附表1 滇西鲁甸地区退变榴辉岩矿物化学成分

Table 1 Mineral chemical composition of retrograde eclogite in LuDian area of western Yunnan Province

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 成分 | Grt | | | 辉石 | | | | | | Amp | | | | | | | | | | | | | |
| rim | core | rim | Di | | Di | | OMP? | |  | | AmpⅠ | | | | | AmpⅡ | | AmpⅢ | | | | |
| SiO2 | 38.00 | 37.87 | 38.34 | 51.89 | | 51.89 | | 57.34 | | SiO2 | | 46.133 | 46.708 | | 50.689 | | 39.05 | | 50.872 | | 51.027 | | 49.846 |
| TiO2 | 0.17 | 0.24 | 0.16 | 0.45 | | 0.45 | | 0.05 | | TiO2 | | 0.369 | 0.426 | | 0.171 | | 0.13 | | 0.261 | | 0.204 | | 0.122 |
| Al2O3 | 21.43 | 21.11 | 21.24 | 5.25 | | 5.25 | | 20.68 | | Al2O3 | | 11.642 | 10.685 | | 6.49 | | 20.091 | | 4.315 | | 4.962 | | 5.340 |
| FeO | 27.06 | 27.43 | 26.76 | 14.77 | | 14.77 | | 6.67 | | FeO | | 18.06 | 17.529 | | 16.157 | | 21.433 | | 17.904 | | 17.303 | | 18.372 |
| MnO | 0.86 | 2.66 | 1.21 | 0.29 | | 0.29 | | 0.15 | | MnO | | 0.144 | 0.195 | | 0.254 | | 0.153 | | 0.533 | | 0.546 | | 0.614 |
| MgO | 1.36 | 1.30 | 1.36 | 13.00 | | 13.00 | | 2.18 | | MgO | | 9.226 | 9.972 | | 12.479 | | 3.538 | | 10.843 | | 11.198 | | 10.105 |
| CaO | 12.52 | 9.85 | 11.46 | 11.33 | | 11.33 | | 5.49 | | CaO | | 10.577 | 10.845 | | 10.94 | | 11.705 | | 11.853 | | 12.164 | | 11.780 |
| Na2O | 0.00 | 0.05 | 0.02 | 3.00 | | 2.59 | | 4.28 | | Na2O | | 1.301 | 1.125 | | 0.784 | | 1.205 | | 0.250 | | 0.343 | | 0.344 |
| K2O | 0.00 | 0.00 | 0.00 | 0.00 | | 0.09 | | 2.75 | | K2O | | 0.274 | 0.246 | | 0.099 | | 0.482 | | 0.061 | | 0.107 | | 0.134 |
| Cr2O3 | 0.01 | 0.00 | 0.02 | 0.00 | | 0.00 | | 0.00 | | Cr2O3 | | 0.038 | 0.005 | | 0.06 | | 0.005 | | 0.043 | | 0.038 | | 0.030 |
| Si | 2.981 | 3.006 | 3.022 | 1.92 | | 1.93 | | 2.12 | | Si | | 6.781 | 6.848 | | 7.310 | | 5.939 | | 7.466 | | 7.423 | | 7.353 |
| Ti | 0.010 | 0.014 | 0.010 | 0.01 | | 0.01 | | 0.00 | | Al (iv) | | 1.233 | 1.167 | | 0.691 | | 2.103 | | 0.537 | | 0.576 | | 0.656 |
| Cr | 0.001 | 0.000 | 0.001 | 0.00 | | 0.00 | | 0.00 | | Al (vi) | | 0.784 | 0.679 | | 0.412 | | 1.498 | | 0.209 | | 0.275 | | 0.273 |
| Al | 1.982 | 1.975 | 1.973 | 0.23 | | 0.23 | | 0.90 | | Fe(iii) | | 0.367 | 0.383 | | 0.373 | | 0.331 | | 0.398 | | 0.372 | | 0.441 |
| Fe3+ | 0.053 | 0.000 | 0.000 | 0.13 | | 0.08 | | 0.00 | | Ti | | 0.056 | 0.063 | | 0.019 | | 0.063 | | 0.033 | | 0.022 | | 0.025 |
| Fe2+ | 1.722 | 1.821 | 1.764 | 0.33 | | 0.38 | | 0.21 | | Fe(ii) | | 1.853 | 1.766 | | 1.576 | | 2.395 | | 1.898 | | 1.835 | | 1.928 |
| Mn | 0.057 | 0.179 | 0.081 | 0.01 | | 0.01 | | 0.00 | | Mn | | 0.018 | 0.024 | | 0.031 | | 0.024 | | 0.066 | | 0.067 | | 0.077 |
| Mg | 0.159 | 0.154 | 0.160 | 0.72 | | 0.72 | | 0.12 | | Mg | | 2.022 | 2.180 | | 2.683 | | 0.802 | | 2.372 | | 2.428 | | 2.222 |
| Ca | 1.052 | 0.838 | 0.968 | 0.45 | | 0.45 | | 0.22 | | Ca | | 1.675 | 1.713 | | 1.701 | | 1.907 | | 1.877 | | 1.907 | | 1.874 |
