附表1 蓝晶十字石榴云母片岩（D1034-6）全岩成分

Apppendix table 1 Bulk compositionsfor Kyanite-staurolite-garnetmicaschist(1034-6)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品号 | SiO2 | TiO2 | Al2O3 | Fe2O3 | MnO | MgO | CaO | Na2O | K2O | O2 | H2O |
| D1034-6 | 66.65 | 0.45 | 14.91 | 9.14 | 0.09 | 2.38 | 0.76 | 1.10 | 2.37 | 0.04 | 5.00 |

注：各成分均为百分含量（wt%）

附表2 蓝晶十字石榴二云母代表性的电子探针分析结果（D1034-6）

Apppendix table 2 Representativeelectronicprobedatasfor kyanite-staurolite-garnetmicaschist（D1034-6）

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 测试点号 | 34-6G-1 | 34-6G-2 | 34-6G-3 | 34-6G-22 | 34-6G-23 | 34-6G-24 |
| SiO2 | 37.31 | 37.48 | 37.26 | 36.84 | 37.08 | 37.14 |
| TiO2 | 0.01 | 0.05 | 0.01 | 0.06 | 0.01 | 0.02 |
| Al2O3 | 20.77 | 20.8 | 20.83 | 20.62 | 20.63 | 20.42 |
| Cr2O3 | 0.05 | 0.01 | 0.01 | 0.02 | 0.01 | 0 |
| Fe2O3 | 0 | 0 | 0.52 | 0.61 | 0.5 | 0 |
| FeO | 35.57 | 35.22 | 35.13 | 27.66 | 27.62 | 28.3 |
| MnO | 1.17 | 1.03 | 0.73 | 6.47 | 6.46 | 6.08 |
| MgO | 2.76 | 2.81 | 3.22 | 0.93 | 0.87 | 0.96 |
| CaO | 1.85 | 1.98 | 2.23 | 6.28 | 6.63 | 6.3 |
| Na2O | 0.03 | 0.02 | 0.02 | 0.04 | 0.03 | 0.02 |
| K2O | 0 | 0.01 | 0 | 0 | 0 | 0.01 |
| Totals | 99.52 | 99.41 | 99.96 | 99.53 | 99.84 | 99.25 |
| Oxygens | 12 | | | | | |
| Si | 3.019 | 3.029 | 2.997 | 2.993 | 3.002 | 3.023 |
| Ti | 0.001 | 0.003 | 0.001 | 0.004 | 0.001 | 0.001 |
| Al | 1.982 | 1.982 | 1.975 | 1.975 | 1.969 | 1.959 |
| Cr | 0.003 | 0.001 | 0.001 | 0.001 | 0.001 | 0 |
| Fe3+ | 0 | 0 | 0.031 | 0.037 | 0.031 | 0 |
| Fe2+ | 2.407 | 2.38 | 2.364 | 1.879 | 1.87 | 1.926 |
| Mn | 0.008 | 0.071 | 0.05 | 0.445 | 0.443 | 0.419 |
| Mg | 0.333 | 0.338 | 0.386 | 0.113 | 0.105 | 0.116 |
| Ca | 0.16 | 0.171 | 0.192 | 0.547 | 0.575 | 0.549 |
| Na | 0.005 | 0.003 | 0.003 | 0.006 | 0.005 | 0.003 |
| K | 0 | 0.001 | 0 | 0 | 0 | 0.001 |
| Sum | 7.99 | 7.979 | 8 | 8 | 8 | 7.99 |
| Alm | 0.808 | 0.804 | 0.790 | 0.630 | 0.625 | 0.640 |
| Sps | 0.027 | 0.024 | 0.017 | 0.149 | 0.148 | 0.139 |
| Prp | 0.112 | 0.114 | 0.129 | 0.038 | 0.035 | 0.039 |
| Grs | 0.054 | 0.058 | 0.065 | 0.183 | 0.192 | 0.182 |
| Fe/Fe+Mg | 0.878 | 0.876 | 0.860 | 0.943 | 0.947 | 0.943 |

