# Appendix 10


N.A. Krivolutskaya, *Siberian Traps and Pt-Cu-Ni Deposits in the Noril'sk Area*,
DOI 10.1007/978-3-319-17205-7_10

**Table 10.1** Rock compositions of the Maslovsky deposit

| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/854.8 | OM-4/881.7 | OM-4/907.6 | OM-4/1,007.7 | OM-4/1,008.2 | OM-4/1,010.8 | OM-4/1,013.2 | OM-4/1,015 |
| $SiO_2$ | 47.95 | 49.06 | 51.30 | 42.62 | 41.97 | 42.19 | 40.91 | 42.31 |
| $TiO_2$ | 1.29 | 1.13 | 0.36 | 0.41 | 0.40 | 0.38 | 0.38 | 0.31 |
| $Al_2O_3$ | 13.52 | 15.12 | 16.44 | 6.57 | 5.96 | 6.54 | 6.69 | 5.55 |
| FeO | 11.51 | 11.90 | 7.46 | 15.62 | 15.67 | 15.49 | 16.69 | 16.11 |
| MnO | 0.76 | 0.20 | 0.14 | 0.22 | 0.21 | 0.24 | 0.22 | 0.25 |
| MgO | 7.11 | 7.11 | 8.49 | 29.59 | 31.00 | 30.59 | 29.60 | 31.26 |
| CaO | 11.72 | 11.50 | 12.53 | 4.92 | 4.18 | 4.38 | 4.35 | 3.78 |
| $Na_2O$ | 2.64 | 2.90 | 2.64 | 0.42 | 0.48 | 0.46 | 0.48 | 0.41 |
| $K_2O$ | 0.64 | 0.54 | 0.62 | 0.22 | 0.28 | 0.25 | 0.22 | 0.20 |
| $P_2O_5$ | 0.15 | 0.11 | 0.06 | 0.06 | 0.07 | 0.05 | 0.05 | 0.04 |
| Total | 97.30 | 99.59 | 100.07 | 100.64 | 100.22 | 100.55 | 99.60 | 100.22 |
| Rb | 20.6 | 19.0 | 20.8 | 6.8 | 9.4 | 7.5 | 6.2 | 8.2 |
| Ba | 261 | 105 | 123 | 82 | 62 | 103 | 96 | 87 |
| Th | 1.12 | 0.85 | 1.36 | 0.40 | 0.43 | 0.27 | 0.39 | 0.18 |
| U | 0.62 | 0.50 | 0.57 | 0.12 | 0.16 | 0.11 | 0.14 | 0.07 |
| Nb | 4.99 | 3.29 | 3.02 | 1.52 | 1.44 | 1.40 | 1.72 | 0.82 |
| Ta | 0.32 | 0.23 | 0.19 | 0.12 | 0.11 | 0.11 | 0.14 | 0.07 |
| La | 8.60 | 5.90 | 6.90 | 2.80 | 2.27 | 2.38 | 2.77 | 2.05 |
| Ce | 19.09 | 14.11 | 15.63 | 6.39 | 5.46 | 5.02 | 5.81 | 4.30 |
| Pr | 2.59 | 1.98 | 2.09 | 0.86 | 0.76 | 0.67 | 0.80 | 0.55 |
| Nd | 12.20 | 9.54 | 9.70 | 4.01 | 3.70 | 3.07 | 3.63 | 2.57 |
| Sr | 297 | 304 | 243 | 107 | 83 | 91 | 83 | 86 |
| Sm | 3.34 | 2.75 | 2.62 | 1.11 | 1.06 | 0.84 | 1.00 | 0.69 |
| Zr | 94.6 | 92.8 | 89.0 | 26.9 | 25.0 | 22.2 | 34.0 | 14.8 |
| Hf | 2.38 | 2.41 | 2.28 | 0.72 | 0.67 | 0.61 | 0.89 | 0.41 |
| Eu | 1.24 | 1.09 | 0.82 | 0.42 | 0.31 | 0.39 | 0.40 | 0.33 |
| Ti | 7,481 | 6,407 | 2,003 | 2,515 | 2,375 | 2,237 | 2,516 | 1,678 |
| Gd | 3.99 | 3.40 | 3.21 | 1.36 | 1.28 | 1.04 | 1.19 | 0.87 |
| Tb | 0.65 | 0.58 | 0.53 | 0.23 | 0.21 | 0.17 | 0.20 | 0.15 |
| Dy | 4.40 | 3.82 | 3.68 | 1.52 | 1.45 | 1.18 | 1.34 | 1.01 |
| Ho | 0.90 | 0.78 | 0.77 | 0.32 | 0.30 | 0.24 | 0.30 | 0.22 |
| Y | 22.71 | 19.96 | 19.24 | 8.51 | 7.96 | 6.53 | 7.89 | 5.98 |
| Er | 2.57 | 2.17 | 2.11 | 0.93 | 0.89 | 0.73 | 0.87 | 0.66 |
| Tm | 0.35 | 0.30 | 0.29 | 0.13 | 0.12 | 0.11 | 0.13 | 0.10 |
| Yb | 2.37 | 2.07 | 2.08 | 0.91 | 0.86 | 0.76 | 0.87 | 0.72 |
| Lu | 0.36 | 0.31 | 0.31 | 0.14 | 0.13 | 0.11 | 0.14 | 0.12 |

| No | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,016 | OM-4/1,020.2 | OM-4/1,022 | OM-4/1,026.5 | OM-4/1,029.3 | OM-4/1,030.5 | OM-4/1,031.4 |
| $SiO_2$ | 41.57 | 42.44 | 41.79 | 41.91 | 38.75 | 43.25 | 43.35 |
| $TiO_2$ | 0.28 | 0.43 | 0.29 | 0.29 | 2.83 | 0.46 | 0.46 |
| $Al_2O_3$ | 5.28 | 5.85 | 5.15 | 5.07 | 9.42 | 5.91 | 6.67 |
| FeO | 16.78 | 15.96 | 16.28 | 16.28 | 19.37 | 14.38 | 14.96 |
| MnO | 0.25 | 0.25 | 0.23 | 0.23 | 0.10 | 0.22 | 0.23 |
| MgO | 30.75 | 30.42 | 31.15 | 31.80 | 5.44 | 31.28 | 28.25 |
| CaO | 3.95 | 3.81 | 4.10 | 3.58 | 10.89 | 4.51 | 5.14 |
| $Na_2O$ | 0.48 | 0.59 | 0.33 | 0.29 | 2.16 | 0.44 | 0.46 |
| $K_2O$ | 0.24 | 0.22 | 0.16 | 0.21 | 0.16 | 0.24 | 0.21 |
| $P_2O_5$ | 0.05 | 0.06 | 0.04 | 0.05 | 0.03 | 0.06 | 0.05 |
| Total | 99.63 | 100.01 | 99.55 | 99.71 | 89.18 | 100.77 | 99.79 |
| Rb | 5.5 | 5.6 | 6.5 | 7.1 | 2.5 | 9.2 | 7.0 |
| Ba | 86 | 89 | 40 | 48 | 134 | 60 | 87 |
| Th | 0.33 | 0.27 | 0.33 | 0.29 | 1.69 | 0.40 | 0.41 |
| U | 0.10 | 0.09 | 0.09 | 0.12 | 0.61 | 0.14 | 0.16 |
| Nb | 1.18 | 1.75 | 0.96 | 1.04 | 14.14 | 1.65 | 1.60 |
| Ta | 0.09 | 0.26 | 0.08 | 0.08 | 1.11 | 0.12 | 0.12 |
| La | 2.47 | 3.03 | 1.68 | 1.99 | 4.45 | 2.25 | 3.10 |
| Ce | 5.49 | 6.47 | 4.37 | 4.60 | 12.42 | 5.46 | 7.08 |
| Pr | 0.72 | 0.86 | 0.63 | 0.63 | 2.09 | 0.77 | 0.97 |
| Nd | 3.29 | 3.87 | 2.95 | 2.87 | 11.11 | 3.70 | 4.52 |
| Sr | 97 | 98 | 85 | 90 | 371 | 86 | 109 |
| Sm | 0.85 | 1.08 | 0.83 | 0.78 | 3.69 | 1.10 | 1.27 |
| Zr | 24.4 | 28.9 | 26.3 | 27.1 | 203.5 | 32.5 | 32.2 |
| Hf | 0.61 | 0.66 | 0.62 | 0.67 | 5.18 | 0.87 | 0.82 |
| Eu | 0.38 | 0.40 | 0.26 | 0.30 | 0.86 | 0.34 | 0.44 |
| Ti | 1,853 | 2,281 | 1,786 | 1,715 | 17,064 | 2,682 | 2,664 |
| Gd | 1.02 | 1.25 | 1.03 | 0.98 | 4.61 | 1.41 | 1.53 |
| Tb | 0.17 | 0.20 | 0.17 | 0.17 | 0.80 | 0.23 | 0.26 |
| Dy | 1.13 | 1.30 | 1.19 | 1.15 | 5.41 | 1.62 | 1.74 |
| Ho | 0.24 | 0.28 | 0.26 | 0.25 | 1.12 | 0.35 | 0.37 |
| Y | 6.68 | 7.85 | 6.87 | 6.79 | 30.41 | 9.32 | 9.85 |
| Er | 0.72 | 0.81 | 0.74 | 0.73 | 3.21 | 1.02 | 1.08 |
| Tm | 0.10 | 0.11 | 0.11 | 0.11 | 0.45 | 0.14 | 0.15 |
| Yb | 0.74 | 0.80 | 0.75 | 0.76 | 3.01 | 0.99 | 1.03 |
| Lu | 0.11 | 0.12 | 0.12 | 0.12 | 0.43 | 0.15 | 0.16 |

(continued)

