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  |