| Na | 0.000 | 0.007 | 0.004 | 0.21 | | 0.19 | | 0.31 | | Na | | 0.371 | 0.320 | | 0.219 | | 0.355 | | 0.182 | | 0.169 | | 0.194 |
| K | 0.000 | 0.000 | 0.000 | 0.00 | | 0.00 | | 0.00 | | K | | 0.052 | 0.046 | | 0.014 | | 0.098 | | 0.012 | | 0.018 | | 0.028 |
| Pl | | | | | | | | | Czo | | | | | | | | | | | | | | |
|  | Grt边部 | 后成合晶（基质） | | | | | | |  | | Amp晶间 | | | | | Amp包体 | | | | Grt包体 | | | |
| SiO2 | 51.301 | 62.964 | 61.960 | | 61.429 | | 62.167 | | SiO2 | | 39.222 | | | 39.156 | | 39.304 | | 40.853 | | 39.341 | | 39.119 | |
| TiO2 | 0.042 | 0.050 | 0.058 | | 0.025 | | 0.000 | | TiO2 | | 0.210 | | | 0.134 | | 0.201 | | 0.000 | | 0.017 | | 0.084 | |
| Al2O3 | 31.818 | 24.378 | 25.013 | | 24.802 | | 24.801 | | Al2O3 | | 28.419 | | | 28.506 | | 28.417 | | 30.700 | | 29.489 | | 27.946 | |
| FeO | 0.541 | 0.102 | 0.113 | | 0.238 | | 0.236 | | FeO | | 6.584 | | | 6.651 | | 6.894 | | 3.014 | | 6.087 | | 7.386 | |
| MnO | 0.000 | 0.000 | 0.019 | | 0.000 | | 0.013 | | MnO | | 0.017 | | | 0.018 | | 0.000 | | 0.137 | | 0.089 | | 0.088 | |
| MgO | 0.028 | 0.007 | 0.000 | | 0.012 | | 0.003 | | MgO | | 0.038 | | | 0.027 | | 0.033 | | 0.025 | | 0.000 | | 0.000 | |
| CaO | 13.464 | 5.130 | 5.986 | | 5.941 | | 5.489 | | CaO | | 23.010 | | | 23.228 | | 23.304 | | 23.438 | | 22.784 | | 23.335 | |
| Na2O | 3.831 | 8.330 | 8.510 | | 8.694 | | 8.641 | | Na2O | | 0.021 | | | 0.000 | | 0.012 | | 0.000 | | 0.011 | | 0.000 | |
| K2O | 0.021 | 0.072 | 0.086 | | 0.035 | | 0.099 | | K2O | | 0.000 | | | 0.000 | | 0.025 | | 0.029 | | 0.002 | | 0.000 | |
| Cr2O3 | 0.023 | 0.030 | 0.024 | | 0.007 | | 0.032 | | Cr2O3 | | 0.000 | | | 0.003 | | 0.013 | | 0.019 | | 0.044 | | 0.014 | |
| Si | 2.311 | 2.755 | 2.707 | | 2.703 | | 2.721 | | Si | | 3.029 | | | 3.021 | | 3.020 | | 3.093 | | 3.024 | | 3.019 | |
| Ti | 0.001 | 0.002 | 0.002 | | 0.001 | | 0.000 | | Ti | | 0.012 | | | 0.008 | | 0.012 | | 0.000 | | 0.001 | | 0.005 | |
| Cr | 0.001 | 0.001 | 0.001 | | 0.000 | | 0.001 | | Al | | 2.588 | | | 2.593 | | 2.575 | | 2.741 | | 2.673 | | 2.543 | |
| Al | 1.689 | 1.257 | 1.288 | | 1.286 | | 1.280 | | Fe3+ | | 0.400 | | | 0.400 | | 0.413 | | 0.189 | | 0.324 | | 0.452 | |
| Fe2+ | 0.020 | 0.004 | 0.004 | | 0.009 | | 0.009 | | Fe2+ | | 0.025 | | | 0.029 | | 0.030 | | 0.002 | | 0.068 | | 0.025 | |
| Mn | 0.000 | 0.000 | 0.001 | | 0.000 | | 0.000 | | Mn | | 0.001 | | | 0.001 | | 0.000 | | 0.009 | | 0.006 | | 0.006 | |
| Mg | 0.002 | 0.000 | 0.000 | | 0.001 | | 0.000 | | Mg | | 0.005 | | | 0.003 | | 0.003 | | 0.003 | | 0.000 | | 0.000 | |
| Ca | 0.650 | 0.240 | 0.280 | | 0.280 | | 0.257 | | Ca | | 1.904 | | | 1.920 | | 1.919 | | 1.902 | | 1.876 | | 1.930 | |
| Na | 0.335 | 0.707 | 0.721 | | 0.742 | | 0.733 | | Na | | 0.003 | | | 0.000 | | 0.001 | | 0.000 | | 0.001 | | 0.000 | |
| K | 0.001 | 0.004 | 0.005 | | 0.002 | | 0.006 | | K | | 0.000 | | | 0.000 | | 0.003 | | 0.003 | | 0.000 | | 0.000 | |