**Table 10.1** (continued)

| No | 16 | 17 | 18 | 19 | 20 | 21 | 21 |
|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,032.3 | OM-4/1,032.7 | OM-4/1,037.4 | OM-4/1,042.4 | OM-4/1,046.2 | OM-4/1,047.5 | OM-4/1,050.4 |
| $SiO_2$ | 43.80 | 43.30 | 43.08 | 42.74 | 43.79 | 44.01 | 44.45 |
| $TiO_2$ | 0.44 | 0.36 | 0.45 | 0.45 | 0.45 | 0.52 | 0.50 |
| $Al_2O_3$ | 7.43 | 5.75 | 6.30 | 7.32 | 7.28 | 8.23 | 9.59 |
| FeO | 14.46 | 15.55 | 15.89 | 16.05 | 14.90 | 14.86 | 13.75 |
| MnO | 0.22 | 0.21 | 0.22 | 0.23 | 0.23 | 0.23 | 0.21 |
| MgO | 27.30 | 29.62 | 28.77 | 26.48 | 26.54 | 24.99 | 23.65 |
| CaO | 5.34 | 4.80 | 4.70 | 5.28 | 5.47 | 5.67 | 6.71 |
| $Na_2O$ | 0.57 | 0.40 | 0.41 | 0.70 | 0.61 | 0.65 | 0.85 |
| $K_2O$ | 0.23 | 0.19 | 0.16 | 0.20 | 0.23 | 0.32 | 0.24 |
| $P_2O_5$ | 0.04 | 0.05 | 0.04 | 0.07 | 0.05 | 0.06 | 0.06 |
| Total | 99.84 | 100.24 | 100.03 | 99.52 | 99.55 | 99.55 | 100.03 |
| Rb | 6.1 | 7.0 | 5.7 | 5.6 | 6.5 | 11.7 | 8.0 |
| Ba | 72 | 73 | 90 | 92 | 126 | 127 | 103 |
| Th | 0.26 | 0.38 | 0.42 | 0.39 | 0.44 | 0.49 | 0.42 |
| U | 0.09 | 0.13 | 0.14 | 0.14 | 0.14 | 0.17 | 0.17 |
| Nb | 1.24 | 1.72 | 2.44 | 1.49 | 1.76 | 2.03 | 1.82 |
| Ta | 0.11 | 0.12 | 0.18 | 0.11 | 0.14 | 0.16 | 0.15 |
| La | 2.30 | 2.30 | 3.33 | 3.11 | 3.65 | 3.94 | 3.25 |
| Ce | 5.17 | 5.53 | 7.66 | 6.93 | 8.08 | 8.76 | 7.30 |
| Pr | 0.72 | 0.77 | 1.03 | 0.93 | 1.09 | 1.16 | 0.98 |
| Nd | 3.48 | 3.71 | 4.81 | 4.35 | 5.15 | 5.41 | 4.63 |
| Sr | 95 | 100 | 90 | 101 | 118 | 122 | 142 |
| Sm | 1.00 | 1.04 | 1.30 | 1.17 | 1.45 | 1.52 | 1.28 |
| Zr | 25.1 | 36.7 | 34.0 | 30.2 | 32.4 | 38.4 | 36.4 |
| Hf | 0.65 | 0.94 | 0.93 | 0.81 | 0.82 | 1.01 | 0.93 |
| Eu | 0.39 | 0.36 | 0.45 | 0.47 | 0.57 | 0.55 | 0.50 |
| Ti | 2,093 | 2,813 | 3,760 | 2,669 | 2,703 | 3,195 | 3,010 |
| Gd | 1.29 | 1.33 | 1.61 | 1.49 | 1.80 | 1.83 | 1.60 |
| Tb | 0.22 | 0.22 | 0.27 | 0.24 | 0.30 | 0.31 | 0.26 |
| Dy | 1.45 | 1.53 | 1.80 | 1.64 | 2.02 | 2.07 | 1.79 |
| Ho | 0.31 | 0.32 | 0.37 | 0.35 | 0.42 | 0.43 | 0.37 |
| Y | 8.60 | 8.81 | 10.10 | 9.41 | 11.65 | 11.87 | 10.27 |
| Er | 0.95 | 0.97 | 1.08 | 1.02 | 1.23 | 1.25 | 1.10 |
| Tm | 0.14 | 0.14 | 0.15 | 0.15 | 0.18 | 0.18 | 0.16 |
| Yb | 0.91 | 0.97 | 1.06 | 0.96 | 1.21 | 1.24 | 1.08 |
| Lu | 0.14 | 0.15 | 0.16 | 0.15 | 0.18 | 0.19 | 0.16 |

| No | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,054.7 | OM-4/1,062 | OM-4/1,095 | OM-4/1,097.2 | OM-24/506.2 | OM-24/512.2 | OM-24/529.5 |
| $SiO_2$ | 45.01 | 48.26 | 47.70 | 49.58 | 56.60 | 57.45 | 54.02 |
| $TiO_2$ | 0.65 | 1.78 | 1.14 | 1.11 | 1.79 | 1.67 | 1.93 |
| $Al_2O_3$ | 9.63 | 14.40 | 15.89 | 14.26 | 13.39 | 13.14 | 13.07 |
| FeO | 13.73 | 13.75 | 11.55 | 11.34 | 14.13 | 14.45 | 17.84 |
| MnO | 0.23 | 0.24 | 0.25 | 0.69 | 0.30 | 0.26 | 0.30 |
| MgO | 22.13 | 6.32 | 7.17 | 6.72 | 3.09 | 2.50 | 3.14 |
| CaO | 6.81 | 11.00 | 11.25 | 10.55 | 5.18 | 5.29 | 5.86 |
| $Na_2O$ | 1.00 | 2.57 | 2.13 | 2.06 | 4.01 | 3.37 | 2.80 |
| $K_2O$ | 0.38 | 0.41 | 0.58 | 0.51 | 1.59 | 1.36 | 0.54 |
| $P_2O_5$ | 0.07 | 0.24 | 0.14 | 0.15 | 0.36 | 0.49 | 0.46 |
| Total | 99.65 | 98.97 | 97.85 | 97.03 | 100.44 | 99.99 | 99.96 |
| Rb | 12.5 | 10.4 | 17.5 | 17.8 | 43.7 | 33.9 | 12.8 |
| Ba | 155 | 146 | 214 | 245 | 465 | 392 | 254 |
| Th | 0.52 | 1.43 | 0.87 | 1.10 | 3.68 | 5.07 | 5.29 |
| U | 0.20 | 0.65 | 0.37 | 0.54 | 1.19 | 1.74 | 1.85 |
| Nb | 2.25 | 6.03 | 4.07 | 4.02 | 15.29 | 16.65 | 17.68 |
| Ta | 0.16 | 0.40 | 0.25 | 0.25 | 0.93 | 0.98 | 1.06 |
| La | 4.09 | 10.29 | 6.98 | 4.97 | 25.04 | 29.89 | 29.19 |
| Ce | 9.06 | 23.98 | 16.28 | 12.70 | 54.60 | 67.03 | 65.07 |
| Pr | 1.22 | 3.38 | 2.24 | 1.92 | 7.38 | 9.00 | 8.81 |
| Nd | 5.74 | 16.31 | 10.78 | 9.70 | 34.23 | 41.46 | 40.67 |
| Sr | 158 | 215 | 247 | 220 | 168 | 287 | 276 |
| Sm | 1.63 | 4.68 | 2.97 | 2.85 | 8.75 | 10.60 | 10.61 |
| Zr | 45.5 | 129.4 | 68.8 | 78.6 | 299.8 | 336.3 | 347.9 |
| Hf | 1.24 | 3.29 | 1.74 | 2.01 | 7.19 | 8.47 | 8.86 |
| Eu | 0.62 | 1.63 | 1.22 | 1.14 | 2.53 | 2.99 | 2.87 |
| Ti | 4,008 | 10,237 | 6,497 | 6,352 | 11,434 | 10,189 | 11,934 |
| Gd | 2.01 | 5.68 | 3.63 | 3.71 | 10.11 | 12.29 | 12.37 |
| Tb | 0.34 | 0.98 | 0.61 | 0.62 | 1.67 | 2.04 | 2.05 |
| Dy | 2.27 | 6.40 | 4.08 | 4.10 | 11.23 | 13.38 | 13.67 |
| Ho | 0.48 | 1.37 | 0.85 | 0.84 | 2.29 | 2.78 | 2.84 |
| Y | 12.84 | 34.77 | 21.09 | 21.84 | 62.02 | 76.93 | 77.16 |
| Er | 1.39 | 3.73 | 2.28 | 2.37 | 6.85 | 8.17 | 8.47 |
| Tm | 0.20 | 0.52 | 0.31 | 0.33 | 1.00 | 1.17 | 1.22 |
| Yb | 1.39 | 3.69 | 2.23 | 2.30 | 6.87 | 8.09 | 8.49 |
| Lu | 0.21 | 0.53 | 0.32 | 0.33 | 1.01 | 1.19 | 1.26 |

(continued)

**Table 10.1** (continued)

| No | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
|---|---|---|---|---|---|---|---|
| No sample | OM-24/537.8 | OM-24/544.8 | OM-24/565.9 | OM-24/575.5 | OM-24/584.5 | OM-24/597.4 | OM-24/608 |
| $SiO_2$ | 46.35 | 54.73 | 53.66 | 49.85 | 50.65 | 48.58 | 46.29 |
| $TiO_2$ | 2.05 | 1.81 | 2.29 | 2.74 | 2.70 | 2.37 | 2.75 |
| $Al_2O_3$ | 13.41 | 13.00 | 13.21 | 11.87 | 12.81 | 12.48 | 12.72 |
| FeO | 18.36 | 16.84 | 16.19 | 18.92 | 17.27 | 17.10 | 19.57 |
| MnO | 0.18 | 0.33 | 0.28 | 0.27 | 0.29 | 0.26 | 0.27 |
| MgO | 6.27 | 1.98 | 3.61 | 4.60 | 4.41 | 5.86 | 5.55 |
| CaO | 11.16 | 5.86 | 6.05 | 8.06 | 8.52 | 10.23 | 10.31 |
| $Na_2O$ | 2.14 | 3.22 | 3.68 | 2.83 | 2.70 | 2.58 | 2.21 |
| $K_2O$ | 0.42 | 1.55 | 1.24 | 0.66 | 0.58 | 0.55 | 0.33 |
| $P_2O_5$ | 0.07 | 0.55 | 0.16 | 0.23 | 0.08 | 0.14 | 0.12 |
| Total | 100.41 | 99.88 | 100.39 | 100.04 | 100.04 | 100.14 | 100.14 |
| Rb | 9.3 | 39.6 | 32.0 | 18.3 | 13.0 | 13.2 | 6.6 |
| Ba | 117 | 550 | 354 | 192 | 185 | 183 | 186 |
| Th | 0.99 | 5.81 | 2.82 | 2.15 | 1.97 | 1.56 | 1.19 |
| U | 0.29 | 2.03 | 0.91 | 0.74 | 0.58 | 0.48 | 0.41 |
| Nb | 3.33 | 19.37 | 10.53 | 7.54 | 7.33 | 4.61 | 4.29 |
| Ta | 0.21 | 1.15 | 0.64 | 0.46 | 0.45 | 0.29 | 0.26 |
| La | 6.92 | 35.95 | 19.18 | 12.12 | 13.01 | 9.01 | 7.75 |
| Ce | 15.06 | 78.75 | 42.31 | 27.59 | 27.54 | 20.61 | 17.41 |
| Pr | 2.06 | 10.46 | 5.71 | 3.84 | 3.83 | 2.86 | 2.46 |
| Nd | 9.72 | 47.74 | 26.74 | 18.06 | 17.95 | 13.57 | 11.77 |
| Sr | 200 | 168 | 268 | 233 | 251 | 243 | 458 |
| Sm | 2.72 | 12.17 | 7.05 | 5.01 | 5.02 | 3.83 | 3.42 |
| Zr | 71.6 | 395.3 | 201.6 | 137.7 | 151.1 | 108.7 | 95.8 |
| Hf | 2.00 | 9.72 | 5.12 | 3.63 | 3.98 | 2.94 | 2.53 |
| Eu | 0.94 | 3.43 | 2.28 | 1.62 | 1.62 | 1.35 | 1.22 |
| Ti | 12,590 | 11,183 | 14,391 | 17,246 | 16,672 | 12,254 | 16,469 |
| Gd | 3.46 | 14.21 | 8.52 | 6.17 | 6.02 | 4.87 | 4.27 |
| Tb | 0.59 | 2.32 | 1.38 | 1.02 | 1.01 | 0.81 | 0.71 |
| Dy | 3.87 | 15.55 | 9.28 | 6.86 | 6.80 | 5.54 | 4.78 |
| Ho | 0.82 | 3.18 | 1.93 | 1.41 | 1.39 | 1.16 | 0.99 |
| Y | 22.02 | 87.95 | 52.50 | 38.59 | 38.57 | 31.13 | 27.04 |
| Er | 2.39 | 9.44 | 5.67 | 4.17 | 4.15 | 3.41 | 2.91 |
| Tm | 0.35 | 1.35 | 0.80 | 0.61 | 0.61 | 0.50 | 0.42 |
| Yb | 2.45 | 9.21 | 5.58 | 4.10 | 4.22 | 3.42 | 2.83 |
| Lu | 0.35 | 1.38 | 0.81 | 0.61 | 0.62 | 0.51 | 0.42 |

