | 12 |
| 14 |  | 52 | 66 | 119 | 0.56 | 0.11030 | 0.00114 | 5.03758 | 0.05202 | 0.32953 | 0.00215 | 1806 | 23 | 1826 | 9 | 1836 | 10 |
| 15 |  | 35 | 46 | 79 | 0.59 | 0.11181 | 0.00133 | 5.09972 | 0.06093 | 0.32962 | 0.00238 | 1829 | 22 | 1836 | 10 | 1837 | 12 |
| 16 |  | 41 | 50 | 92 | 0.54 | 0.11059 | 0.00130 | 5.05886 | 0.06123 | 0.33047 | 0.00244 | 1809 | 22 | 1829 | 10 | 1841 | 12 |
| 17 |  | 29 | 33 | 73 | 0.46 | 0.11072 | 0.00137 | 4.93477 | 0.06084 | 0.32235 | 0.00235 | 1813 | 23 | 1808 | 10 | 1801 | 11 |
| 18 |  | 54 | 77 | 117 | 0.66 | 0.11322 | 0.00124 | 5.12655 | 0.05403 | 0.32718 | 0.00216 | 1852 | 20 | 1841 | 9 | 1825 | 11 |
| 19 |  | 32 | 48 | 65 | 0.74 | 0.11304 | 0.00175 | 5.14841 | 0.08572 | 0.32840 | 0.00234 | 1850 | 28 | 1844 | 14 | 1831 | 11 |
| 20 |  | 64 | 91 | 132 | 0.69 | 0.11175 | 0.00122 | 5.17740 | 0.05457 | 0.33449 | 0.00220 | 1828 | 19 | 1849 | 9 | 1860 | 11 |
| 21 |  | 61 | 87 | 126 | 0.69 | 0.11251 | 0.00126 | 5.17183 | 0.05642 | 0.33145 | 0.00212 | 1840 | 20 | 1848 | 9 | 1845 | 10 |
| 22 |  | 25 | 28 | 61 | 0.45 | 0.11255 | 0.00142 | 5.08846 | 0.06025 | 0.32672 | 0.00233 | 1843 | 23 | 1834 | 10 | 1822 | 11 |
| 23 |  | 55 | 75 | 126 | 0.60 | 0.11259 | 0.00130 | 5.10711 | 0.05800 | 0.32628 | 0.00208 | 1843 | 21 | 1837 | 10 | 1820 | 10 |
| 24 |  | 65 | 105 | 124 | 0.84 | 0.11221 | 0.00141 | 5.16158 | 0.06250 | 0.33126 | 0.00234 | 1836 | 23 | 1846 | 10 | 1844 | 11 |
| 25 |  | 23 | 27 | 53 | 0.51 | 0.11293 | 0.00199 | 5.14541 | 0.08266 | 0.32994 | 0.00301 | 1847 | 31 | 1844 | 14 | 1838 | 15 |
| 26 |  | 31 | 34 | 78 | 0.44 | 0.11342 | 0.00156 | 5.14301 | 0.07126 | 0.32717 | 0.00274 | 1855 | 24 | 1843 | 12 | 1825 | 13 |
| 34 |  | 113 | 174 | 233 | 0.75 | 0.11321 | 0.00106 | 5.17726 | 0.04836 | 0.33018 | 0.00196 | 1852 | 17 | 1849 | 8 | 1839 | 10 |
| 35 |  | 25 | 31 | 57 | 0.54 | 0.11313 | 0.00150 | 5.27573 | 0.06813 | 0.34005 | 0.00472 | 1850 | 24 | 1865 | 11 | 1887 | 23 |