附表2 退变榴辉岩及其围岩多硅白云母化学成分

Table 2 The Phengite chemical composition of retrograde eclogite and its surrounding rock

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 矿物成分 | GRT包体 | 基质 | | 石榴子石多硅白云母石英片岩（围岩） | | | | |
| SiO2 | 53.21 | 50.20 | 50.12 | 49.50 | 48.26 | 49.05 | 49.16 | 49.52 |
| TiO2 | 0.06 | 0.55 | 0.45 | 0.49 | 0.49 | 0.40 | 0.45 | 0.49 |
| Al2O3 | 30.96 | 31.90 | 33.45 | 32.42 | 32.29 | 33.78 | 32.09 | 33.42 |
| FeO | 1.57 | 1.97 | 1.58 | 1.95 | 1.77 | 1.40 | 1.87 | 1.60 |
| MnO | 0.04 | 0.00 | 0.00 | 0.01 | 0.02 | 0.02 | 0.00 | 0.05 |
| MgO | 0.47 | 2.44 | 1.84 | 2.24 | 1.80 | 1.47 | 2.32 | 1.84 |
| CaO | 0.52 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| Na2O | 1.46 | 0.64 | 0.68 | 0.72 | 0.65 | 0.72 | 0.51 | 0.55 |
| K2O | 8.11 | 8.10 | 8.61 | 8.22 | 8.80 | 8.63 | 8.48 | 8.87 |
| P2O5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 96.38 | 95.78 | 96.75 | 95.56 | 94.10 | 95.46 | 94.88 | 96.37 |
| Si | 3.53 | 3.35 | 3.30 | 3.30 | 3.27 | 3.27 | 3.30 | 3.28 |
| Ti | 0.00 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 |
| Cr | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Al | 2.42 | 2.51 | 2.60 | 2.55 | 2.58 | 2.66 | 2.54 | 2.61 |
| Fe3+ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fe2+ | 0.09 | 0.11 | 0.09 | 0.11 | 0.10 | 0.08 | 0.11 | 0.09 |
| Mn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mg | 0.05 | 0.24 | 0.18 | 0.22 | 0.18 | 0.15 | 0.23 | 0.18 |
| Ca | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Na | 0.19 | 0.08 | 0.09 | 0.09 | 0.08 | 0.09 | 0.07 | 0.07 |
| K | 0.69 | 0.69 | 0.72 | 0.70 | 0.76 | 0.73 | 0.73 | 0.75 |
| P | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |