表1东平锰矿岩、矿石样品主量元素成分（％）

Table1 Major element composition of rock ore samples from Dongping manganese deposit（％）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | 样品名称 | Al2O3 | As2O3 | CaO | TFe2O3 | K2O | MgO | Mn3O4 | Na2O | P2O5 | SiO2 | TiO2 | LOI | SiO2/Al2O3 | Al2O3/TiO2 | Al2O3/Mn3O4 | Fe/Ti | (Fe+Mn)/Ti | Al/(Al+Fe+Mn) | Ti/V |
| 16DP-1 | 纹层状矿石 | 10.69 | 0.02 | 10.75 | 3.96 | 2.59 | 3.47 | 8.27 | 1.63 | 0.08 | 41.14 | 0.41 | 16.84 | 3.85 | 26.07 | 1.29 | 11.27 | 35.49 | 0.39 | 20.85 |
| 16DP-2 | 纹层状矿石 | 5.56 | 0.02 | 7.46 | 11.94 | 0.06 | 5.45 | 23.87 | <0.01 | 0.64 | 21.66 | 0.21 | 22.96 | 3.90 | 26.48 | 0.23 | 66.33 | 202.83 | 0.10 | 12.00 |
| 16DP-4 | 纹层状矿石 | 6.93 | 0.02 | 11.7 | 3.59 | 1.87 | 4.43 | 17.15 | 0.63 | 0.08 | 30.08 | 0.26 | 22.81 | 4.34 | 26.65 | 0.40 | 16.11 | 95.32 | 0.20 | 8.57 |
| 16DP-6 | 纹层状矿石 | 6.6 | 0.02 | 11.4 | 4.33 | 1.61 | 4.18 | 19.94 | 0.48 | 0.08 | 27.53 | 0.23 | 23.32 | 4.17 | 28.70 | 0.33 | 21.96 | 126.07 | 0.17 | 34.50 |
| 16DP-8 | 纹层状矿石 | 5.25 | 0.02 | 7.36 | 12.81 | 0.07 | 5.16 | 22.04 | 0.02 | 0.71 | 23.55 | 0.2 | 21.1 | 4.49 | 26.25 | 0.24 | 74.73 | 207.06 | 0.10 | 10.17 |
| 16DP-10 | 纹层状矿石 | 6.64 | 0.03 | 16.05 | 3.96 | 1.4 | 4.11 | 14.78 | 0.58 | 0.07 | 27.06 | 0.25 | 24.4 | 4.08 | 26.56 | 0.45 | 18.48 | 89.48 | 0.21 | 5.79 |
| 16DP-12 | 纹层状矿石 | 6.87 | 0.03 | 14.35 | 3.18 | 1.62 | 4.26 | 16.61 | 0.64 | 0.06 | 27.76 | 0.26 | 24.27 | 4.04 | 26.42 | 0.41 | 14.27 | 90.99 | 0.20 | 39.00 |
| 16DP-14 | 纹层状夹石 | 10.05 | 0.02 | 10.75 | 3.86 | 2.59 | 4.45 | 9.58 | 1.08 | 0.08 | 39.61 | 0.39 | 17.84 | 3.94 | 25.77 | 1.05 | 11.55 | 41.05 | 0.36 | 13.76 |
| 16DP-16 | 纹层状矿石 | 6.99 | 0.03 | 13.65 | 3.28 | 1.63 | 4.33 | 15.91 | 0.71 | 0.07 | 29.01 | 0.26 | 23.53 | 4.15 | 26.88 | 0.44 | 14.72 | 88.20 | 0.21 | 38.05 |
| 16DP-18 | 纹层状矿石 | 8.93 | 0.01 | 11.45 | 3.51 | 2.51 | 4.42 | 12.53 | 0.86 | 0.09 | 34.45 | 0.36 | 20.46 | 3.86 | 24.81 | 0.71 | 11.38 | 53.17 | 0.29 | 20.97 |
| 16DP-23 | 纹层状围岩 | 5.99 | 0.04 | 11.95 | 25.25 | 0.67 | 4.2 | 1.8 | 0.01 | 2.09 | 32.44 | 0.26 | 13.75 | 5.42 | 23.04 | 3.33 | 113.30 | 121.62 | 0.14 | 11.30 |
| 16DP-26 | 纹层状围岩 | 5.1 | 0.02 | 11.6 | 23.79 | 0.58 | 3.62 | 2.06 | <0.01 | 2.58 | 35.5 | 0.19 | 13.43 | 6.96 | 26.84 | 2.48 | 146.08 | 159.10 | 0.13 | 10.36 |
| 16DP-27 | 纹层状围岩 | 13.29 | 0.01 | 8.57 | 5.61 | 3.34 | 2.76 | 0.63 | 0.57 | 0.07 | 53.36 | 0.55 | 11.02 | 4.02 | 24.16 | 21.10 | 11.90 | 13.28 | 0.62 | 35.48 |
| 16DP-28 | 纹层状矿石 | 7.02 | 0.01 | 10.5 | 9.11 | 1.25 | 3.16 | 14.89 | 0.29 | 0.13 | 32.39 | 0.24 | 21.51 | 4.61 | 29.25 | 0.47 | 44.28 | 118.79 | 0.18 | 23.23 |
| 16DP-29 | 鲕粒状矿石 | 7.05 | 0.02 | 10.65 | 4.23 | 2.24 | 2.88 | 21.34 | 0.62 | 0.08 | 26.54 | 0.25 | 23.63 | 3.76 | 28.20 | 0.33 | 19.74 | 122.25 | 0.17 | 45.45 |
| 16DP-31 | 纹层状矿石 | 4.44 | 0.02 | 19.1 | 13.48 | 0.01 | 3.14 | 3.7 | <0.01 | 1.17 | 32.82 | 0.15 | 18.58 | 7.39 | 29.60 | 1.20 | 104.84 | 134.47 | 0.16 | 11.25 |
| 16DP-32 | 鲕粒状矿石 | 5.39 | 0.02 | 15.6 | 2.52 | 1.81 | 1.86 | 20.97 | 0.69 | 0.05 | 24.02 | 0.18 | 26.16 | 4.46 | 29.94 | 0.26 | 16.33 | 156.24 | 0.14 | 49.09 |
| 16DP-34 | 鲕粒状矿石 | 5.38 | 0.01 | 18.15 | 3.57 | 1.14 | 2.67 | 15.97 | 0.98 | 0.05 | 24.78 | 0.18 | 26.28 | 4.61 | 29.89 | 0.34 | 23.14 | 129.68 | 0.17 | 27.00 |
| 16DP-35 | 纹层状围岩 | 11.16 | 0.01 | 11.65 | 3.9 | 2.4 | 3.29 | 5.16 | 2.17 | 0.08 | 43.35 | 0.43 | 15.83 | 3.88 | 25.95 | 2.16 | 10.58 | 24.99 | 0.48 | 29.32 |
| 16DP-37 | 鲕粒状矿石 | 6.78 | 0.02 | 11.9 | 3.38 | 2.26 | 2.2 | 21.23 | 0.74 | 0.06 | 26.39 | 0.24 | 24.18 | 3.89 | 28.25 | 0.32 | 16.43 | 122.66 | 0.17 | 46.45 |
| 16DP-39 | 纹层状矿石 | 5.74 | 0.01 | 8.1 | 9.68 | 0.06 | 5.7 | 20.8 | <0.01 | 0.7 | 27.36 | 0.21 | 21.28 | 4.77 | 27.33 | 0.28 | 53.78 | 172.72 | 0.12 | 8.24 |
| 16DP-40 | 纹层状矿石 | 7.17 | 0.01 | 11.15 | 3.67 | 1.8 | 5.08 | 17.47 | 0.48 | 0.08 | 30.35 | 0.28 | 22.09 | 4.23 | 25.61 | 0.41 | 15.29 | 90.22 | 0.20 | 11.67 |
| 16DP-41 | 纹层状矿石 | 7.95 | 0.01 | 7.33 | 9.34 | 0.7 | 6.94 | 13.92 | 0.01 | 0.14 | 35.21 | 0.33 | 17.66 | 4.43 | 24.09 | 0.57 | 33.02 | 83.68 | 0.20 | 29.12 |
| 16DP-42 | 纹层状矿石 | 6.27 | 0.01 | 11.95 | 5.46 | 1.96 | 5.45 | 15.64 | 0.02 | 0.12 | 25.51 | 0.26 | 26.82 | 4.07 | 24.12 | 0.40 | 24.50 | 96.74 | 0.18 | 20.53 |

