附表1 会昌辉石闪长岩磷灰石电子探针成分测试结果（%）

Table 1 EPMA chemical composition (%) of the apatite from the Huichang pyroxene diorite

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 测点 | 01 | 02 | 03 | 04 | 05 | 06 |
| F | 2.602 | 2.413 | 3.134 | 2.710 | 1.592 | 2.852 |
| SiO2 | - | - | - | - | - | - |
| Al2O3 | 0.021 | - | 0.005 | - | - | - |
| CaO | 55.314 | 55.559 | 55.934 | 53.188 | 56.412 | 55.504 |
| K2O | - | - | - | 0.008 | - | - |
| ThO2 | 0.012 | - | 0.014 | 0.003 | - | 0.024 |
| P2O5 | 40.097 | 40.038 | 41.031 | 41.299 | 41.736 | 40.444 |
| Y2O3 | 0.047 | 0.045 | - | 0.052 | 0.054 | 0.029 |
| UO2 | 0.045 | - | 0.002 | - | 0.026 | 0.040 |
| FeO | 0.006 | 0.014 | 0.015 | 0.048 | - | 0.035 |
| MnO | 0.049 | 0.068 | 0.145 | 2.329 | 0.125 | 0.076 |
| SO3 | 0.086 | 0.033 | 0.017 | 0.066 | - | 0.102 |
| SrO | - | - | - | - | - | - |
| Na2O | - | 0.010 | - | 0.022 | - | 0.008 |
| MgO | - | - | - | 0.026 | 0.002 | - |
| Cl | 0.395 | 0.507 | 0.559 | 0.532 | 0.059 | 0.417 |
| Nd2O3 | 0.075 | 0.112 | 0.006 | 0.034 | - | 0.077 |
| Pr2O3 | 0.005 | - | - | 0.025 | 0.011 | 0.031 |
| Ce2O3 | 0.228 | 0.178 | - | - | 0.021 | 0.221 |
| La2O3 | 0.086 | 0.054 | - | 0.064 | 0.036 | - |
| Total | 97.883 | 97.901 | 99.416 | 99.145 | 99.391 | 98.565 |

