附件

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | 附表1 忻州盆地地下水水化学测试结果（单位：mg/L）  Table 1 Hydrochemical compositions of water samples from Xinzhou Basin(in mg/L) | | | | | | | | | | | | | | | | |
| 编号 | Na | K | | Mg | Ca | Si | B | Sr | Al | Fe | Li | Rb | Cs | HCO3- | CO32- | SO42- | Cl- | F- | Br- | | NO3- |
| W01 | 193 | 2.5 | | 0.2 | 8.8 | 26.7 | 0.28 | 0.2 | 0.05 | 0.05 | 0.14 | 0.02 | n.d. | 68.4 | 3.1 | 134 | 133 | 11.7 | 1.0 | | 4.4 |
| W02 | 204 | 3.8 | | 0.1 | 10.2 | 29.6 | 0.29 | 0.3 | 0.09 | 0.06 | 0.15 | 0.03 | 0.01 | 40.0 | 2.5 | 172 | 168 | 13.7 | 1.6 | | 1.3 |
| W03 | 166 | 2.8 | | 0.3 | 11.0 | 22.8 | 0.23 | 0.3 | 0.06 | 0.05 | 0.12 | 0.03 | 0.01 | 90.2 | 3.9 | 125 | 122 | 10.9 | 0.9 | | 0.5 |
| W04 | 197 | 6.2 | | 0.1 | 14.7 | 33.4 | 0.41 | 0.4 | 0.06 | 0.05 | 0.24 | 0.08 | 0.03 | 41.5 | 2.1 | 125 | 222 | 11.5 | 1.6 | | 0.9 |
| W05 | 141 | 4.6 | | 0.8 | 13.9 | 24.1 | 0.25 | 0.3 | 0.05 | 0.04 | 0.18 | 0.05 | 0.02 | 112 | 2.0 | 79 | 113 | 7.9 | 1.1 | | 9.0 |
| W06 | 228 | 6.9 | | 0.1 | 17.6 | 33.8 | 0.42 | 0.4 | 0.08 | 0.04 | 0.26 | 0.09 | 0.03 | 45.4 | 1.7 | 153 | 257 | 11.0 | 1.6 | | 2.4 |
| W07 | 176 | 32.6 | | 0.5 | 16.9 | 20.7 | 0.61 | 0.3 | 0.06 | 0.28 | 0.20 | 0.01 | n.d. | 55.6 | 3.3 | 138 | 202 | 10.1 | 1.3 | | 2.8 |
| W08 | 177 | 6.6 | | 0.9 | 17.1 | 34.1 | 0.33 | 0.4 | 0.05 | 0.03 | 0.24 | 0.03 | 0.01 | 97.5 | 2.0 | 105 | 171 | 8.9 | 1.3 | | 3.8 |
| W09 | 173 | 5.2 | | 0.1 | 11.2 | 33.6 | 0.36 | 0.3 | 0.08 | 0.05 | 0.23 | 0.04 | 0.02 | 86.4 | 4.2 | 94 | 162 | 9.2 | 1.3 | | 7.6 |
| M01 | 197 | 5.4 | | 2.0 | 106 | 19.3 | 0.46 | 0.7 | 0.08 | 0.08 | 0.12 | 0.06 | n.d. | 128 | 0.4 | 513 | 121 | 4.4 | 0.9 | | 11.1 |
| M02 | 218 | 7.6 | | 2.4 | 129 | 18.9 | 0.51 | 0.8 | 0.08 | 0.06 | 0.12 | 0.03 | n.d. | 75.1 | 0.4 | 689 | 148 | 4.6 | 1.0 | | 4.7 |
| M03 | 276 | 6.3 | | 1.2 | 151 | 21.9 | 0.58 | 1.0 | 0.09 | 0.07 | 0.17 | 0.06 | 0.01 | 31.8 | 0.4 | 748 | 195 | 4.6 | 1.2 | | 0.0 |
| M04 | 186 | 4.5 | | 2.9 | 38.0 | 13.2 | 0.40 | 0.3 | 0.1 | 0.26 | 0.07 | 0.03 | n.d. | 136 | 1.9 | 295 | 115 | 4.9 | 0.9 | | 0.3 |
| M05 | 225 | 2.9 | | 0.1 | 42.8 | 17.3 | 0.56 | 0.3 | 0.05 | 0.03 | 0.23 | 0.03 | n.d. | 20.2 | 1.2 | 311 | 246 | 10.8 | 2.2 | | 0.8 |