表2东平锰矿岩、矿石样品微量元素分析结果（ppm）

Table2 Analysis results of trace elements in rock and ore samples of Dongping manganese deposit（ppm）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | 样品名称 | Ba | Cd | Co | Cr | Cu | Ga | Ge | Mo | Ni | Pb | Rb | Sb | Sr | Tl | U | V | Zn | Th | lgU | lgTh | V/(V+Ni) |
| 16DP-1 | 纹层状矿石 | 760 | 0.16 | 48.5 | 37 | 60.5 | 14.95 | 0.18 | 0.49 | 110.5 | 56.6 | 96.8 | 1.16 | 625 | 0.56 | 2.2 | 118 | 243 | 10.4 | 0.34 | 1.02 | 0.52 |
| 16DP-2 | 纹层状矿石 | 40 | 0.02 | 121 | 26 | 18.8 | 12.85 | 0.17 | 0.25 | 59.9 | 12.3 | 3.3 | 0.86 | 379 | 0.04 | 1.1 | 105 | 89 | 5.9 | 0.04 | 0.78 | 0.64 |
| 16DP-4 | 纹层状矿石 | 650 | 0.07 | 85.4 | 28 | 91.8 | 11 | 0.15 | 0.24 | 98.3 | 53.9 | 63.9 | 0.79 | 555 | 0.37 | 1.4 | 182 | 109 | 7.01 | 0.15 | 0.85 | 0.65 |
| 16DP-6 | 纹层状矿石 | 600 | 0.04 | 98.8 | 26 | 9.3 | 11.6 | 0.13 | 0.19 | 109 | 11.8 | 47.5 | 1.63 | 576 | 0.33 | 1.2 | 40 | 122 | 6.36 | 0.08 | 0.80 | 0.27 |
| 16DP-8 | 纹层状矿石 | 50 | 0.03 | 259 | 26 | 21.3 | 12.3 | 0.17 | 0.34 | 105 | 61.8 | 3.5 | 2.16 | 431 | 0.06 | 1.4 | 118 | 87 | 5.47 | 0.15 | 0.74 | 0.53 |
| 16DP-10 | 纹层状矿石 | 430 | 0.09 | 131.5 | 27 | 101.5 | 12.25 | 0.14 | 0.37 | 111 | 331 | 55.8 | 0.45 | 951 | 0.33 | 1.7 | 259 | 148 | 6.83 | 0.23 | 0.83 | 0.70 |
| 16DP-12 | 纹层状矿石 | 480 | 0.18 | 91.9 | 30 | 4 | 12.05 | 0.1 | 0.35 | 130 | 8.5 | 64.6 | 0.74 | 675 | 0.37 | 1.1 | 40 | 176 | 6.93 | 0.04 | 0.84 | 0.24 |
| 16DP-14 | 纹层状夹石 | 800 | 0.14 | 48.9 | 37 | 29.6 | 14.4 | 0.18 | 0.44 | 106.5 | 72.7 | 92.9 | 0.88 | 518 | 0.54 | 2.6 | 170 | 173 | 9.69 | 0.41 | 0.99 | 0.61 |
| 16DP-16 | 纹层状矿石 | 490 | 0.17 | 96.4 | 30 | 3.3 | 12.2 | 0.12 | 0.33 | 134.5 | 7.2 | 65.7 | 0.72 | 646 | 0.33 | 1.2 | 41 | 195 | 6.79 | 0.08 | 0.83 | 0.23 |
| 16DP-18 | 纹层状矿石 | 780 | 0.07 | 35.5 | 35 | 21.8 | 12.2 | 0.14 | 0.16 | 81.6 | 28.3 | 87.2 | 0.57 | 477 | 0.51 | 1.9 | 103 | 123 | 8.81 | 0.28 | 0.94 | 0.56 |
| 16DP-23 | 纹层状围岩 | 1050 | <0.02 | 18.1 | 77 | 22.9 | 8.64 | 0.26 | 1.16 | 15.3 | 50.8 | 26.5 | 7.13 | 1150 | 0.32 | 2.7 | 138 | 79 | 6.35 | 0.43 | 0.80 | 0.90 |