| No | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
|---|---|---|---|---|---|---|---|
| No sample | OM-24/616.5 | OM-24/647.2 | OM-24/650.8 | OM-24/655.8 | OM-24/676.7 | OM-24/688.2 | OM-24/696.7 |
| $SiO_2$ | 45.40 | 50.78 | 51.59 | 51.27 | 50.49 | 51.18 | 51.11 |
| $TiO_2$ | 2.79 | 1.13 | 0.96 | 1.08 | 1.03 | 1.14 | 1.10 |
| $Al_2O_3$ | 11.97 | 14.67 | 14.10 | 13.76 | 15.66 | 14.39 | 15.14 |
| FeO | 20.51 | 11.30 | 10.30 | 11.00 | 10.44 | 10.21 | 10.43 |
| MnO | 0.26 | 0.21 | 0.17 | 0.20 | 0.20 | 0.20 | 0.17 |
| MgO | 5.97 | 6.89 | 7.23 | 7.17 | 7.04 | 7.20 | 7.09 |
| CaO | 10.95 | 12.31 | 11.73 | 12.31 | 12.85 | 13.15 | 12.26 |
| $Na_2O$ | 2.14 | 2.43 | 2.91 | 2.76 | 2.18 | 2.17 | 2.32 |
| $K_2O$ | 0.35 | 0.38 | 0.91 | 0.59 | 0.35 | 0.38 | 0.44 |
| $P_2O_5$ | 0.11 | 0.12 | 0.10 | 0.12 | 0.09 | 0.10 | 0.13 |
| Total | 100.46 | 100.21 | 100.00 | 100.27 | 100.35 | 100.13 | 100.20 |
| Rb | 6.8 | 8.6 | 23.9 | 17.8 | 7.0 | 8.1 | 9.7 |
| Ba | 143 | 123 | 149 | 144 | 112 | 131 | 141 |
| Th | 1.05 | 1.06 | 1.02 | 1.02 | 1.06 | 1.15 | 1.32 |
| U | 0.33 | 0.39 | 0.36 | 0.36 | 0.37 | 0.41 | 0.46 |
| Nb | 3.61 | 3.71 | 3.57 | 3.57 | 3.75 | 3.91 | 4.39 |
| Ta | 0.23 | 0.23 | 0.21 | 0.21 | 0.22 | 0.23 | 0.27 |
| La | 6.66 | 7.14 | 6.81 | 6.60 | 7.01 | 7.24 | 8.12 |
| Ce | 15.34 | 16.22 | 15.46 | 15.37 | 16.08 | 16.94 | 18.62 |
| Pr | 2.16 | 2.24 | 2.15 | 2.14 | 2.19 | 2.34 | 2.57 |
| Nd | 10.52 | 10.69 | 10.29 | 10.32 | 10.45 | 10.99 | 12.16 |
| Sr | 311 | 232 | 223 | 241 | 241 | 237 | 244 |
| Sm | 3.06 | 2.97 | 2.93 | 2.96 | 2.91 | 3.10 | 3.37 |
| Zr | 80.7 | 80.4 | 75.6 | 73.8 | 76.2 | 78.9 | 92.9 |
| Hf | 2.22 | 2.18 | 2.02 | 2.00 | 2.03 | 2.13 | 2.46 |
| Eu | 1.02 | 1.05 | 1.03 | 1.05 | 1.03 | 1.07 | 1.13 |
| Ti | 15,932 | 6,951 | 6,798 | 6,480 | 6,684 | 7,010 | 6,895 |
| Gd | 3.91 | 3.76 | 3.68 | 3.67 | 3.52 | 3.83 | 4.13 |
| Tb | 0.66 | 0.63 | 0.63 | 0.62 | 0.60 | 0.64 | 0.69 |
| Dy | 4.48 | 4.24 | 4.29 | 4.15 | 4.01 | 4.24 | 4.61 |
| Ho | 0.93 | 0.88 | 0.88 | 0.84 | 0.83 | 0.88 | 0.96 |
| Y | 24.62 | 23.28 | 23.56 | 22.65 | 22.09 | 23.43 | 25.55 |
| Er | 2.69 | 2.55 | 2.58 | 2.49 | 2.41 | 2.59 | 2.83 |
| Tm | 0.39 | 0.37 | 0.37 | 0.35 | 0.35 | 0.36 | 0.41 |
| Yb | 2.62 | 2.52 | 2.47 | 2.43 | 2.36 | 2.53 | 2.68 |
| Lu | 0.39 | 0.37 | 0.37 | 0.36 | 0.34 | 0.37 | 0.40 |

(continued)

**Table 10.1** (continued)

| No | 43 | 44 | 45 | 46 | 47 | 48 | 49 |
|---|---|---|---|---|---|---|---|
| No sample | OM-24/705.4 | OM-24/717.9 | OM-24/733 | OM-24/758.6 | OM-24/769.8 | OM-24/789.9 | OM-24/803.3 |
| $SiO_2$ | 50.31 | 50.50 | 50.43 | 50.05 | 49.39 | 48.76 | 48.37 |
| $TiO_2$ | 1.15 | 1.08 | 0.94 | 1.04 | 0.85 | 0.75 | 0.80 |
| $Al_2O_3$ | 15.04 | 14.45 | 15.96 | 15.85 | 18.80 | 18.36 | 16.91 |
| FeO | 10.73 | 10.73 | 9.55 | 9.85 | 9.42 | 9.15 | 10.10 |
| MnO | 0.16 | 0.18 | 0.18 | 0.17 | 0.13 | 0.14 | 0.17 |
| MgO | 7.21 | 7.49 | 7.33 | 7.77 | 7.59 | 9.53 | 11.20 |
| CaO | 13.10 | 13.25 | 13.00 | 12.98 | 12.00 | 11.53 | 10.77 |
| $Na_2O$ | 2.20 | 2.12 | 2.23 | 2.15 | 2.16 | 2.07 | 1.95 |
| $K_2O$ | 0.35 | 0.29 | 0.38 | 0.31 | 0.30 | 0.30 | 0.44 |
| $P_2O_5$ | 0.13 | 0.12 | 0.09 | 0.10 | 0.08 | 0.09 | 0.10 |
| Total | 100.38 | 100.23 | 100.09 | 100.28 | 100.74 | 100.70 | 100.83 |
| Rb | 7.8 | 6.7 | 7.1 | 6.3 | 7.3 | 7.6 | 11.1 |
| Ba | 118 | 100 | 135 | 106 | 96 | 86 | 99 |
| Th | 1.04 | 0.91 | 0.89 | 1.01 | 0.81 | 0.78 | 0.74 |
| U | 0.35 | 0.32 | 0.32 | 0.33 | 0.27 | 0.27 | 0.27 |
| Nb | 3.64 | 3.62 | 3.22 | 3.27 | 2.86 | 2.65 | 3.07 |
| Ta | 0.22 | 0.22 | 0.20 | 0.20 | 0.17 | 0.16 | 0.18 |
| La | 6.93 | 6.58 | 6.15 | 6.16 | 5.84 | 5.65 | 5.35 |
| Ce | 15.79 | 15.22 | 14.09 | 14.07 | 13.41 | 12.56 | 12.38 |
| Pr | 2.20 | 2.13 | 1.93 | 1.94 | 1.79 | 1.68 | 1.70 |
| Nd | 10.53 | 10.27 | 9.23 | 9.31 | 8.39 | 7.84 | 8.01 |
| Sr | 234 | 213 | 248 | 212 | 238 | 237 | 220 |
| Sm | 2.95 | 2.90 | 2.55 | 2.65 | 2.29 | 2.09 | 2.15 |
| Zr | 77.0 | 69.1 | 70.8 | 71.7 | 56.3 | 57.3 | 56.7 |
| Hf | 2.08 | 1.85 | 1.81 | 1.90 | 1.49 | 1.52 | 1.51 |
| Eu | 1.05 | 1.02 | 0.96 | 0.93 | 0.81 | 0.79 | 0.78 |
| Ti | 6,802 | 6,867 | 6,049 | 6,197 | 5,207 | 4,552 | 4,840 |
| Gd | 3.67 | 3.60 | 3.10 | 3.30 | 2.68 | 2.48 | 2.59 |
| Tb | 0.62 | 0.60 | 0.53 | 0.55 | 0.46 | 0.42 | 0.44 |
| Dy | 4.21 | 4.08 | 3.54 | 3.70 | 2.96 | 2.84 | 2.89 |
| Ho | 0.86 | 0.84 | 0.74 | 0.76 | 0.62 | 0.58 | 0.59 |
| Y | 23.02 | 22.28 | 19.76 | 20.38 | 16.35 | 15.41 | 15.91 |
| Er | 2.51 | 2.41 | 2.16 | 2.25 | 1.79 | 1.71 | 1.76 |
| Tm | 0.36 | 0.35 | 0.31 | 0.32 | 0.25 | 0.25 | 0.25 |
| Yb | 2.42 | 2.35 | 2.10 | 2.15 | 1.73 | 1.65 | 1.77 |
| Lu | 0.36 | 0.34 | 0.31 | 0.32 | 0.25 | 0.24 | 0.26 |

Note: (1) No analyses: 1–25 – Northern Maslovsky. 26–49 – Southern Maslovsky. Here and in Tables 10.2, 10.3 after Krivolutskaya et al. (2012)