| M06 | 258 | 3.2 | | 0.1 | 53.7 | 17.9 | 0.70 | 0.3 | 0.08 | 0.05 | 0.22 | 0.02 | n.d. | 12.6 | 1.1 | 355 | 249 | 10.1 | 2.2 | | 0.0 |
| E01 | 372 | 9.2 | | 1.5 | 299 | 26.2 | 1.36 | 1.7 | 0.15 | 0.09 | 0.16 | 0.10 | 0.01 | 13.2 | 0.2 | 1205 | 398 | 4.9 | 1.8 | | 2.2 |
| E02 | 259 | 7.5 | | 5.6 | 180 | 27.5 | 0.97 | 1.1 | 0.08 | 0.07 | 0.11 | 0.07 | 0.01 | 68.1 | 0.3 | 789 | 230 | 3.8 | 1.2 | | 8.0 |
| E03 | 317 | 8.8 | | 1.9 | 252. | 27.0 | 1.23 | 1.5 | 0.08 | 0.08 | 0.15 | 0.08 | 0.01 | 67.0 | 0.3 | 973 | 309 | 3.6 | 1.4 | | 5.6 |
| CG01 | 16.3 | 5.2 | | 8.6 | 43.1 | 11.5 | 0.13 | 0.4 | - | - | n.d. | n.d. | n.d. | 213 | 0.8 | 3.9 | 5.2 | 0.4 | 0.8 | | 6.1 |
| CG02 | 24.6 | 1.0 | | 22.3 | 101 | 12.3 | 0.11 | 0.7 | - | - | 0.01 | n.d. | n.d. | 285 | 0.2 | 70.5 | 23.5 | 0.3 | 0.6 | | 47.6 |
| CG03 | 17.2 | 0.5 | | 11.7 | 46.5 | 10.7 | 0.08 | 0.4 | - | - | n.d. | n.d. | n.d. | 247 | 0.4 | 5.7 | 6.4 | 0.4 | 0.9 | | 10.7 |
| CG04 | 16.4 | 0.4 | | 12.4 | 51.7 | 10.1 | 0.07 | 0.4 | - | - | n.d. | n.d. | n.d. | 230 | 0.5 | 6.7 | 11.1 | 0.4 | 0.7 | | 20.5 |
| CG05 | 21.9 | 0.7 | | 11.8 | 52.3 | 11.4 | 0.08 | 0.4 | - | - | n.d. | n.d. | n.d. | 262 | 0.4 | 9.5 | 8.2 | 0.5 | 0.6 | | 8.2 |
| CG06 | 20.2 | 0.8 | | 11.5 | 45.0 | 10.9 | 0.09 | 0.4 | - | - | n.d. | n.d. | n.d. | 229 | 0.6 | 5.3 | 5.3 | 0.5 | 0.6 | | 10.3 |
| CG07 | 11.4 | 1.1 | | 9.5 | 49.8 | 11.3 | 0.04 | 0.3 | - | - | n.d. | n.d. | n.d. | 196 | 0.4 | 6.1 | 5.4 | 0.4 | 0.7 | | 10.8 |
| CG08 | 90.5 | 2.3 | | 31.0 | 172 | 11.6 | 0.06 | 0.9 | - | - | n.d. | n.d. | n.d. | 294 | 0.2 | 126 | 138 | 0.9 | 2.7 | | 187 |
| CG09 | 19.6 | 1.8 | | 11.0 | 48.7 | 12.3 | 0.05 | 0.4 | - | - | n.d. | n.d. | n.d. | 218 | 0.4 | 5.1 | 4.3 | 0.5 | 0.9 | | 6.5 |
| CG10 | 13.8 | 2.3 | | 9.2 | 45.0 | 10.7 | 0.05 | 0.3 | - | - | n.d. | n.d. | n.d. | 236 | 1.3 | 4.8 | 5.0 | 0.4 | 0.9 | | 7.8 |
| CG11 | 10.5 | 1.9 | | 8.9 | 40.5 | 10.2 | 0.05 | 0.2 | - | - | n.d. | n.d. | n.d. | 179 | 0.4 | 9.9 | 5.1 | 0.5 | 0.5 | | 5.2 |
| CG12 | 13.3 | 1.9 | | 30.0 | 135 | 8.0 | 0.03 | 2.2 | - | - | n.d. | n.d. | n.d. | 225 | 0.6 | 113 | 31.8 | 0.2 | 0.6 | | 95.2 |
| CG13 | 18.4 | 1.4 | | 10.1 | 50.6 | 10.6 | 0.05 | 0.3 | - | - | n.d. | n.d. | n.d. | 202 | 0.6 | 18.4 | 8.7 | 0.5 | 0.6 | | 12.2 |