| 16DP-26 | 纹层状围岩 | 960 | <0.02 | 8 | 51 | 20.5 | 7.61 | 0.22 | 0.48 | 14 | 21.1 | 22.9 | 2.45 | 1050 | 0.19 | 2.3 | 110 | 64 | 5.45 | 0.36 | 0.74 | 0.897 |
| 16DP-27 | 纹层状围岩 | 650 | 0.04 | 16.9 | 55 | 48.7 | 17.75 | 0.26 | 0.21 | 37.8 | 19.1 | 158.5 | 1.02 | 543 | 0.73 | 3.5 | 93 | 92 | 13.35 | 0.54 | 1.13 | 0.71 |
| 16DP-28 | 纹层状矿石 | 350 | 0.06 | 68.7 | 28 | 6.3 | 11.55 | 0.16 | 0.11 | 73.9 | 12.1 | 50.4 | 0.22 | 554 | 0.27 | 1.4 | 62 | 141 | 6.29 | 0.15 | 0.80 | 0.46 |
| 16DP-29 | 鲕粒状矿石 | 880 | 0.07 | 50.3 | 28 | 2.6 | 13 | 0.15 | 0.17 | 80.6 | 24 | 77.8 | 0.59 | 517 | 0.49 | 1 | 33 | 140 | 6.35 | 0 | 0.80 | 0.30 |
| 16DP-31 | 纹层状矿石 | <10 | 0.03 | 63.4 | 31 | 101 | 8.04 | 0.16 | 0.29 | 27.6 | 22.7 | 0.9 | 4.76 | 1210 | 0.03 | 1.7 | 80 | 66 | 4.2 | 0.23 | 0.62 | 0.74 |
| 16DP-32 | 鲕粒状矿石 | 590 | 0.07 | 36.3 | 21 | 2.5 | 8.28 | 0.09 | 0.15 | 54.4 | 19.3 | 69.5 | 0.83 | 925 | 0.42 | 0.7 | 22 | 90 | 5.27 | -0.15 | 0.72 | 0.29 |
| 16DP-34 | 鲕粒状矿石 | 380 | 0.13 | 48.4 | 22 | 6.3 | 8.83 | 0.08 | 0.11 | 55.9 | 11.9 | 43.4 | 0.35 | 858 | 0.24 | 0.9 | 40 | 92 | 5.03 | -0.05 | 0.70 | 0.42 |
| 16DP-35 | 纹层状围岩 | 600 | 0.14 | 29.4 | 44 | 68.3 | 15.9 | 0.16 | 0.99 | 98.5 | 42.6 | 93.4 | 4.31 | 744 | 0.51 | 4.1 | 88 | 157 | 11.5 | 0.61 | 1.06 | 0.47 |
| 16DP-37 | 鲕粒状矿石 | 750 | 0.1 | 52.6 | 26 | 3.7 | 10.35 | 0.14 | 0.98 | 72.3 | 35.6 | 85.7 | 1.22 | 605 | 0.48 | 1.1 | 31 | 114 | 6.69 | 0.04 | 0.83 | 0.30 |
| 16DP-39 | 纹层状矿石 | 20 | 0.08 | 99.8 | 26 | 117 | 11.85 | 0.14 | 0.51 | 50.1 | 24.6 | 5.3 | 3.25 | 436 | 0.06 | 2 | 153 | 117 | 5.82 | 0.30 | 0.76 | 0.75 |
| 16DP-40 | 纹层状矿石 | 610 | 0.08 | 69.6 | 29 | 53.1 | 11.65 | 0.1 | 0.32 | 101.5 | 85 | 59.1 | 0.51 | 585 | 0.35 | 1.7 | 144 | 114 | 7.26 | 0.23 | 0.86 | 0.59 |
| 16DP-41 | 纹层状矿石 | 160 | 0.05 | 163.5 | 39 | 11.1 | 14.15 | 0.09 | 0.25 | 112.5 | 21.3 | 25.3 | 1.54 | 368 | 0.16 | 2.4 | 68 | 167 | 8.76 | 0.38 | 0.94 | 0.38 |
| 16DP-42 | 纹层状矿石 | 460 | 0.04 | 20 | 27 | 6.9 | 11.95 | 0.12 | 0.18 | 49.2 | 17.8 | 65.2 | 0.6 | 689 | 0.39 | 1.3 | 76 | 57 | 6.54 | 0.11 | 0.82 | 0.61 |

表3东平锰矿岩、矿石样品稀土元素分析结果（ppm）