**Table 10.2** Olivine composition from intrusive rocks of the Maslovsky and Noril'sk 1 deposits

| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,006 | OM-4/1,006 | OM-4/1,006 | OM-4/1,006 | OM-4/1,006 | OM-4/1,006 | OM-4/1,010.8 | OM-4/1,010.8 | OM-4/1,010.8 | OM-4/1,010.8 | OM-4/1,010.8 | OM-4/1,010.8 |
| *Fo*,mol.% | 80.64 | 79.98 | 80.34 | 80.75 | 79.96 | 80.89 | 79.75 | 79.85 | 79.98 | 79.91 | 79.83 | 80.01 |
| $SiO_2$ | 39.06 | 39.24 | 39.15 | 39.47 | 39.35 | 39.43 | 39.16 | 39.08 | 39.23 | 39.12 | 39.21 | 39.34 |
| $TiO_2$ | 0.02 | 0.03 | 0.03 | 0.02 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 |
| $Al_2O_3$ | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.00 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 |
| FeO | 18.26 | 18.85 | 18.57 | 18.17 | 18.88 | 18.09 | 19.01 | 18.90 | 18.82 | 18.96 | 19.00 | 18.94 |
| MnO | 0.28 | 0.29 | 0.28 | 0.28 | 0.29 | 0.27 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| MgO | 42.65 | 42.22 | 42.58 | 42.76 | 42.25 | 42.96 | 41.99 | 42.02 | 42.16 | 42.29 | 42.17 | 42.51 |
| CaO | 0.13 | 0.10 | 0.10 | 0.11 | 0.14 | 0.13 | 0.11 | 0.12 | 0.10 | 0.09 | 0.16 | 0.11 |
| NiO | 0.21 | 0.26 | 0.23 | 0.22 | 0.24 | 0.22 | 0.24 | 0.24 | 0.24 | 0.23 | 0.25 | 0.28 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Total | 100.70 | 101.06 | 101.01 | 101.11 | 101.25 | 101.22 | 100.91 | 100.76 | 100.95 | 101.07 | 101.18 | 101.56 |
| Sr | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| Y | 0.71 | 1.19 | 0.77 | 0.54 | 1.64 | 0.42 | 1.57 | 1.28 | 1.03 | 0.73 | 1.45 | 0.73 |
| Dy | 0.07 | 0.08 | 0.07 | 0.04 | 0.15 | 0.03 | 0.13 | 0.09 | 0.09 | 0.06 | 0.13 | 0.05 |
| Ho | 0.02 | 0.03 | 0.02 | 0.01 | 0.05 | 0.01 | 0.05 | 0.04 | 0.03 | 0.02 | 0.05 | 0.02 |
| Er | 0.10 | 0.21 | 0.12 | 0.08 | 0.27 | 0.07 | 0.27 | 0.19 | 0.15 | 0.12 | 0.23 | 0.11 |
| Tm | 0.02 | 0.05 | 0.03 | 0.02 | 0.05 | 0.01 | 0.05 | 0.05 | 0.03 | 0.03 | 0.05 | 0.03 |
| Yb | 0.19 | 0.45 | 0.28 | 0.13 | 0.49 | 0.13 | 0.52 | 0.54 | 0.32 | 0.29 | 0.44 | 0.29 |
| Lu | 0.04 | 0.08 | 0.05 | 0.03 | 0.09 | 0.03 | 0.10 | 0.09 | 0.06 | 0.05 | 0.08 | 0.05 |
| Ni | 1,751 | 2,111 | 1,811 | 1,771 | 2,001 | 1,808 | 1,940 | 1,996 | 1,888 | 1,871 | 1,961 | 2,217 |
| Ti | 159 | 210 | 182 | 145 | 208 | 123 | 209 | 215 | 217 | 199 | 151 | 198 |
| Cu | 0.83 | 0.79 | 0.77 | 0.85 | 0.85 | 0.78 | 0.91 | 0.81 | 0.78 | 0.74 | 1.04 | 0.83 |
| Zn | 112 | 120 | 116 | 114 | 125 | 114 | 125 | 122 | 121 | 125 | 127 | 124 |
| Mn | 2,200 | 2,298 | 2,227 | 2,202 | 2,282 | 2,150 | 2,273 | 2,275 | 2,245 | 2,267 | 2,287 | 2,292 |
| Sc | 9.11 | 9.42 | 8.29 | 7.81 | 9.01 | 8.27 | 9.60 | 8.71 | 8.13 | 7.01 | 9.43 | 7.93 |
| Al | 146.53 | 86.90 | 99.56 | 79.73 | 79.88 | 80.50 | 80.07 | 79.73 | 80.21 | 80.90 | 79.64 | 79.89 |
| Zr | 0.175 | 0.25 | 0.25 | 0.17 | 0.19 | 0.10 | 0.19 | 0.35 | 0.24 | 0.18 | 0.12 | 0.32 |
| Co | 182 | 172 | 182 | 181 | 178 | 181 | 181 | 179 | 184 | 185 | 182 | 173 |
| Ge | 0.78 | 0.89 | 0.81 | 0.66 | 0.79 | 0.85 | 0.85 | 0.78 | 0.80 | 0.84 | 0.77 | 0.73 |
| V | 9.40 | 7.58 | 7.84 | 7.28 | 8.36 | 8.53 | 9.74 | 8.36 | 9.23 | 8.86 | 12.31 | 8.26 |
| Li | 5.63 | 4.47 | 4.63 | 3.69 | 4.76 | 3.74 | 5.02 | 4.40 | 5.08 | 4.14 | 4.90 | 4.01 |

(continued)

**Table 10.2** (continued)

| No | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No обр. | OM-4/1,010.8 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 | OM-4/1,015 |
| *Fo*,mol.% | 79.83 | 79.42 | 79.50 | 79.56 | 80.19 | 79.63 | 79.89 | 79.79 | 79.51 | 79.82 | 79.95 |
| $SiO_2$ | 39.15 | 39.12 | 39.07 | 39.00 | 39.27 | 39.25 | 39.32 | 39.29 | 39.17 | 39.16 | 39.21 |
| $TiO_2$ | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 |
| $Al_2O_3$ | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| FeO | 18.94 | 19.32 | 19.23 | 19.14 | 18.65 | 19.18 | 18.96 | 19.03 | 19.18 | 19.02 | 18.90 |
| MnO | 0.29 | 0.28 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
| MgO | 42.04 | 41.83 | 41.82 | 41.78 | 42.33 | 42.07 | 42.24 | 42.14 | 41.75 | 42.20 | 42.29 |
| CaO | 0.14 | 0.11 | 0.11 | 0.11 | 0.13 | 0.11 | 0.14 | 0.11 | 0.17 | 0.11 | 0.15 |
| NiO | 0.23 | 0.28 | 0.26 | 0.25 | 0.24 | 0.27 | 0.25 | 0.23 | 0.26 | 0.26 | 0.24 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Total | 100.88 | 101.04 | 100.88 | 100.67 | 100.99 | 101.26 | 101.31 | 101.18 | 100.91 | 101.15 | 101.16 |
| Sr | 0.00 | 0.004 | 0.00 | 0.00 | 0.005 | 0.00 | 0.005 | 0.002 | 0.005 | 0.004 | 0.003 |
| Y | 1.33 | 1.86 | 1.63 | 1.49 | 0.65 | 1.56 | 1.60 | 1.45 | 1.43 | 1.04 | 0.82 |
| Dy | 0.12 | 0.16 | 0.13 | 0.12 | 0.06 | 0.12 | 0.14 | 0.11 | 0.12 | 0.08 | 0.07 |
| Ho | 0.04 | 0.06 | 0.04 | 0.04 | 0.02 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 |
| Er | 0.22 | 0.31 | 0.25 | 0.23 | 0.12 | 0.26 | 0.24 | 0.22 | 0.23 | 0.16 | 0.13 |
| Tm | 0.04 | 0.07 | 0.05 | 0.05 | 0.02 | 0.07 | 0.04 | 0.05 | 0.05 | 0.04 | 0.03 |
| Yb | 0.48 | 0.66 | 0.57 | 0.55 | 0.21 | 0.58 | 0.45 | 0.50 | 0.46 | 0.33 | 0.29 |
| Lu | 0.08 | 0.12 | 0.10 | 0.10 | 0.04 | 0.10 | 0.08 | 0.09 | 0.09 | 0.07 | 0.05 |
| Ni | 1,868 | 2,173 | 2,022 | 1,893 | 1,874 | 2,148 | 1,976 | 1,886 | 2,010 | 2,146 | 2,001 |
| Ti | 160 | 220 | 220 | 205 | 173 | 200 | 175 | 217 | 176 | 216 | 170 |
| Cu | 1.03 | 0.82 | 0.74 | 0.75 | 0.84 | 0.72 | 0.95 | 0.78 | 0.83 | 0.79 | 0.69 |
| Zn | 123 | 134 | 139 | 126 | 125 | 130 | 127 | 125 | 131 | 128 | 123 |
| Mn | 2,285 | 2,238 | 2,252 | 2,233 | 2,224 | 2,267 | 2,250 | 2,248 | 2,276 | 2,246 | 2,231 |
| Sc | 9.39 | 9.68 | 8.83 | 8.07 | 7.84 | 8.99 | 9.70 | 8.73 | 8.74 | 7.81 | 6.84 |
| Al | 79.98 | 79.63 | 79.74 | 79.84 | 80.17 | 79.74 | 79.57 | 79.64 | 107.17 | 96.72 | 100.38 |
| Zr | 0.13 | 0.18 | 0.25 | 0.21 | 0.15 | 0.19 | 0.13 | 0.20 | 0.08 | 0.22 | 0.13 |
| Co | 185 | 177 | 180 | 175 | 181 | 177 | 181 | 183 | 186 | 181 | 182 |
| Ge | 0.87 | 0.84 | 0.89 | 0.86 | 0.81 | 0.85 | 0.80 | 0.82 | 0.81 | 0.81 | 0.82 |
| V | 10.79 | 15.54 | 14.09 | 11.81 | 10.29 | 13.54 | 15.31 | 14.67 | 15.52 | 12.72 | 6.44 |
| Li | 4.19 | 4.46 | 5.43 | 4.26 | 2.90 | 2.74 | 4.64 | 4.22 | 3.99 | 4.55 | 3.45 |