注：Alm=Fe2+/Fe2++Mg2++Ca2++Mn2+

Sps=Mn2+/Fe2++Mg2++Ca2++Mn2+

Prp=Mg2+/Fe2++Mg2++Ca2++Mn2+

Grs=Ca2+/Fe2++Mg2++Ca2++Mn2+

附表3 蓝晶十字石榴二云母片岩锆石LA-ICP-MS U-Pb分析结果(18FLY12)

Apppendix table 3 LA-ICP-MS zircon U-Pb dating data for Kyanite-staurolite-garnetmicaschist

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 点号 | Th/U | 同位素比值 | | | | 年龄（Ma） | | | | | | 谐和度（%） |
| 207Pb/  235U | 1σ | 206Pb/  238U | 1σ | 207Pb/  206Pb | 1σ | 207Pb/  235U | 1σ | 206Pb/  238U | 1σ |
| 1 | 0.68 | 9.1777 | 0.2012 | 0.4291 | 0.0054 | 2800 | 33 | 2356 | 20 | 2302 | 24 | 97 |
| 2 | 0.39 | 12.2537 | 0.2236 | 0.4998 | 0.0039 | 2631 | 30 | 2624 | 17 | 2613 | 17 | 99 |
| 3 | 0.81 | 12.1369 | 0.2309 | 0.5073 | 0.0059 | 2589 | 27 | 2615 | 18 | 2645 | 25 | 98 |
| 4 | 0.65 | 11.1288 | 0.2221 | 0.4790 | 0.0051 | 2546 | 29 | 2534 | 19 | 2523 | 22 | 99 |
| 5 | 0.70 | 10.2830 | 0.1820 | 0.4506 | 0.0034 | 2508 | 28 | 2461 | 16 | 2398 | 15 | 97 |
| 6 | 0.74 | 10.3093 | 0.2089 | 0.4677 | 0.0048 | 2450 | 32 | 2463 | 19 | 2474 | 21 | 99 |
| 7 | 0.54 | 8.7515 | 0.1786 | 0.3963 | 0.0032 | 2450 | 34 | 2312 | 19 | 2152 | 15 | 92 |
| 8 | 0.82 | 10.1467 | 0.1786 | 0.4607 | 0.0039 | 2444 | 28 | 2448 | 16 | 2443 | 17 | 99 |
| 9 | 0.59 | 9.2454 | 0.1650 | 0.4228 | 0.0042 | 2435 | 27 | 2363 | 16 | 2273 | 19 | 96 |
| 10 | 0.92 | 9.6439 | 0.2229 | 0.4405 | 0.0077 | 2435 | 35 | 2401 | 21 | 2353 | 34 | 97 |
| 11 | 0.40 | 0.1592 | 0.1945 | 0.4268 | 0.0049 | 2391 | 30 | 2354 | 20 | 2291 | 22 | 97 |
| 12 | 1.04 | 9.6864 | 0.2270 | 0.4639 | 0.0043 | 2355 | 35 | 2405 | 22 | 2457 | 19 | 97 |
| 13 | 0.60 | 8.8216 | 0.1860 | 0.4223 | 0.0040 | 2350 | 33 | 2320 | 19 | 2271 | 18 | 97 |
| 14 | 0.47 | 9.5369 | 0.1815 | 0.4615 | 0.0047 | 2339 | 31 | 2391 | 18 | 2446 | 21 | 97 |
| 15 | 0.80 | 7.8259 | 0.2479 | 0.3848 | 0.0053 | 2300 | 42 | 2211 | 29 | 2099 | 25 | 94 |
| 16 | 0.72 | 7.0633 | 0.1512 | 0.3558 | 0.0036 | 2269 | 34 | 2119 | 19 | 1962 | 17 | 92 |
| 17 | 0.21 | 7.0979 | 0.1597 | 0.3607 | 0.0038 | 2254 | 41 | 2124 | 20 | 1985 | 18 | 93 |
| 18 | 0.45 | 7.1918 | 0.1852 | 0.3666 | 0.0051 | 2229 | 36 | 2135 | 23 | 2014 | 24 | 94 |