Table3 Analysis results of rare earth elements in rock and ore samples of Dongping manganese deposit（ppm）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 样品编号 | 样品名称 | La | Ce | Pr | Nd | Sm | Eu | Gd | Tb | Dy | Y | Ho | Er | Tm | Yb | Lu | TREE | Al2O3 | TiO2 | CeSN | EuSN | Y/Ho |
| 16DP-1 | 纹层状矿石 | 32.6 | 67.3 | 7.06 | 25.8 | 5.21 | 1.09 | 4.66 | 0.67 | 3.93 | 19.1 | 0.79 | 2.35 | 0.35 | 2.1 | 0.33 | 173.34 | 10.69 | 0.41 | 1.05 | 1.04 | 24.18 |
| 16DP-2 | 纹层状矿石 | 37 | 81.4 | 7.12 | 27.5 | 6 | 1.43 | 6.44 | 0.94 | 5.65 | 28.1 | 1.18 | 3.27 | 0.45 | 2.63 | 0.39 | 209.5 | 5.56 | 0.21 | 1.18 | 1.07 | 23.81 |
| 16DP-4 | 纹层状矿石 | 21 | 49.4 | 4.48 | 16.5 | 3.39 | 0.65 | 3.29 | 0.5 | 2.86 | 14.3 | 0.58 | 1.75 | 0.25 | 1.53 | 0.24 | 120.72 | 6.93 | 0.26 | 1.20 | 0.91 | 24.66 |
| 16DP-6 | 纹层状矿石 | 24.4 | 57.8 | 4.95 | 18.1 | 3.59 | 0.82 | 3.29 | 0.51 | 2.82 | 14.1 | 0.61 | 1.71 | 0.24 | 1.47 | 0.25 | 134.66 | 6.6 | 0.23 | 1.24 | 1.12 | 23.11 |
| 16DP-8 | 纹层状矿石 | 38.5 | 85 | 7.44 | 28.5 | 6 | 1.44 | 6.72 | 0.95 | 5.3 | 28 | 1.08 | 3.09 | 0.42 | 2.47 | 0.36 | 215.27 | 5.25 | 0.2 | 1.18 | 1.06 | 25.93 |
| 16DP-10 | 纹层状矿石 | 25.3 | 55.9 | 5.15 | 18.7 | 3.71 | 1 | 3.38 | 0.48 | 2.97 | 17 | 0.61 | 1.78 | 0.25 | 1.55 | 0.22 | 138 | 6.64 | 0.25 | 1.16 | 1.33 | 27.87 |
| 16DP-12 | 纹层状矿石 | 22.7 | 59.7 | 4.8 | 18.1 | 3.83 | 0.84 | 3.53 | 0.5 | 2.93 | 14.6 | 0.6 | 1.72 | 0.25 | 1.58 | 0.23 | 135.91 | 6.87 | 0.26 | 1.35 | 1.07 | 24.33 |
| 16DP-14 | 纹层状夹石 | 31.1 | 62.8 | 6.85 | 25.5 | 5.17 | 0.85 | 4.64 | 0.67 | 3.95 | 20.3 | 0.8 | 2.31 | 0.32 | 2 | 0.3 | 167.56 | 10.05 | 0.39 | 1.02 | 0.81 | 25.38 |
| 16DP-16 | 纹层状矿石 | 23.8 | 61.2 | 5.04 | 18.7 | 3.61 | 0.82 | 3.34 | 0.47 | 2.81 | 14.2 | 0.57 | 1.78 | 0.25 | 1.5 | 0.22 | 138.31 | 6.99 | 0.26 | 1.32 | 1.11 | 24.91 |
| 16DP-18 | 纹层状矿石 | 27.3 | 58 | 6.02 | 21.7 | 4.4 | 0.68 | 3.96 | 0.56 | 3.2 | 16.1 | 0.65 | 1.93 | 0.27 | 1.74 | 0.26 | 146.77 | 8.93 | 0.36 | 1.07 | 0.76 | 24.77 |
| 16DP-23 | 纹层状围岩 | 35 | 76.8 | 7.88 | 31.6 | 7.5 | 2 | 8.96 | 1.34 | 8.26 | 49.2 | 1.69 | 4.76 | 0.65 | 3.83 | 0.52 | 239.99 | 5.99 | 0.26 | 1.10 | 1.13 | 29.11 |