| No | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,020.2 | OM-4/1,020.2 | OM-4/1,020.2 | OM-4/1,020.2 | OM-4/1,020.2 | OM-4/1,020.2 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 |
| *Fo*, mol.% | 79.72 | 79.60 | 79.20 | 79.38 | 79.15 | 79.55 | 79.66 | 79.97 | 79.52 | 79.58 | 79.89 | 79.57 |
| $SiO_2$ | 39.19 | 39.32 | 39.20 | 38.93 | 39.15 | 39.11 | 39.23 | 39.19 | 39.09 | 39.19 | 39.12 | 39.04 |
| $TiO_2$ | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 |
| $Al_2O_3$ | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.009 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| FeO | 19.06 | 19.26 | 19.52 | 19.32 | 19.58 | 19.18 | 19.15 | 18.88 | 19.19 | 19.20 | 18.90 | 19.17 |
| MnO | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.29 |
| MgO | 42.03 | 42.13 | 41.68 | 41.72 | 41.68 | 41.84 | 42.06 | 42.27 | 41.78 | 41.98 | 42.13 | 41.87 |
| CaO | 0.14 | 0.13 | 0.13 | 0.12 | 0.15 | 0.14 | 0.15 | 0.12 | 0.14 | 0.12 | 0.14 | 0.12 |
| NiO | 0.25 | 0.25 | 0.27 | 0.25 | 0.25 | 0.26 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Total | 101.07 | 101.49 | 101.19 | 100.72 | 101.20 | 100.92 | 101.21 | 101.08 | 100.82 | 101.12 | 100.91 | 100.84 |
| Sr | 0.007 | 0.005 | 0.005 | 0.002 | 0.004 | 0.005 | 0.000 | 0.000 | 0.006 | 0.007 | 0.18 | 0.006 |
| Y | 1.30 | 1.60 | 1.81 | 1.54 | 1.56 | 1.48 | 1.98 | 0.40 | 1.87 | 2.07 | 0.64 | 2.10 |
| Dy | 0.11 | 0.14 | 0.17 | 0.10 | 0.14 | 0.14 | 0.19 | 0.02 | 0.17 | 0.16 | 0.04 | 0.16 |
| Ho | 0.04 | 0.05 | 0.06 | 0.04 | 0.05 | 0.05 | 0.06 | 0.01 | 0.06 | 0.06 | 0.02 | 0.06 |
| Er | 0.22 | 0.27 | 0.31 | 0.22 | 0.24 | 0.24 | 0.30 | 0.06 | 0.28 | 0.31 | 0.10 | 0.30 |
| Tm | 0.04 | 0.05 | 0.06 | 0.06 | 0.05 | 0.05 | 0.06 | 0.01 | 0.06 | 0.06 | 0.02 | 0.06 |
| Yb | 0.43 | 0.51 | 0.64 | 0.57 | 0.53 | 0.47 | 0.48 | 0.16 | 0.55 | 0.60 | 0.22 | 0.62 |
| Lu | 0.07 | 0.09 | 0.12 | 0.10 | 0.09 | 0.08 | 0.08 | 0.03 | 0.10 | 0.10 | 0.04 | 0.10 |
| Ni | 1,974 | 1,978 | 2,099 | 1,965 | 1,925 | 2,051 | 1,874 | 1,902 | 1,913 | 1,945 | 1,899 | 2,020 |
| Ti | 124 | 223 | 212 | 224 | 153 | 192 | 207 | 172 | 207 | 240 | 213 | 225 |
| Cu | 1.12 | 1.24 | 1.12 | 0.91 | 1.16 | 1.06 | 0.88 | 0.71 | 1.00 | 0.73 | 0.78 | 0.89 |
| Zn | 143 | 149 | 143 | 142 | 144 | 141 | 161 | 155 | 158 | 156 | 153 | 158 |
| Mn | 2,258 | 2,282 | 2,289 | 2,254 | 2,239 | 2,271 | 2,192 | 2,162 | 2,196 | 2,208 | 2,168 | 2,238 |
| Sc | 9.77 | 9.55 | 10.41 | 9.26 | 9.93 | 8.68 | 10.29 | 8.11 | 11.12 | 10.09 | 7.52 | 10.03 |
| Al | 138.23 | 85.02 | 84.16 | 81.36 | 103.12 | 84.69 | 89.85 | 103.20 | 99.35 | 86.02 | 140.50 | 82.30 |
| Zr | 0.15 | 0.16 | 0.15 | 0.22 | 0.09 | 0.12 | 0.17 | 0.10 | 0.14 | 0.21 | 0.24 | 0.18 |
| Co | 194 | 193 | 181 | 190 | 189 | 188 | 192 | 190 | 195 | 193 | 192 | 190 |
| Ge | 0.90 | 0.87 | 0.74 | 0.87 | 0.85 | 0.92 | 0.84 | 0.87 | 0.87 | 0.88 | 0.80 | 0.80 |
| V | 15.70 | 18.24 | 16.26 | 15.19 | 17.06 | 15.48 | 21.52 | 13.86 | 20.07 | 19.67 | 13.43 | 17.78 |
| Li | 4.20 | 5.75 | 5.51 | 4.65 | 4.13 | 4.39 | 4.71 | 3.34 | 5.41 | 4.59 | 2.50 | 4.45 |

(continued)

**Table 10.2** (continued)

| No | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,026.5 | OM-4/1,030.6 | OM-4/1,030.6 | OM-4/1,030.6 | OM-4/1,030.6 | OM-4/1,030.6 |
| *Fo*, mol.% | 79.60 | 79.81 | 79.54 | 79.76 | 79.75 | 79.73 | 79.07 | 79.25 | 79.26 | 79.03 | 79.37 |
| $SiO_2$ | 39.19 | 39.33 | 39.29 | 39.26 | 39.21 | 39.25 | 39.18 | 39.21 | 39.14 | 39.30 | 39.15 |
| $TiO_2$ | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 |
| $Al_2O_3$ | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 |
| FeO | 19.14 | 19.00 | 19.26 | 19.06 | 19.05 | 19.11 | 19.70 | 19.54 | 19.54 | 19.77 | 19.48 |
| MnO | 0.28 | 0.28 | 0.29 | 0.28 | 0.28 | 0.29 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 |
| MgO | 41.91 | 42.12 | 42.00 | 42.14 | 42.07 | 42.15 | 41.74 | 41.86 | 41.88 | 41.79 | 42.04 |
| CaO | 0.12 | 0.12 | 0.13 | 0.15 | 0.16 | 0.15 | 0.14 | 0.12 | 0.10 | 0.12 | 0.11 |
| NiO | 0.24 | 0.24 | 0.25 | 0.24 | 0.24 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.23 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Total | 101.00 | 101.21 | 101.32 | 101.26 | 101.13 | 101.28 | 101.37 | 101.37 | 101.28 | 101.58 | 101.39 |
| Sr | 0.007 | 0.001 | 0.005 | 0.005 | 0.004 | 0.011 | 0.006 | 0.002 | 0.014 | 0.001 | 0.000 |
| Y | 1.77 | 1.13 | 1.65 | 1.56 | 1.79 | 1.57 | 1.52 | 1.29 | 0.92 | 1.34 | 0.80 |
| Dy | 0.15 | 0.09 | 0.14 | 0.15 | 0.17 | 0.15 | 0.14 | 0.11 | 0.08 | 0.12 | 0.06 |
| Ho | 0.06 | 0.03 | 0.05 | 0.04 | 0.06 | 0.04 | 0.05 | 0.04 | 0.03 | 0.04 | 0.02 |
| Er | 0.25 | 0.17 | 0.26 | 0.24 | 0.25 | 0.24 | 0.23 | 0.20 | 0.15 | 0.22 | 0.14 |
| Tm | 0.05 | 0.03 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.03 | 0.05 | 0.02 |
| Yb | 0.51 | 0.35 | 0.58 | 0.46 | 0.55 | 0.46 | 0.51 | 0.43 | 0.36 | 0.50 | 0.30 |
| Lu | 0.09 | 0.06 | 0.10 | 0.07 | 0.10 | 0.08 | 0.09 | 0.07 | 0.06 | 0.09 | 0.06 |
| Ni | 1,96 | 1,959 | 1,975 | 1,886 | 2,037 | 1,892 | 1,782 | 1,829 | 1,804 | 1,787 | 1,798 |
| Ti | 201 | 205 | 218 | 209 | 183 | 213 | 196 | 183 | 214 | 217 | 187 |
| Cu | 0.89 | 0.89 | 0.89 | 0.91 | 0.89 | 0.89 | 0.76 | 0.77 | 0.59 | 0.72 | 0.55 |
| Zn | 154 | 154 | 155 | 147 | 158 | 151 | 132 | 130 | 134 | 136 | 136 |
| Mn | 2,180 | 2,228 | 2,229 | 2,187 | 2,248 | 2,242 | 2,329 | 2,300 | 2,315 | 2,317 | 2,322 |
| Sc | 9.18 | 9.25 | 10.45 | 9.41 | 9.38 | 9.18 | 8.52 | 8.54 | 7.47 | 9.16 | 7.17 |
| Al | 95.21 | 89.34 | 85.88 | 93.79 | 94.34 | 88.81 | 101.52 | 109.88 | 81.26 | 93.35 | 105.56 |
| Zr | 0.18 | 0.22 | 0.16 | 0.15 | 0.12 | 0.15 | 0.12 | 0.14 | 0.19 | 0.16 | 0.14 |
| Co | 195 | 195 | 189 | 191 | 184 | 193 | 183 | 183 | 184 | 183 | 183 |
| Ge | 0.87 | 0.90 | 0.88 | 0.78 | 0.87 | 0.83 | 0.82 | 0.93 | 0.77 | 0.85 | 0.71 |
| V | 17.72 | 17.24 | 17.24 | 17.42 | 19.81 | 19.62 | 16.54 | 16.98 | 14.06 | 17.67 | 11.79 |
| Li | 3.95 | 3.96 | 4.19 | 5.03 | 3.42 | 4.77 | 6.28 | 5.28 | 5.09 | 6.62 | 4.34 |