| 19 | 1.05 | 7.2290 | 0.1517 | 0.3809 | 0.0041 | 2176 | 30 | 2140 | 19 | 2081 | 19 | 97 |
| 20 | 0.33 | 7.2387 | 0.1580 | 0.3829 | 0.0040 | 2176 | 37 | 2141 | 20 | 1883 | 17 | 92 |
| 21 | 0.18 | 6.3857 | 0.1486 | 0.3391 | 0.0034 | 2165 | 42 | 2030 | 20 | 1883 | 17 | 92 |
| 22 | 0.76 | 6.2994 | 0.1209 | 0.3472 | 0.0027 | 2122 | 35 | 2018 | 17 | 1921 | 13 | 95 |
| 23 | 0.06 | 6.3799 | 0.1336 | 0.3664 | 0.0035 | 2033 | 37 | 2030 | 18 | 2012 | 16 | 99 |
| 24 | 0.12 | 5.8842 | 0.1151 | 0.3419 | 0.0043 | 2020 | 31 | 1959 | 17 | 1896 | 21 | 96 |
| 25 | 0.26 | 4.9730 | 0.0911 | 0.2943 | 0.0022 | 1989 | 27 | 1815 | 16 | 1663 | 11 | 91 |
| 26 | 0.18 | 4.8135 | 0.0938 | 0.2855 | 0.0024 | 1987 | 33 | 1787 | 16 | 1649 | 12 | 90 |
| 27 | 0.14 | 5.4624 | 0.1316 | 0.3223 | 0.0034 | 1987 | 42 | 1895 | 21 | 1801 | 17 | 94 |
| 28 | 0.18 | 5.0402 | 0.1285 | 0.3024 | 0.0036 | 1952 | 44 | 1826 | 22 | 1703 | 18 | 93 |
| 29 | 0.06 | 5.3361 | 0.1711 | 0.3183 | 0.0047 | 1950 | 41 | 1875 | 27 | 1781 | 23 | 94 |
| 30 | 0.18 | 4.9460 | 0.1141 | 0.2972 | 0.0043 | 1944 | 40 | 1810 | 25 | 1677 | 22 | 92 |
| 31 | 0.33 | 5.3027 | 0.1049 | 0.3236 | 0.0026 | 1944 | 34 | 1869 | 17 | 1807 | 13 | 96 |
| 32 | 0.11 | 4.8763 | 0.0912 | 0.2999 | 0.0027 | 1922 | 31 | 1798 | 16 | 1691 | 13 | 93 |
| 33 | 0.01 | 4.3806 | 0.0721 | 0.2845 | 0.0024 | 1833 | 28 | 1709 | 14 | 1614 | 12 | 94 |
| 34 | 0.01 | 4.2776 | 0.1070 | 0.2860 | 0.0037 | 1772 | 42 | 1689 | 21 | 1621 | 19 | 95 |
| 35 | 0.01 | 3.6331 | 0.0689 | 0.2444 | 0.0022 | 1758 | 31 | 1557 | 15 | 1410 | 12 | 90 |
| 36 | 0.23 | 3.7173 | 0.0722 | 0.2492 | 0.0021 | 1755 | 36 | 1575 | 16 | 1435 | 11 | 90 |
| 37 | 0.04 | 4.1794 | 0.0768 | 0.2806 | 0.0032 | 1754 | 30 | 1670 | 15 | 1594 | 16 | 95 |
| 38 | 0.05 | 3.7074 | 0.0731 | 0.2520 | 0.0023 | 1735 | 33 | 1573 | 16 | 1449 | 12 | 91 |
| 39 | 0.02 | 3.5773 | 0.0634 | 0.2449 | 0.0022 | 1728 | 36 | 1545 | 14 | 1412 | 12 | 91 |
| 40 | 0.10 | 3.4814 | 0.0685 | 0.2387 | 0.0020 | 1724 | 33 | 1523 | 16 | 1380 | 10 | 90 |
| 41 | 0.01 | 3.7075 | 0.0725 | 0.2546 | 0.0026 | 1720 | 33 | 1573 | 16 | 1462 | 13 | 92 |