| 16DP-26 | 纹层状围岩 | 49.9 | 104.3 | 9.98 | 38.1 | 8.51 | 2.34 | 10.4 | 1.57 | 9.27 | 57.4 | 1.92 | 5.36 | 0.72 | 4.02 | 0.54 | 304.33 | 5.1 | 0.19 | 1.10 | 1.15 | 29.90 |
| 16DP-27 | 纹层状围岩 | 38.5 | 70.1 | 8.4 | 29.9 | 5.72 | 0.96 | 4.69 | 0.71 | 3.99 | 16.2 | 0.83 | 2.33 | 0.35 | 2.22 | 0.32 | 185.22 | 13.29 | 0.55 | 0.92 | 0.87 | 19.52 |
| 16DP-28 | 纹层状矿石 | 25.2 | 63.9 | 5.22 | 19 | 3.65 | 0.73 | 3.47 | 0.53 | 3.03 | 15.3 | 0.63 | 1.76 | 0.25 | 1.51 | 0.23 | 144.41 | 7.02 | 0.24 | 1.32 | 0.96 | 24.29 |
| 16DP-29 | 鲕粒状矿石 | 22.4 | 60.8 | 4.83 | 17.2 | 3.38 | 0.67 | 3.17 | 0.46 | 2.67 | 15.8 | 0.54 | 1.56 | 0.22 | 1.36 | 0.2 | 135.26 | 7.05 | 0.25 | 1.38 | 0.96 | 29.26 |
| 16DP-31 | 纹层状矿石 | 29.7 | 73.1 | 6.02 | 24.3 | 5.82 | 2.13 | 7.59 | 1.11 | 6.54 | 33.6 | 1.34 | 3.66 | 0.49 | 2.93 | 0.42 | 198.75 | 4.44 | 0.15 | 1.29 | 1.48 | 25.07 |
| 16DP-32 | 鲕粒状矿石 | 18.1 | 52.1 | 3.82 | 14.4 | 2.95 | 0.63 | 2.8 | 0.4 | 2.34 | 12.7 | 0.48 | 1.36 | 0.19 | 1.2 | 0.17 | 113.64 | 5.39 | 0.18 | 1.48 | 1.03 | 26.46 |
| 16DP-34 | 鲕粒状矿石 | 22.1 | 55.9 | 4.66 | 17.7 | 3.75 | 0.7 | 3.48 | 0.53 | 3.14 | 16 | 0.66 | 1.9 | 0.27 | 1.72 | 0.26 | 132.77 | 5.38 | 0.18 | 1.30 | 0.91 | 24.24 |
| 16DP-35 | 纹层状围岩 | 34.2 | 65.5 | 7.25 | 26.1 | 5.22 | 0.96 | 4.75 | 0.68 | 3.89 | 21 | 0.82 | 2.4 | 0.34 | 2.21 | 0.33 | 175.65 | 11.16 | 0.43 | 0.98 | 0.90 | 25.61 |
| 16DP-37 | 鲕粒状矿石 | 20.3 | 54 | 4.16 | 15.3 | 3.1 | 0.61 | 2.97 | 0.41 | 2.51 | 13 | 0.52 | 1.48 | 0.2 | 1.32 | 0.19 | 120.07 | 6.78 | 0.24 | 1.39 | 0.94 | 25.00 |
| 16DP-39 | 纹层状矿石 | 35.4 | 78.7 | 7.35 | 28.9 | 6.21 | 1.33 | 6.79 | 0.95 | 5.36 | 27.8 | 1.08 | 3.02 | 0.41 | 2.43 | 0.33 | 206.06 | 5.74 | 0.21 | 1.15 | 0.96 | 25.74 |
| 16DP-40 | 纹层状矿石 | 21 | 48 | 4.58 | 16.7 | 3.47 | 0.71 | 3.27 | 0.47 | 2.8 | 14.5 | 0.56 | 1.59 | 0.23 | 1.47 | 0.2 | 119.55 | 7.17 | 0.28 | 1.16 | 0.99 | 25.89 |
| 16DP-41 | 纹层状矿石 | 25.4 | 54.8 | 5.31 | 19.9 | 3.94 | 0.83 | 3.9 | 0.57 | 3.33 | 17.4 | 0.7 | 2.05 | 0.28 | 1.84 | 0.26 | 140.51 | 7.95 | 0.33 | 1.11 | 0.99 | 24.86 |
| 16DP-42 | 纹层状矿石 | 23 | 45.4 | 4.76 | 18.2 | 3.69 | 0.78 | 3.74 | 0.53 | 3.18 | 17.4 | 0.64 | 1.87 | 0.26 | 1.64 | 0.24 | 125.33 | 6.27 | 0.26 | 1.02 | 0.98 | 27.19 |