| No | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 |
|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,030.6 | OM-4/1,030.6 | OM-4/1,030.6 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 |
| *Fo*,mol.% | 79.08 | 78.89 | 79.12 | 78.95 | 77.98 | 79.24 | 78.29 | 79.25 | 78.48 | 78.25 |
| $SiO_2$ | 39.13 | 39.16 | 39.11 | 39.01 | 39.19 | 38.75 | 39.06 | 39.23 | 39.24 | 39.10 |
| $TiO_2$ | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| $Al_2O_3$ | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| FeO | 19.68 | 19.83 | 19.65 | 19.78 | 20.65 | 19.38 | 20.34 | 19.47 | 20.17 | 20.36 |
| MnO | 0.29 | 0.29 | 0.29 | 0.29 | 0.30 | 0.29 | 0.30 | 0.29 | 0.29 | 0.30 |
| MgO | 41.72 | 41.57 | 41.77 | 41.62 | 41.02 | 41.49 | 41.14 | 41.72 | 41.26 | 41.08 |
| CaO | 0.13 | 0.13 | 0.14 | 0.12 | 0.12 | 0.11 | 0.135 | 0.144 | 0.148 | 0.138 |
| NiO | 0.23 | 0.24 | 0.22 | 0.22 | 0.26 | 0.23 | 0.240 | 0.223 | 0.224 | 0.266 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.01 | 0.00 | 0.01 | 0.01 | 0.007 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 |
| Total | 101.28 | 101.32 | 101.28 | 101.15 | 101.64 | 100.36 | 101.30 | 101.16 | 101.43 | 101.34 |
| Sr | 0.01 | 0.001 | 0.004 | 0.00 | 0.00 | 0.004 | 0.006 | 0.00 | 0.002 | 0.000 |
| Y | 1.12 | 1.44 | 1.30 | 0.92 | 1.52 | 0.43 | 1.44 | 0.80 | 1.52 | 1.53 |
| Dy | 0.10 | 0.11 | 0.12 | 0.08 | 0.13 | 0.03 | 0.13 | 0.06 | 0.15 | 0.13 |
| Ho | 0.04 | 0.04 | 0.04 | 0.03 | 0.05 | 0.01 | 0.04 | 0.02 | 0.04 | 0.05 |
| Er | 0.19 | 0.27 | 0.22 | 0.15 | 0.25 | 0.08 | 0.26 | 0.12 | 0.25 | 0.26 |
| Tm | 0.04 | 0.05 | 0.04 | 0.04 | 0.06 | 0.01 | 0.05 | 0.02 | 0.04 | 0.05 |
| Yb | 0.37 | 0.51 | 0.50 | 0.33 | 0.54 | 0.17 | 0.48 | 0.23 | 0.43 | 0.58 |
| Lu | 0.07 | 0.09 | 0.09 | 0.06 | 0.11 | 0.04 | 0.09 | 0.04 | 0.08 | 0.10 |
| Ni | 1,878 | 1,929 | 1,800 | 1,815 | 2,022 | 1,808 | 1,853 | 1,738 | 1,794 | 2,087 |
| Ti | 184 | 191 | 182 | 185 | 219 | 209 | 187 | 196 | 194 | 199 |
| Cu | 0.80 | 0.57 | 0.79 | 0.73 | 0.67 | 0.66 | 0.76 | 0.65 | 0.46 | 0.67 |
| Zn | 136 | 132 | 134 | 133 | 143 | 126 | 131 | 124 | 138 | 141 |
| Mn | 2,398 | 2,286 | 2,393 | 2,342 | 2,362 | 2,275 | 2,339 | 2,245 | 2,338 | 2,353 |
| Sc | 7.53 | 7.97 | 8.75 | 7.90 | 9.04 | 6.64 | 7.67 | 7.19 | 9.66 | 9.22 |
| Al | 99.44 | 89.28 | 103.56 | 89.38 | 79.81 | 84.58 | 73.54 | 86.24 | 109.89 | 84.64 |
| Zr | 0.10 | 0.14 | 0.12 | 0.17 | 0.13 | 0.14 | 0.11 | 0.18 | 0.14 | 0.14 |
| Co | 191 | 188 | 185 | 185 | 179 | 182 | 179 | 178 | 189 | 180 |
| Ge | 0.90 | 0.77 | 0.72 | 0.75 | 0.85 | 0.81 | 0.81 | 0.80 | 0.89 | 0.82 |
| V | 14.45 | 14.46 | 19.97 | 19.00 | 28.06 | 13.40 | 27.01 | 14.13 | 33.46 | 26.91 |
| Li | 5.20 | 3.25 | 6.10 | 5.85 | 4.98 | 4.83 | 4.85 | 5.66 | 5.76 | 5.15 |

(continued)

**Table 10.2** (continued)

| No | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,035.1 | OM-4/1,039.4 | OM-4/1,039.4 | OM-4/1,039.4 | OM-4/1,039.4 | OM-4/1,039.4 | OM-4/1,039.4 | OM-4/1,046.2 |
| *Fo*, mol.% | 78.63 | 78.80 | 78.19 | 79.43 | 78.36 | 79.12 | 78.05 | 78.12 | 77.94 | 79.05 | 77.65 |
| $SiO_2$ | 39.29 | 39.19 | 38.87 | 39.41 | 38.98 | 39.17 | 38.79 | 39.06 | 39.13 | 39.32 | 39.05 |
| $TiO_2$ | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.01 | 0.02 | 0.03 | 0.02 | 0.02 |
| $Al_2O_3$ | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 |
| FeO | 20.11 | 19.92 | 20.40 | 19.40 | 20.25 | 19.58 | 20.52 | 20.53 | 20.65 | 19.79 | 20.92 |
| MnO | 0.30 | 0.30 | 0.30 | 0.29 | 0.30 | 0.30 | 0.31 | 0.31 | 0.31 | 0.30 | 0.31 |
| MgO | 41.52 | 41.53 | 41.03 | 42.03 | 41.13 | 41.61 | 40.93 | 41.11 | 40.92 | 41.89 | 40.77 |
| CaO | 0.16 | 0.13 | 0.12 | 0.12 | 0.16 | 0.13 | 0.18 | 0.19 | 0.15 | 0.15 | 0.16 |
| NiO | 0.22 | 0.23 | 0.23 | 0.22 | 0.23 | 0.22 | 0.23 | 0.23 | 0.24 | 0.23 | 0.22 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.008 | 0.01 | 0.009 | 0.01 | 0.004 | 0.007 | 0.000 | 0.006 | 0.002 | 0.009 | 0.004 |
| Total | 101.69 | 101.38 | 101.04 | 101.58 | 101.13 | 101.10 | 101.04 | 101.52 | 101.48 | 101.77 | 101.52 |
| Sr | 0.001 | 0.000 | 0.000 | 0.005 | 0.007 | 0.006 | 0.006 | 0.004 | 0.004 | 0.002 | 0.005 |
| Y | 1.43 | 0.59 | 1.40 | 0.60 | 0.99 | 0.72 | 1.23 | 1.12 | 1.35 | 0.79 | 1.44 |
| Dy | 0.14 | 0.04 | 0.13 | 0.05 | 0.10 | 0.07 | 0.10 | 0.10 | 0.12 | 0.07 | 0.15 |
| Ho | 0.05 | 0.02 | 0.04 | 0.02 | 0.03 | 0.02 | 0.04 | 0.04 | 0.04 | 0.02 | 0.05 |
| Er | 0.23 | 0.10 | 0.24 | 0.11 | 0.18 | 0.11 | 0.19 | 0.15 | 0.24 | 0.11 | 0.22 |
| Tm | 0.04 | 0.02 | 0.05 | 0.02 | 0.03 | 0.02 | 0.04 | 0.03 | 0.05 | 0.02 | 0.05 |
| Yb | 0.49 | 0.27 | 0.56 | 0.22 | 0.33 | 0.24 | 0.36 | 0.33 | 0.45 | 0.27 | 0.49 |
| Lu | 0.09 | 0.05 | 0.10 | 0.04 | 0.05 | 0.04 | 0.06 | 0.06 | 0.08 | 0.05 | 0.09 |
| Ni | 1,872 | 1,816 | 1,975 | 1,770 | 1,853 | 1,855 | 1,763 | 1,842 | 1,945 | 1,858 | 1,772 |
| Ti | 167 | 206 | 226 | 198 | 153 | 201 | 137 | 108 | 183 | 136 | 143 |
| Cu | 0.88 | 0.67 | 0.74 | 0.66 | 0.88 | 0.80 | 0.89 | 1.12 | 0.88 | 1.02 | 1.06 |
| Zn | 144 | 135 | 141 | 127 | 135 | 134 | 134 | 139 | 145 | 139 | 149 |
| Mn | 2,372 | 2,336 | 2,353 | 2,292 | 2,422 | 2,309 | 2,313 | 2,379 | 2,439 | 2,361 | 2,480 |
| Sc | 9.59 | 7.28 | 8.99 | 7.88 | 8.94 | 7.76 | 8.47 | 9.48 | 8.60 | 8.82 | 9.06 |
| Al | 115.91 | 98.88 | 75.47 | 106.22 | 105.35 | 98.92 | 97.85 | 148.18 | 92.81 | 118.32 | 108.45 |
| Zr | 0.10 | 0.14 | 0.17 | 0.12 | 0.12 | 0.18 | 0.09 | 0.07 | 0.09 | 0.10 | 0.08 |
| Co | 185 | 185 | 185 | 183 | 190 | 187 | 181 | 178 | 181 | 208 | 214 |
| Ge | 0.79 | 0.76 | 0.81 | 0.83 | 0.82 | 0.82 | 0.79 | 0.86 | 0.80 | 0.83 | 0.85 |
| V | 32.31 | 20.64 | 25.17 | 16.55 | 23.11 | 17.80 | 26.29 | 30.86 | 24.45 | 20.05 | 28.47 |
| Li | 4.81 | 5.71 | 5.70 | 5.45 | 4.86 | 6.37 | 5.03 | 6.00 | 4.97 | 4.88 | 6.01 |