附表2 会昌辉石闪长岩中锆石的微量元素组成

Table 2 The zircon trace element (μg/g) from the Huichang pyroxene diorite

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测点 | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 11 | 12 | 15 | 16 |
| SiO2 | 30.12 | 33.47 | 32.93 | 29.49 | 29.82 | 31.66 | 31.30 | 30.60 | 31.60 | 32.14 | 31.24 | 34.66 |
| P | 131.37 | 106.55 | 265.04 | 328.55 | 355.74 | 621.22 | 758.35 | 210.73 | 183.21 | 113.71 | 321.77 | 14.20 |
| Ca | 0.00 | 0.00 | 0.00 | 0.00 | 71.05 | 1488.60 | 764.59 | 381.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sc | 302.24 | 301.33 | 293.88 | 283.13 | 328.68 | 308.79 | 279.71 | 292.48 | 296.69 | 271.95 | 324.35 | 301.34 |
| Ti | 5.31 | 4.60 | 4.57 | 3.42 | 2.55 | 6.52 | 4.28 | 7.21 | 7.47 | 3.64 | 8.05 | 2.88 |
| Y | 1209.14 | 708.41 | 599.28 | 926.82 | 937.69 | 1292.53 | 1108.74 | 1243.60 | 972.29 | 733.03 | 1617.61 | 975.11 |
| ZrO2 | 68.14 | 64.81 | 65.17 | 68.75 | 68.32 | 66.03 | 66.77 | 67.61 | 66.86 | 66.17 | 66.84 | 63.59 |
| Nb | 3.87 | 2.60 | 3.11 | 3.39 | 4.04 | 4.82 | 2.66 | 2.07 | 2.55 | 2.90 | 4.41 | 1.95 |
| La | 0.06 | 0.02 | 6.78 | 2.03 | 3.09 | 9.98 | 11.72 | 0.06 | 0.02 | 0.51 | 2.35 | 0.37 |
| Ce | 62.39 | 43.28 | 62.96 | 58.40 | 62.55 | 131.38 | 65.53 | 30.04 | 32.14 | 53.07 | 95.93 | 40.10 |
| Pr | 0.20 | 0.05 | 1.73 | 0.30 | 0.77 | 4.55 | 1.63 | 0.20 | 0.16 | 0.22 | 0.96 | 0.53 |
| Nd | 2.37 | 1.28 | 9.31 | 2.67 | 4.44 | 24.38 | 7.43 | 4.15 | 2.66 | 2.75 | 8.45 | 8.22 |
| Sm | 4.89 | 2.42 | 6.55 | 4.33 | 4.58 | 18.05 | 7.26 | 7.65 | 5.17 | 3.76 | 11.28 | 12.78 |
| Eu | 2.08 | 1.11 | 2.07 | 1.75 | 1.53 | 6.19 | 2.13 | 1.56 | 1.54 | 1.38 | 3.97 | 4.96 |
| Gd | 29.24 | 15.02 | 18.88 | 23.90 | 21.74 | 49.62 | 30.00 | 34.75 | 22.89 | 18.53 | 50.27 | 43.88 |
| Tb | 9.02 | 4.82 | 5.76 | 7.48 | 7.12 | 13.22 | 9.43 | 10.36 | 7.34 | 5.69 | 14.63 | 11.71 |
| Dy | 104.40 | 59.33 | 59.99 | 87.20 | 80.72 | 136.12 | 105.33 | 114.49 | 85.36 | 64.91 | 156.72 | 111.75 |
| Ho | 38.95 | 23.21 | 20.46 | 31.49 | 30.96 | 43.16 | 38.41 | 41.10 | 31.99 | 24.37 | 52.89 | 34.77 |
| Er | 174.55 | 108.89 | 85.95 | 139.65 | 144.17 | 176.82 | 165.49 | 176.57 | 142.42 | 111.47 | 219.65 | 138.78 |
| Tm | 37.01 | 24.16 | 18.58 | 29.42 | 31.58 | 36.20 | 34.89 | 36.48 | 29.94 | 23.72 | 43.44 | 28.18 |
| Yb | 365.31 | 255.65 | 191.49 | 285.59 | 320.04 | 344.76 | 346.37 | 348.01 | 292.75 | 249.51 | 416.18 | 269.16 |
| Lu | 70.37 | 54.83 | 40.34 | 53.67 | 65.39 | 63.40 | 64.88 | 65.53 | 55.93 | 50.18 | 79.51 | 53.62 |
| Hf | 11023.34 | 11906.55 | 12781.63 | 11278.42 | 11904.30 | 11188.60 | 11051.05 | 11257.31 | 10262.97 | 11555.29 | 10824.46 | 12052.13 |
| Ta | 1.09 | 0.73 | 0.73 | 0.90 | 1.00 | 1.43 | 0.77 | 0.88 | 0.66 | 0.87 | 1.09 | 0.47 |
| Hg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pb | 23.99 | 21.44 | 37.25 | 25.10 | 25.38 | 71.71 | 15.41 | 14.64 | 8.96 | 24.38 | 40.14 | 17.17 |
| Th | 392.84 | 306.79 | 606.34 | 491.75 | 392.29 | 1578.95 | 255.13 | 221.12 | 138.40 | 408.30 | 858.51 | 284.81 |
| U | 379.65 | 356.02 | 554.41 | 317.28 | 410.43 | 894.07 | 236.90 | 245.79 | 132.19 | 373.85 | 563.75 | 264.82 |
| ΣREE | 900.85 | 594.08 | 530.85 | 727.89 | 778.69 | 1057.82 | 890.49 | 870.95 | 710.31 | 610.05 | 1156.24 | 758.81 |
| LREE/  HREE | 0.09 | 0.09 | 0.20 | 0.11 | 0.11 | 0.23 | 0.12 | 0.05 | 0.06 | 0.11 | 0.12 | 0.10 |
| δEu | 0.53 | 0.56 | 0.57 | 0.53 | 0.47 | 0.63 | 0.44 | 0.29 | 0.43 | 0.51 | 0.51 | 0.64 |
| δCe | 140.94 | 320.59 | 4.51 | 18.39 | 9.96 | 4.78 | 3.67 | 69.40 | 137.74 | 39.16 | 15.65 | 22.10 |

