表1 湘东北地层和金多金属矿床硫同位素组成

Table 1 Sulfur isotopic compositions of sulfides from the sediments and Au–polymetallic ore deposits in Northeastern Hunan Province

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 样品  samples | 矿物  minerals | 矿床/地层  deposit/stara | δ34S-CDT /‰ | 文献来源 |
|  | Py | 冷家溪群  Lengjiaxi Group | +12.90–+23.50 (avg. +18.5) | 罗献林, 1990 |
| Py | -13.10–-6.26 | 罗献林, 1988 刘亮明 等, 1999 |
| DD02－1 | Py | 万古  wangu | -8.64 | 本文 |
| DD02－3 | Py | -9.3 | 本文 |
| DD02－5 | Py | -7.97 | 本文 |
| DD02－2 | Asp | -9.67 | 本文 |
| DD02－3 | Asp | -10.2 | 本文 |
| DD02－4 | Asp | -9.54 | 本文 |
| DD02－5 | Asp | -9.23 | 本文 |
| DD02－1 | Asp | -9.35 | 本文 |
| 14WG002 | Py | -10.7 | 本文 |
| 14WG006 | Asp | -7.7 | 本文 |
| 14WG013 | Asp | -7.6 | 本文 |
| 14WG014 | Asp | -8 | 本文 |
| 14WG017 | Asp | -10 | 本文 |
| 14WG020 | Py | -7.6 | 本文 |
| 14WG024 | Asp | -7.3 | 本文 |
| 14WG035 | Py | -7.9 | 本文 |
| 14WG047 | Py | -9.2 | 本文 |
| 14WG052 | Py | -7.6 | 本文 |
| DD03-5 | Asp | -11.1 | 本文 |
| SPY–01 | Py | –10.10 | 柳德荣 等, 1994 |
| SPY–02 | Py | –10.40 | 柳德荣 等, 1994 |
| SAS–01 | Asp | –8.90 | 柳德荣 等, 1994 |
| SBB–01 | Snt | –11.60 | 柳德荣 等, 1994 |

表2 湘东北金多金属矿床硫化物和燕山期花岗岩Pb同位素组成

Table 2 Pb isotopic compositions of sulfides from the Au–polymetallic ore deposits and Yanshanian granites in Northeastern Hunan Province

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 矿床/岩体  deposit/granite | 矿物/岩石  mineral/rock | 208Pb/204Pb | 207Pb/204Pb | 206Pb/204Pb | References |
| 万古  Wangu | 毒砂 arsenopyrite | 38.539 | 15.73 | 18.024 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.403 | 15.665 | 18.082 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.623 | 15.766 | 17.983 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.872 | 15.767 | 18.135 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.886 | 15.693 | 18.358 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.318 | 15.659 | 18.015 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.344 | 15.685 | 17.988 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.247 | 15.654 | 17.934 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.645 | 15.787 | 18.005 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.412 | 15.674 | 18.091 | 邓惠娟 等, 2013 |
| 毒砂 arsenopyrite | 38.674 | 15.785 | 18.050 | 本文 |
| 毒砂 arsenopyrite | 38.453 | 15.691 | 17.976 | 本文 |
| 毒砂 arsenopyrite | 38.426 | 15.640 | 18.105 | 本文 |
| 毒砂 arsenopyrite | 38.468 | 15.654 | 18.058 | 本文 |
| 黄铁矿 pyrite | 38.664 | 15.621 | 18.091 | 本文 |
| 黄铁矿 pyrite | 38.126 | 15.618 | 17.924 | 本文 |
| 毒砂 arsenopyrite | 38.175 | 15.625 | 17.918 | 本文 |
| 毒砂 arsenopyrite | 38.485 | 15.745 | 18.049 | 本文 |
| 黄铁矿 pyrite | 38.135 | 15.643 | 17.957 | 本文 |
| 毒砂 arsenopyrite | 38.440 | 15.697 | 17.982 | 本文 |
| 毒砂 arsenopyrite | 38.472 | 15.720 | 17.982 | 本文 |

表3 湘东北金矿床石英H-O同位素组成

Table 3 H-O isotopic compositions of quartz from the Au deposits a in Northeastern Hunan Province

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 矿床  deposit | 阶段  stages | 矿物  Minerals | δ18Omineral | δDH2O (‰) | δ18OH2O (‰) | Th (°C) | 文献来源 |
| 万古  Wangu | 成矿期和成矿期前  Metallogenic period and pre-metallogenic period | 石英Quartz | 15.5 | -66.4 | 6.3 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 17.1 | -59.2 | 7.9 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.2 | -61.2 | 9.0 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 19.1 | -62.1 | 9.9 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 19.3 | -57.0 | 10.1 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 19.4 | -58.5 | 10.2 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 20.4 | -62.3 | 11.2 | 245 | 本文 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 15.45 | -64.2 | 3.09 | 201 | 柳德荣 等, 1994 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 17.91 | -55 | 3.81 | 176 | 柳德荣 等, 1994 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 17.5 | -60.5 | 3.4 | 198 | 柳德荣 等, 1994 |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 19.6 | -61 | 7.8 | 207 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 19.5 | -59 | 9.9 | 247 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.5 | -64 | 10.9 | 295 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.7 | -60 | 9.6 | 258 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 17.8 | -64 | 10.8 | 310 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.1 | -60 | 9.8 | 276 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 17.9 | -56 | 8.2 | 245 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.6 | -60 | 7.4 | 216 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.1 | -63 | 9.3 | 265 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.5 | -59 | 10.1 | 273 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 19.1 | -56 | 10.1 | 260 | Mao 等, 2002b |
| 成矿期和成矿期前 Metallogenic period and pre-metallogenic period | 石英Quartz | 18.8 | -61 | 9.1 | 244 | Mao 等, 2002b |
| 成矿期后  After metallogenic period | 石英Quartz | 17.7 | -92 | 1.3 | 145 | Mao 等, 2002b |
| 成矿期后  After metallogenic period | 石英Quartz | 22 | -86 | 2 | 138 | Mao 等, 2002b |