| No | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-4/1,046.2 | OM-4/1,046.2 | OM-4/1,046.2 | OM-4/1,046.2 | OM-4/1,046.2 | OM-4/1,050.4 | OM-4/1,050.4 | OM-4/1,050.4 | OM-4/1,050.4 | OM-4/1,050.4 | OM-4/1,050.4 |
| *Fo*, мол.% | 77.64 | 77.75 | 77.36 | 77.46 | 80.42 | 76.79 | 78.37 | 78.21 | 77.63 | 76.96 | 76.73 |
| $SiO_2$ | 38.99 | 39.02 | 38.99 | 39.09 | 39.34 | 38.94 | 39.03 | 39.03 | 39.12 | 39.03 | 38.87 |
| $TiO_2$ | 0.028 | 0.029 | 0.034 | 0.025 | 0.023 | 0.021 | 0.032 | 0.016 | 0.025 | 0.025 | 0.023 |
| $Al_2O_3$ | 0.016 | 0.013 | 0.009 | 0.011 | 0.022 | 0.026 | 0.023 | 0.026 | 0.023 | 0.018 | 0.025 |
| FeO | 20.94 | 20.83 | 21.15 | 21.00 | 18.49 | 21.56 | 20.28 | 20.39 | 20.90 | 21.43 | 21.67 |
| MnO | 0.31 | 0.31 | 0.31 | 0.32 | 0.27 | 0.32 | 0.30 | 0.30 | 0.31 | 0.32 | 0.32 |
| MgO | 40.78 | 40.83 | 40.52 | 40.49 | 42.60 | 40.00 | 41.21 | 41.03 | 40.69 | 40.15 | 40.07 |
| CaO | 0.17 | 0.15 | 0.13 | 0.24 | 0.13 | 0.19 | 0.16 | 0.21 | 0.15 | 0.17 | 0.19 |
| NiO | 0.23 | 0.25 | 0.30 | 0.28 | 0.24 | 0.27 | 0.24 | 0.26 | 0.25 | 0.23 | 0.25 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.005 | 0.002 | 0.00 | 0.002 | 0.02 | 0.00 | 0.005 | 0.01 | 0.003 | 0.001 | 0.00 |
| Total | 101.50 | 101.47 | 101.49 | 101.50 | 101.18 | 101.36 | 101.33 | 101.31 | 101.51 | 101.42 | 101.46 |
| Sr | 0.003 | 0.004 | 0.001 | 0.006 | 0.002 | 0.003 | 0.004 | 0.001 | 0.006 | 0.015 | 0.002 |
| Y | 1.29 | 1.12 | 1.76 | 0.85 | 0.36 | 1.30 | 1.32 | 0.65 | 1.01 | 1.55 | 1.38 |
| Dy | 0.13 | 0.11 | 0.16 | 0.08 | 0.03 | 0.12 | 0.12 | 0.06 | 0.07 | 0.14 | 0.12 |
| Ho | 0.04 | 0.03 | 0.06 | 0.02 | 0.01 | 0.04 | 0.04 | 0.02 | 0.03 | 0.04 | 0.04 |
| Er | 0.20 | 0.19 | 0.28 | 0.14 | 0.05 | 0.22 | 0.23 | 0.09 | 0.17 | 0.28 | 0.20 |
| Tm | 0.04 | 0.04 | 0.06 | 0.03 | 0.01 | 0.04 | 0.04 | 0.01 | 0.03 | 0.05 | 0.04 |
| Yb | 0.46 | 0.38 | 0.70 | 0.35 | 0.09 | 0.42 | 0.45 | 0.19 | 0.36 | 0.53 | 0.48 |
| Lu | 0.08 | 0.08 | 0.11 | 0.06 | 0.01 | 0.08 | 0.08 | 0.04 | 0.05 | 0.10 | 0.08 |
| Ni | 1,803 | 1,943 | 2,369 | 2,251 | 1,913 | 2,180 | 1,930 | 2,059 | 1,992 | 1,862 | 2,034 |
| Ti | 141 | 146 | 208 | 120 | 133 | 130 | 175 | 99 | 152 | 150 | 150 |
| Cu | 0.97 | 0.86 | 0.72 | 1.23 | 0.65 | 1.17 | 0.69 | 1.09 | 0.68 | 0.97 | 1.03 |
| Zn | 150 | 144 | 153 | 152 | 121 | 158 | 140 | 146 | 150 | 157 | 159 |
| Mn | 2,483 | 2,432 | 2,483 | 2,498 | 2,144 | 2,557 | 2,339 | 2,361 | 2,459 | 2,521 | 2,561 |
| Sc | 9.07 | 8.75 | 8.81 | 9.59 | 7.61 | 10.77 | 9.49 | 10.16 | 9.51 | 9.95 | 9.63 |
| Al | 116.74 | 98.15 | 84.65 | 120.52 | 144.31 | 144.23 | 105.50 | 177.70 | 120.85 | 131.78 | 128.26 |
| Zr | 0.09 | 0.10 | 0.12 | 0.05 | 0.09 | 0.06 | 0.11 | 0.07 | 0.09 | 0.08 | 0.08 |
| Co | 211 | 209 | 207 | 212 | 203 | 206 | 214 | 209 | 212 | 217 | 217 |
| Ge | 0.79 | 0.79 | 0.71 | 0.72 | 0.76 | 0.79 | 0.79 | 0.81 | 0.77 | 0.92 | 0.89 |
| V | 29.09 | 23.13 | 27.52 | 37.37 | 10.87 | 41.48 | 31.82 | 23.49 | 24.77 | 33.26 | 32.78 |
| Li | 5.68 | 5.22 | 6.12 | 6.21 | 5.04 | 5.28 | 7.11 | 5.15 | 5.44 | 5.25 | 5.49 |

(continued)

**Table 10.2** (continued)

| No | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/807 |
| *Fo*, mol.% | 75.82 | 78.15 | 78.00 | 71.17 | 73.54 | 74.29 | 73.29 | 74.94 | 71.92 | 76.33 | 73.46 | 71.47 |
| $SiO_2$ | 38.02 | 38.48 | 38.37 | 37.78 | 38.11 | 38.11 | 37.89 | 38.13 | 37.92 | 38.31 | 37.78 | 37.73 |
| $TiO_2$ | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| $Al_2O_3$ | 0.02 | 0.03 | 0.03 | 0.01 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 |
| FeO | 22.32 | 20.27 | 20.38 | 26.21 | 24.27 | 23.58 | 24.45 | 23.00 | 25.63 | 21.78 | 24.12 | 25.88 |
| MnO | 0.33 | 0.30 | 0.30 | 0.40 | 0.36 | 0.35 | 0.37 | 0.34 | 0.38 | 0.33 | 0.36 | 0.39 |
| MgO | 39.24 | 40.67 | 40.51 | 36.29 | 37.83 | 38.22 | 37.64 | 38.57 | 36.82 | 39.39 | 37.46 | 36.36 |
| CaO | 0.28 | 0.30 | 0.31 | 0.18 | 0.28 | 0.22 | 0.22 | 0.29 | 0.28 | 0.30 | 0.25 | 0.23 |
| NiO | 0.18 | 0.19 | 0.19 | 0.16 | 0.16 | 0.17 | 0.17 | 0.18 | 0.15 | 0.18 | 0.17 | 0.16 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| $Cr_2O_3$ | 0.03 | 0.03 | 0.03 | 0.01 | 0.02 | 0.01 | 0.02 | 0.03 | 0.01 | 0.02 | 0.02 | 0.01 |
| Total | 100.47 | 100.33 | 100.17 | 101.11 | 101.12 | 100.75 | 100.85 | 100.62 | 101.28 | 100.39 | 100.25 | 100.85 |
| Sr | 0.003 | 0.002 | 0.002 | 0.004 | 0.000 | 0.002 | 0.011 | 0.008 | 0.000 | 0.005 | 0.032 | 0.005 |
| Y | 0.35 | 0.23 | 0.19 | 1.01 | 0.36 | 0.66 | 0.56 | 0.28 | 0.38 | 0.26 | 0.40 | 0.88 |
| Dy | 0.03 | 0.01 | 0.01 | 0.09 | 0.04 | 0.06 | 0.05 | 0.03 | 0.02 | 0.02 | 0.04 | 0.09 |
| Ho | 0.01 | 0.00 | 0.00 | 0.03 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 |
| Er | 0.05 | 0.03 | 0.02 | 0.14 | 0.04 | 0.11 | 0.08 | 0.04 | 0.05 | 0.03 | 0.06 | 0.13 |
| Tm | 0.008 | 0.008 | 0.004 | 0.03 | 0.01 | 0.02 | 0.01 | 0.00 | 0.01 | 0.005 | 0.01 | 0.02 |
| Yb | 0.09 | 0.07 | 0.06 | 0.33 | 0.12 | 0.21 | 0.17 | 0.08 | 0.10 | 0.06 | 0.11 | 0.24 |
| Lu | 0.01 | 0.01 | 0.01 | 0.06 | 0.02 | 0.03 | 0.03 | 0.01 | 0.02 | 0.01 | 0.02 | 0.04 |
| Ni | 1,431 | 1,514 | 1,491 | 1,256 | 1,335 | 1,330 | 1,330 | 1,412 | 1,239 | 1,427 | 1,330 | 1,282 |
| Ti | 47 | 39 | 42 | 71 | 41 | 46 | 37 | 61 | 66 | 56 | 62 | 74 |
| Cu | 0.79 | 1.21 | 1.05 | 0.69 | 0.77 | 0.79 | 0.83 | 0.72 | 0.62 | 0.93 | 0.84 | 0.70 |
| Zn | 173 | 151 | 146 | 210 | 185 | 167 | 168 | 174 | 204 | 161 | 179 | 193 |
| Mn | 2,604 | 2,406 | 2,351 | 3,114 | 2,858 | 2,753 | 2,894 | 2,667 | 2,870 | 2,521 | 2,680 | 3,015 |
| Sc | 9.19 | 9.25 | 9.04 | 8.81 | 9.41 | 9.14 | 8.93 | 9.13 | 9.71 | 8.94 | 8.74 | 9.21 |
| Al | 151.19 | 168.59 | 168.02 | 122.80 | 149.51 | 134.13 | 151.88 | 159.56 | 148.58 | 158.58 | 153.39 | 134.32 |
| Zr | 0.04 | 0.03 | 0.03 | 0.08 | 0.03 | 0.05 | 0.08 | 0.04 | 0.03 | 0.03 | 0.03 | 0.04 |
| Co | 182 | 185 | 182 | 191 | 190 | 189 | 190 | 199 | 204 | 198 | 197 | 206 |
| Ge | 0.75 | 0.83 | 0.86 | 0.82 | 0.83 | 0.77 | 0.80 | 0.85 | 0.70 | 0.79 | 0.82 | 0.75 |
| V | 15.49 | 14.77 | 14.57 | 15.79 | 17.83 | 19.63 | 12.33 | 15.67 | 17.25 | 14.67 | 18.02 | 16.39 |
| Li | 6.20 | 4.26 | 4.37 | 7.37 | 6.03 | 6.33 | 6.36 | 5.74 | 6.15 | 5.22 | 5.94 | 6.89 |