| CG14 | 24.4 | 3.5 | | 35.9 | 185 | 7.4 | 0.05 | 2.7 | - | - | n.d. | n.d. | n.d. | 304 | 0.4 | 236 | 37.3 | 0.3 | 0.5 | | 95.4 |
| CG15 | 354 | 2.8 | | 125 | 330 | 12.9 | 0.22 | 4.2 | - | - | n.d. | n.d. | n.d. | 334 | 0.4 | 1155 | 220 | 3.3 | 0.4 | | 457 |
| CG16 | 19.6 | 1.4 | | 14.6 | 52.0 | 9.2 | 0.05 | 0.8 | - | - | n.d. | n.d. | n.d. | 195 | 0.7 | 37.1 | 17.7 | 0.9 | 0.5 | | 11.7 |
| CG17 | 12.5 | 0.9 | | 10.8 | 64.4 | 11.3 | 0.03 | 0.4 | - | - | n.d. | n.d. | n.d. | 212 | 0.8 | 30.2 | 7.9 | 0.5 | 0.4 | | 11.8 |

附表2 忻州盆地花岗岩（L03、L05）样品单颗粒锆石U-Pb同位素结果

Table 2 Single-particle zircon U-Pb isotope results of granite samples (L03, L05) from Xinzhou Basin

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 测点编号 | Pb(10-6) | Th(10-6) | U(10-6) | Th/U | 同位素比值 | | | | | | 同位素年龄 | | | | | |
| 207Pb/206Pb | ±1σ | 207Pb/235U | ±1σ | 206Pb/238U | ±1σ | 207Pb/206Pb | ±1σ | 207Pb/235U | ±1σ | 206Pb/238U | ±1σ |
| L03 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 18.19 | 23.26 | 36.39 | 0.64 | 0.1387 | 0.0037 | 7.4718 | 0.1984 | 0.3898 | 0.0042 | 2210.8 | 46.5 | 2169.6 | 23.8 | 2122.0 | 19.5 |
| 2 | 19.70 | 21.86 | 39.03 | 0.56 | 0.1344 | 0.0031 | 7.4642 | 0.1720 | 0.4023 | 0.0043 | 2166.7 | 40.7 | 2168.7 | 20.7 | 2179.4 | 19.9 |
| 3 | 21.51 | 20.19 | 44.19 | 0.46 | 0.1350 | 0.0029 | 7.3756 | 0.1462 | 0.3961 | 0.0041 | 2164.5 | 41.7 | 2158.0 | 17.8 | 2150.9 | 19.2 |
| 4 | 25.91 | 32.37 | 52.13 | 0.62 | 0.1329 | 0.0027 | 7.1968 | 0.1450 | 0.3918 | 0.0042 | 2136.1 | 35.2 | 2136.1 | 18.0 | 2131.1 | 19.6 |
| 5 | 27.45 | 26.48 | 56.14 | 0.47 | 0.1305 | 0.0029 | 7.2095 | 0.1560 | 0.4006 | 0.0045 | 2105.6 | 39.0 | 2137.7 | 19.4 | 2171.6 | 20.6 |
| 6 | 51.26 | 44.98 | 105.60 | 0.43 | 0.1313 | 0.0027 | 7.2417 | 0.1377 | 0.3996 | 0.0040 | 2116.7 | 35.6 | 2141.7 | 17.0 | 2167.2 | 18.4 |
| 7 | 31.45 | 36.15 | 63.02 | 0.57 | 0.1334 | 0.0029 | 7.4077 | 0.1655 | 0.4014 | 0.0040 | 2142.9 | 37.8 | 2161.9 | 20.0 | 2175.3 | 18.4 |
| 8 | 16.74 | 17.73 | 34.78 | 0.51 | 0.1327 | 0.0030 | 7.1550 | 0.1614 | 0.3901 | 0.0042 | 2200.0 | 39.0 | 2130.9 | 20.1 | 2123.3 | 19.5 |
| 9 | 23.97 | 28.50 | 49.01 | 0.58 | 0.1324 | 0.0030 | 7.1956 | 0.1651 | 0.3930 | 0.0042 | 2131.5 | 34.7 | 2136.0 | 20.5 | 2136.7 | 19.4 |