| 42 | 0.01 | 3.6384 | 0.0642 | 0.2494 | 0.0019 | 1717 | 32 | 1558 | 14 | 1435 | 10 | 91 |
| 43 | 0.01 | 3.6578 | 0.0834 | 0.2521 | 0.0023 | 1713 | 39 | 1562 | 18 | 1449 | 12 | 92 |
| 44 | 0.02 | 3.5786 | 0.0795 | 0.2466 | 0.0021 | 1703 | 43 | 1545 | 18 | 1421 | 11 | 91 |
| 45 | 0.02 | 3.7416 | 0.0653 | 0.2608 | 0.0019 | 1700 | 32 | 1580 | 14 | 1494 | 10 | 94 |
| 46 | 0.01 | 3.3843 | 0.0597 | 0.2359 | 0.0019 | 1700 | 31 | 1501 | 14 | 1366 | 10 | 90 |
| 47 | 0.03 | 3.5153 | 0.0705 | 0.2462 | 0.0024 | 1683 | 34 | 1531 | 16 | 1419 | 12 | 92 |
| 48 | 0.01 | 3.3505 | 0.0666 | 0.2347 | .0024 | 1683 | 32 | 1493 | 16 | 1359 | 13 | 90 |
| 49 | 0.01 | 3.5071 | 0.0719 | 0.2449 | 0.0021 | 1680 | 38 | 1529 | 16 | 1412 | 11 | 92 |
| 50 | 0.02 | 3.6616 | 0.0748 | 0.2570 | 0.0027 | 1672 | 33 | 1563 | 16 | 1475 | 14 | 94 |
| 51 | 0.01 | 3.8085 | 0.0851 | 0.2707 | 0.0028 | 1657 | 39 | 1595 | 18 | 1544 | 14 | 96 |
| 52 | 0.01 | 3.2481 | 0.0615 | 0.2306 | 0.0019 | 1654 | 33 | 1469 | 15 | 1338 | 10 | 90 |
| 53 | 0.02 | 3.6257 | 0.0695 | 0.2582 | 0.0023 | 1650 | 32 | 1555 | 15 | 1481 | 12 | 95 |
| 54 | 0.02 | 3.5480 | 0.0630 | 0.2542 | 0.0025 | 1643 | 30 | 1538 | 14 | 1460 | 13 | 94 |
| 55 | 0.01 | 3.4821 | 0.0794 | 0.2501 | 0.0026 | 1639 | 40 | 1523 | 18 | 1439 | 14 | 94 |
| 56 | 0.01 | 3.6464 | 0.0761 | 0.2614 | 0.0021 | 1639 | 39 | 1560 | 17 | 1497 | 11 | 95 |
| 57 | 0.02 | 3.2066 | 0.0631 | 0.2307 | 0.0018 | 1628 | 36 | 1459 | 15 | 1338 | 9 | 91 |
| 58 | 0.01 | 3.1639 | 0.0676 | 0.2286 | 0.0019 | 1628 | 38 | 1448 | 17 | 1327 | 10 | 91 |
| 59 | 0.03 | 4.0007 | 0.2174 | 0.2860 | 0.0132 | 1621 | 87 | 1634 | 44 | 1624 | 66 | 99 |
| 60 | 0.01 | 3.1388 | 0.0581 | 0.2271 | 0.0020 | 1617 | 34 | 1442 | 14 | 1319 | 10 | 91 |
| 61 | 0.01 | 3.4055 | 0.0694 | 0.2491 | 0.0019 | 1602 | 37 | 1506 | 16 | 1434 | 10 | 95 |
| 62 | 0.01 | 3.1669 | 0.0543 | 0.2360 | 0.0023 | 1565 | 25 | 1449 | 13 | 1366 | 12 | 94 |
| 63 | 0.02 | 3.0295 | 0.0624 | 0.2278 | 0.0018 | 1555 | 37 | 1415 | 16 | 1323 | 9 | 93 |
| 64 | 0.01 | 2.5364 | 0.0476 | 0.2008 | 0.0018 | 1450 | 34 | 1283 | 14 | 1180 | 10 | 91 |