续表3

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测点 | 17 | 18 | 20 | 21 | 23 | 24 | 25 | 26 | 27 | 29 | 30 | 31 |
| SiO2 | 34.98 | 34.44 | 33.50 | 32.60 | 34.28 | 33.56 | 38.31 | 32.74 | 35.98 | 33.87 | 37.60 | 37.29 |
| P | 103.35 | 172.58 | 126.97 | 226.48 | 1058.22 | 85.00 | 283.35 | 264.20 | 1096.91 | 735.53 | 430.66 | 168.81 |
| Ca | 0.00 | 0.00 | 0.00 | 0.00 | 88.58 | 0.00 | 0.00 | 2.83 | 1810.93 | 0.00 | 141.74 | 172.68 |
| Sc | 297.99 | 263.68 | 290.95 | 285.80 | 279.02 | 324.07 | 278.85 | 315.28 | 298.07 | 298.78 | 290.68 | 303.03 |
| Ti | 14.69 | 4.65 | 3.96 | 4.93 | 2.32 | 6.22 | 2.07 | 6.42 | 2.16 | 5.80 | 4.73 | 6.55 |
| Y | 1521.46 | 832.46 | 588.79 | 921.73 | 750.74 | 1437.39 | 1125.36 | 1697.09 | 1054.43 | 839.29 | 1015.54 | 876.55 |
| ZrO2 | 63.27 | 63.80 | 64.86 | 65.63 | 63.75 | 64.62 | 59.96 | 65.48 | 61.67 | 64.27 | 60.58 | 60.91 |
| Nb | 3.32 | 3.57 | 1.97 | 2.22 | 3.23 | 3.64 | 5.06 | 4.88 | 4.45 | 3.34 | 3.60 | 2.77 |
| La | 0.65 | 0.33 | 0.02 | 0.02 | 4.45 | 0.06 | 0.08 | 0.35 | 7.11 | 4.72 | 1.08 | 0.02 |
| Ce | 71.61 | 64.20 | 38.60 | 30.85 | 59.70 | 71.58 | 77.24 | 76.54 | 96.14 | 65.39 | 61.21 | 71.00 |
| Pr | 0.55 | 0.17 | 0.09 | 0.18 | 0.90 | 0.33 | 0.14 | 0.23 | 0.97 | 0.84 | 0.13 | 0.18 |
| Nd | 8.31 | 2.16 | 1.31 | 2.92 | 4.66 | 6.49 | 2.27 | 3.92 | 5.76 | 4.38 | 2.05 | 3.07 |
| Sm | 13.62 | 4.65 | 2.41 | 4.62 | 3.51 | 10.78 | 5.14 | 7.00 | 5.98 | 3.70 | 4.37 | 5.02 |
| Eu | 4.50 | 1.68 | 0.88 | 1.41 | 1.40 | 3.90 | 1.91 | 2.35 | 2.07 | 1.53 | 1.61 | 2.40 |
| Gd | 58.15 | 23.71 | 14.03 | 22.35 | 19.43 | 48.13 | 29.49 | 42.48 | 30.05 | 20.18 | 24.48 | 27.65 |
| Tb | 16.14 | 7.16 | 4.14 | 7.21 | 6.00 | 13.29 | 8.84 | 13.54 | 9.27 | 6.44 | 7.82 | 7.68 |
| Dy | 167.78 | 80.41 | 49.65 | 81.42 | 68.32 | 142.12 | 103.16 | 156.00 | 106.09 | 71.85 | 93.22 | 86.79 |
| Ho | 55.16 | 28.44 | 19.13 | 29.83 | 25.79 | 50.44 | 38.99 | 57.07 | 36.84 | 26.82 | 35.21 | 29.64 |
| Er | 224.58 | 127.79 | 86.38 | 131.73 | 116.04 | 213.68 | 171.93 | 246.75 | 162.05 | 122.89 | 158.88 | 128.97 |
| Tm | 43.27 | 26.93 | 18.84 | 28.72 | 25.02 | 43.93 | 36.93 | 50.31 | 33.64 | 26.38 | 34.25 | 26.73 |
| Yb | 411.32 | 271.41 | 193.84 | 290.69 | 256.48 | 430.94 | 370.65 | 469.68 | 344.84 | 275.19 | 346.73 | 268.59 |
| Lu | 74.02 | 52.69 | 38.96 | 57.86 | 50.54 | 81.90 | 69.35 | 85.97 | 66.08 | 54.06 | 67.27 | 51.57 |
| Hf | 10610.33 | 11530.00 | 11524.49 | 11837.19 | 11638.81 | 11121.91 | 10906.47 | 10442.85 | 11586.47 | 11453.48 | 11402.22 | 11423.56 |
| Ta | 0.75 | 0.97 | 0.62 | 0.86 | 0.90 | 0.80 | 1.37 | 1.24 | 1.22 | 0.94 | 0.97 | 0.90 |
| Hg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pb | 24.48 | 31.10 | 19.00 | 20.35 | 30.32 | 28.38 | 23.70 | 19.65 | 46.31 | 27.18 | 21.21 | 34.26 |
| Th | 438.77 | 584.42 | 293.18 | 253.31 | 507.16 | 563.34 | 366.16 | 422.13 | 941.23 | 445.00 | 355.61 | 716.76 |
| U | 329.21 | 436.97 | 302.28 | 319.71 | 465.04 | 394.75 | 349.52 | 275.13 | 635.75 | 413.83 | 341.29 | 477.90 |
| ΣREE | 1149.66 | 691.72 | 468.28 | 689.82 | 642.24 | 1117.56 | 916.12 | 1212.18 | 906.90 | 684.37 | 838.30 | 709.29 |
| LREE/  HREE | 0.09 | 0.12 | 0.10 | 0.06 | 0.13 | 0.09 | 0.10 | 0.08 | 0.15 | 0.13 | 0.09 | 0.13 |
| δEu | 0.49 | 0.49 | 0.46 | 0.43 | 0.52 | 0.52 | 0.47 | 0.42 | 0.47 | 0.54 | 0.47 | 0.62 |
| δCe | 29.34 | 66.43 | 227.00 | 128.54 | 7.31 | 120.63 | 180.82 | 67.03 | 8.97 | 8.06 | 39.63 | 306.80 |