| 10 | 40.06 | 45.17 | 80.68 | 0.56 | 0.1324 | 0.0027 | 7.3001 | 0.1501 | 0.3985 | 0.0040 | 2131.5 | 35.3 | 2148.8 | 18.4 | 2162.2 | 18.3 |
| 11 | 30.69 | 34.46 | 63.51 | 0.54 | 0.1314 | 0.0029 | 7.1349 | 0.1521 | 0.3948 | 0.0048 | 2116.4 | 38.6 | 2128.4 | 19.0 | 2144.9 | 22.2 |
| 12 | 17.18 | 17.37 | 35.21 | 0.49 | 0.1331 | 0.0029 | 7.3567 | 0.1612 | 0.4004 | 0.0043 | 2139.8 | 43.5 | 2155.7 | 19.6 | 2170.8 | 19.9 |
| 13 | 15.80 | 20.91 | 31.60 | 0.66 | 0.1342 | 0.0030 | 7.4156 | 0.1701 | 0.4004 | 0.0046 | 2153.4 | 38.6 | 2162.8 | 20.6 | 2170.9 | 21.2 |
| 14 | 18.58 | 29.70 | 36.25 | 0.82 | 0.1333 | 0.0030 | 7.1539 | 0.1499 | 0.3908 | 0.0042 | 2142.6 | 39.8 | 2130.8 | 18.7 | 2126.3 | 19.6 |
| 15 | 46.13 | 61.38 | 100.09 | 0.61 | 0.1338 | 0.0025 | 6.9973 | 0.1445 | 0.3782 | 0.0041 | 2150.0 | 31.9 | 2111.1 | 18.4 | 2068.0 | 19.1 |
| 16 | 22.01 | 22.53 | 45.72 | 0.49 | 0.1346 | 0.0033 | 7.3685 | 0.1770 | 0.3980 | 0.0046 | 2161.1 | 42.4 | 2157.2 | 21.5 | 2160.0 | 21.1 |
| 17 | 54.96 | 84.84 | 118.69 | 0.71 | 0.1329 | 0.0027 | 6.9632 | 0.1485 | 0.3790 | 0.0036 | 2136.7 | 35.2 | 2106.8 | 19.0 | 2071.5 | 17.0 |
| 18 | 23.39 | 23.23 | 48.23 | 0.48 | 0.1352 | 0.0031 | 7.5154 | 0.1811 | 0.4023 | 0.0043 | 2166.4 | 40.1 | 2174.8 | 21.6 | 2179.6 | 19.6 |
| 19 | 33.30 | 41.61 | 67.44 | 0.62 | 0.1356 | 0.0026 | 7.5003 | 0.1507 | 0.4003 | 0.0040 | 2172.2 | 33.3 | 2173.0 | 18.1 | 2170.3 | 18.2 |
| 20 | 16.41 | 19.70 | 35.20 | 0.56 | 0.1309 | 0.0031 | 6.8391 | 0.1538 | 0.3792 | 0.0034 | 2110.2 | 36.9 | 2090.8 | 20.0 | 2072.4 | 15.8 |
| 21 | 57.04 | 60.57 | 117.25 | 0.52 | 0.1309 | 0.0023 | 7.2418 | 0.1307 | 0.4000 | 0.0038 | 2110.2 | 31.5 | 2141.7 | 16.2 | 2169.1 | 17.6 |
| 22 | 44.82 | 44.42 | 92.47 | 0.48 | 0.1329 | 0.0027 | 7.3853 | 0.1519 | 0.4018 | 0.0042 | 2136.7 | 35.2 | 2159.2 | 18.5 | 2177.3 | 19.3 |
| L05 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 19.71 | 29.33 | 38.46 | 0.76 | 0.1310 | 0.0032 | 7.2845 | 0.1819 | 0.4022 | 0.0042 | 2110.8 | 37.8 | 2146.9 | 22.3 | 2179.2 | 19.4 |
| 2 | 19.65 | 18.13 | 41.34 | 0.44 | 0.1330 | 0.0028 | 7.2012 | 0.1455 | 0.3918 | 0.0041 | 2138.9 | 37.0 | 2136.7 | 18.1 | 2131.1 | 18.8 |
| 3 | 22.98 | 24.01 | 46.54 | 0.52 | 0.1331 | 0.0032 | 7.3978 | 0.1604 | 0.4026 | 0.0042 | 2139.8 | 41.4 | 2160.7 | 19.5 | 2181.2 | 19.4 |
| 4 | 24.40 | 29.27 | 51.31 | 0.57 | 0.1318 | 0.0028 | 7.1209 | 0.1591 | 0.3897 | 0.0044 | 2121.9 | 37.7 | 2126.7 | 19.9 | 2121.3 | 20.4 |
| 5 | 15.99 | 20.46 | 31.90 | 0.64 | 0.1344 | 0.0032 | 7.3774 | 0.1741 | 0.3970 | 0.0045 | 2166.7 | 42.0 | 2158.2 | 21.2 | 2155.4 | 20.6 |
| 6 | 28.04 | 36.65 | 58.34 | 0.63 | 0.1353 | 0.0031 | 7.1967 | 0.1654 | 0.3842 | 0.0042 | 2168.2 | 40.7 | 2136.1 | 20.5 | 2095.9 | 19.6 |
| 7 | 30.60 | 36.35 | 63.50 | 0.57 | 0.1318 | 0.0031 | 7.0911 | 0.1611 | 0.3889 | 0.0042 | 2121.9 | 40.7 | 2122.9 | 20.3 | 2117.5 | 19.6 |
| 8 | 24.54 | 30.09 | 47.17 | 0.64 | 0.1313 | 0.0029 | 7.5513 | 0.1682 | 0.4155 | 0.0040 | 2116.7 | 38.6 | 2179.1 | 20.0 | 2239.9 | 18.3 |
| 9 | 28.99 | 38.79 | 58.58 | 0.66 | 0.1326 | 0.0029 | 7.1481 | 0.1555 | 0.3898 | 0.0036 | 2133.0 | 38.7 | 2130.1 | 19.4 | 2121.9 | 16.9 |
| 10 | 21.47 | 30.56 | 40.92 | 0.75 | 0.1318 | 0.0031 | 7.4963 | 0.1754 | 0.4127 | 0.0051 | 2121.9 | 40.7 | 2172.5 | 21.0 | 2227.5 | 23.1 |
| 11 | 14.43 | 19.52 | 29.83 | 0.65 | 0.1311 | 0.0036 | 6.9161 | 0.1844 | 0.3833 | 0.0044 | 2113.3 | 48.3 | 2100.7 | 23.7 | 2091.9 | 20.4 |
| 12 | 40.25 | 52.44 | 81.01 | 0.65 | 0.1325 | 0.0027 | 7.3055 | 0.1533 | 0.3992 | 0.0039 | 2131.2 | 35.8 | 2149.5 | 18.8 | 2165.1 | 18.1 |
| 13 | 18.47 | 20.25 | 37.40 | 0.54 | 0.1334 | 0.0030 | 7.4129 | 0.1704 | 0.4021 | 0.0041 | 2143.5 | 38.9 | 2162.5 | 20.6 | 2178.6 | 19.1 |
| 14 | 19.64 | 25.08 | 40.41 | 0.62 | 0.1335 | 0.0029 | 7.1705 | 0.1583 | 0.3891 | 0.0041 | 2144.1 | 37.3 | 2132.8 | 19.7 | 2118.6 | 19.3 |
| 15 | 20.43 | 25.34 | 41.24 | 0.61 | 0.1312 | 0.0029 | 7.2415 | 0.1665 | 0.3995 | 0.0041 | 2114.5 | 38.9 | 2141.6 | 20.6 | 2166.6 | 19.0 |
| 16 | 79.33 | 97.30 | 164.88 | 0.59 | 0.1313 | 0.0022 | 7.0759 | 0.1170 | 0.3902 | 0.0031 | 2116.7 | 29.6 | 2121.0 | 14.8 | 2123.7 | 14.4 |
| 17 | 18.55 | 27.78 | 36.03 | 0.77 | 0.1322 | 0.0031 | 7.2141 | 0.1590 | 0.3971 | 0.0039 | 2127.8 | 40.7 | 2138.2 | 19.7 | 2155.9 | 18.1 |

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附图1 忻州盆地花岗岩样品（L03）锆石U-Pb谐和图

Fig.1 Zircon U-Pb harmonic diagram of granite samples（L03）from Xinzhou Basin

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附图2 忻州盆地花岗岩样品（L05）锆石U-Pb谐和图

Fig.2 Zircon U-Pb harmonic diagram of granite samples（L05）from Xinzhou Basin