| No | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-24/807 | OM-24/807 | OM-24/807 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 |
| *Fo*, мол.% | 77.85 | 76.22 | 75.89 | 80.22 | 79.08 | 78.35 | 78.00 | 77.80 | 77.90 | 79.56 | 79.43 | 78.38 |
| $SiO_2$ | 38.70 | 38.44 | 38.45 | 38.82 | 38.56 | 38.63 | 38.51 | 38.70 | 38.48 | 38.91 | 38.95 | 38.59 |
| $TiO_2$ | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| $Al_2O_3$ | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 |
| FeO | 20.60 | 22.04 | 22.24 | 18.53 | 19.53 | 20.19 | 20.46 | 20.71 | 20.52 | 19.15 | 19.24 | 20.10 |
| MnO | 0.31 | 0.33 | 0.33 | 0.28 | 0.30 | 0.31 | 0.32 | 0.32 | 0.32 | 0.29 | 0.30 | 0.31 |
| MgO | 40.61 | 39.61 | 39.27 | 42.16 | 41.42 | 40.98 | 40.70 | 40.72 | 40.56 | 41.80 | 41.67 | 40.88 |
| CaO | 0.29 | 0.30 | 0.29 | 0.27 | 0.24 | 0.24 | 0.25 | 0.23 | 0.24 | 0.24 | 0.25 | 0.22 |
| NiO | 0.19 | 0.19 | 0.18 | 0.20 | 0.20 | 0.19 | 0.18 | 0.18 | 0.19 | 0.20 | 0.20 | 0.19 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.03 | 0.03 | 0.03 |
| Сумма | 100.81 | 101.00 | 100.87 | 100.39 | 100.36 | 100.66 | 100.53 | 100.96 | 100.41 | 100.71 | 100.72 | 100.42 |
| Sr | 0.002 | 0.004 | 0.007 | 0.008 | 0.008 | 0.01 | 0.008 | 0.004 | 0.02 | 0.004 | 0.005 | 0.07 |
| Y | 0.22 | 0.24 | 0.33 | 0.28 | 0.32 | 0.69 | 0.40 | 0.63 | 0.52 | 0.41 | 0.54 | 0.61 |
| Dy | 0.01 | 0.01 | 0.02 | 0.02 | 0.03 | 0.07 | 0.04 | 0.06 | 0.05 | 0.04 | 0.05 | 0.05 |
| Ho | 0.00 | 0.009 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 |
| Er | 0.04 | 0.03 | 0.05 | 0.05 | 0.04 | 0.09 | 0.06 | 0.09 | 0.07 | 0.06 | 0.07 | 0.10 |
| Tm | 0.00 | 0.008 | 0.009 | 0.009 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| Yb | 0.06 | 0.08 | 0.09 | 0.09 | 0.10 | 0.25 | 0.13 | 0.18 | 0.16 | 0.14 | 0.16 | 0.20 |
| Lu | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.04 | 0.02 | 0.04 | 0.03 | 0.02 | 0.03 | 0.03 |
| Ni | 1,520 | 1,487 | 1,428 | 1,617 | 1,542 | 1,502 | 1,493 | 1,452 | 1,456 | 1,590 | 1,600 | 1,535 |
| Ti | 51 | 54 | 58 | 67 | 63 | 74 | 62 | 89 | 64 | 65 | 71 | 66 |
| Cu | 1.37 | 0.93 | 0.87 | 0.80 | 0.83 | 0.73 | 0.88 | 0.84 | 0.91 | 0.93 | 0.88 | 1.14 |
| Zn | 156 | 161 | 170 | 120 | 128 | 138 | 146 | 140 | 136 | 125 | 126 | 117 |
| Mn | 2,405 | 2,509 | 2,670 | 2,159 | 2,269 | 2,456 | 2,469 | 2,486 | 2,499 | 2,292 | 2,324 | 2,442 |
| Sc | 9.24 | 8.80 | 9.36 | 8.98 | 9.78 | 10.23 | 10.53 | 10.05 | 10.51 | 9.12 | 9.76 | 10.13 |
| Al | 174.77 | 167.94 | 165.91 | 162.03 | 176.84 | 165.22 | 161.21 | 150.36 | 151.07 | 150.47 | 149.93 | 178.10 |
| Zr | 0.02 | 0.03 | 0.03 | 0.04 | 0.03 | 0.06 | 0.03 | 0.06 | 0.05 | 0.05 | 0.06 | 0.05 |
| Co | 198 | 197 | 200 | 181 | 181 | 184 | 184 | 185 | 183 | 183 | 184 | 183 |
| Ge | 0.79 | 0.82 | 0.75 | 0.81 | 0.84 | 0.90 | 0.84 | 0.88 | 0.67 | 0.86 | 0.81 | 0.89 |
| V | 14.03 | 13.93 | 15.04 | 10.65 | 15.37 | 11.85 | 12.00 | 11.20 | 11.48 | 9.79 | 9.91 | 10.99 |
| Li | 4.26 | 5.12 | 5.84 | 4.53 | 4.70 | 5.56 | 4.53 | 5.65 | 5.15 | 5.07 | 5.47 | 6.20 |

(continued)

**Table 10.2** (continued)

| No | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/811 | OM-24/814.5 | OM-24/814.5 | OM-24/814.5 | OM-24/814.5 | OM-24/814.5 | OM-24/814.5 | OM-24/814.5 |
| *Fo*, мол.% | 78.28 | 75.68 | 78.69 | 78.43 | 78.19 | 79.13 | 79.25 | 80.00 | 79.02 | 80.54 | 79.33 | 79.33 |
| $SiO_2$ | 38.63 | 38.35 | 38.43 | 38.45 | 38.14 | 38.73 | 38.90 | 38.84 | 38.65 | 38.92 | 38.92 | 38.93 |
| $TiO_2$ | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.01 |
| $Al_2O_3$ | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 |
| FeO | 20.23 | 22.53 | 19.80 | 20.06 | 20.20 | 19.40 | 19.37 | 18.65 | 19.45 | 18.17 | 19.30 | 19.24 |
| MnO | 0.31 | 0.34 | 0.31 | 0.31 | 0.32 | 0.30 | 0.30 | 0.29 | 0.30 | 0.28 | 0.30 | 0.30 |
| MgO | 40.91 | 39.33 | 40.99 | 40.91 | 40.63 | 41.26 | 41.50 | 41.85 | 41.08 | 42.18 | 41.54 | 41.42 |
| CaO | 0.27 | 0.25 | 0.24 | 0.22 | 0.27 | 0.25 | 0.26 | 0.19 | 0.23 | 0.26 | 0.17 | 0.26 |
| NiO | 0.19 | 0.19 | 0.19 | 0.20 | 0.19 | 0.21 | 0.21 | 0.21 | 0.20 | 0.22 | 0.21 | 0.21 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.03 |
| Сумма | 100.66 | 101.09 | 100.07 | 100.25 | 99.86 | 100.27 | 100.65 | 100.16 | 100.03 | 100.14 | 100.54 | 100.47 |
| Sr | 0.00 | 0.00 | 0.03 | 0.09 | 0.001 | 0.01 | 0.008 | 0.02 | 0.006 | 0.01 | 0.01 | 0.003 |
| Y | 0.41 | 0.43 | 0.43 | 0.59 | 0.37 | 0.44 | 0.50 | 0.67 | 0.49 | 0.26 | 0.95 | 0.40 |
| Dy | 0.03 | 0.05 | 0.04 | 0.06 | 0.02 | 0.04 | 0.05 | 0.06 | 0.04 | 0.03 | 0.09 | 0.03 |
| Ho | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.01 |
| Er | 0.06 | 0.06 | 0.06 | 0.09 | 0.05 | 0.07 | 0.08 | 0.10 | 0.07 | 0.04 | 0.16 | 0.06 |
| Tm | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.03 | 0.01 |
| Yb | 0.14 | 0.10 | 0.12 | 0.20 | 0.12 | 0.16 | 0.17 | 0.21 | 0.16 | 0.11 | 0.30 | 0.11 |
| Lu | 0.02 | 0.02 | 0.02 | 0.04 | 0.02 | 0.03 | 0.03 | 0.04 | 0.04 | 0.01 | 0.06 | 0.02 |
| Ni | 1,516 | 1,444 | 1,543 | 1,502 | 1,531 | 1,636 | 1,683 | 1,703 | 1,583 | 1,766 | 1,680 | 1,708 |
| Ti | 57 | 51 | 55 | 68 | 49 | 77 | 83 | 147 | 95 | 74 | 170 | 59 |
| Cu | 0.82 | 0.78 | 0.85 | 0.89 | 0.88 | 1.15 | 1.41 | 0.82 | 0.98 | 1.07 | 0.72 | 1.19 |
| Zn | 138 | 164 | 130 | 131 | 133 | 133 | 134 | 119 | 137 | 123 | 132 | 139 |
| Mn | 2,449 | 2,645 | 2,430 | 2,401 | 2,513 | 2,332 | 2,318 | 2,258 | 2,376 | 2,224 | 2,399 | 2,362 |
| Sc | 10.95 | 9.44 | 9.56 | 9.47 | 10.16 | 10.57 | 11.26 | 9.17 | 10.68 | 8.73 | 9.93 | 9.80 |
| Al | 181.11 | 163.90 | 151.80 | 172.54 | 179.44 | 182.93 | 197.10 | 131.37 | 173.43 | 168.03 | 124.46 | 174.88 |
| Zr | 0.05 | 0.04 | 0.04 | 0.05 | 0.04 | 0.05 | 0.06 | 0.13 | 0.06 | 0.05 | 0.14 | 0.04 |
| Co | 185 | 186 | 182 | 178 | 180 | 181 | 183 | 182 | 182 | 183 | 186 | 184 |
| Ge | 0.95 | 0.72 | 0.81 | 0.80 | 0.80 | 0.73 | 0.88 | 0.81 | 0.84 | 0.73 | 0.88 | 0.85 |
| V | 12.72 | 13.68 | 11.13 | 10.52 | 11.43 | 13.28 | 15.02 | 10.64 | 12.47 | 11.54 | 10.16 | 12.95 |
| Li | 5.23 | 5.97 | 5.68 | 5.28 | 4.56 | 5.35 | 4.82 | 6.93 | 4.84 | 3.59 | 7.15 | 4.44 |

| No | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 128 | 129 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No sample | OM-24/814.5 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 | Nor −1/120 |
| *Fo*, мол.% | 79.17 | 79.80 | 79.19 | 79.41 | 79.56 | 79.29 | 81.00 | 79.47 | 79.23 | 78.93 | 80.41 | 80.30 | 79.51 | 79.45 |
| $SiO_2$ | 38.86 | 38.67 | 38.61 | 38.47 | 38.44 | 38.58 | 38.88 | 38.44 | 38.60 | 38.30 | 38.60 | 38.77 | 37.87 | 38.14 |
| $TiO_2$ | 0.02 | 0.01 | 0.02 | 0.02 | 0.03 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 |
| $Al_2O_3$ | 0.03 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.02 | 0.02 | 0.00 | 0.01 | 0.02 | 0.00 | 0.02 | 0.01 |
| FeO | 19.4 | 18.8 | 19.37 | 19.13 | 18.96 | 19.23 | 17.81 | 19.09 | 19.32 | 19.52 | 18.26 | 18.41 | 19.00 | 19.04 |
| MnO | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.30 | 0.27 | 0.29 | 0.29 | 0.30 | 0.28 | 0.29 | 0.29 | 0.29 |
| MgO | 41.40 | 41.74 | 41.34 | 41.37 | 41.40 | 41.29 | 42.59 | 41.44 | 41.33 | 41.01 | 42.03 | 42.10 | 41.35 | 41.29 |
| CaO | 0.21 | 0.18 | 0.11 | 0.10 | 0.11 | 0.11 | 0.11 | 0.12 | 0.14 | 0.11 | 0.13 | 0.13 | 0.12 | 0.11 |
| NiO | 0.21 | 0.22 | 0.25 | 0.28 | 0.27 | 0.26 | 0.23 | 0.23 | 0.27 | 0.23 | 0.23 | 0.23 | 0.26 | 0.28 |
| CoO | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| $Cr_2O_3$ | 0.02 | 0.01 | 0.009 | 0.01 | 0.01 | 0.01 | 0.03 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 |
| Total | 100.52 | 100.03 | 100.06 | 99.74 | 99.56 | 99.86 | 100.01 | 99.72 | 100.04 | 99.56 | 99.64 | 100.02 | 99.00 | 99.26 |
| Sr | 0.001 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.005 | 0.65 |
| Y | 0.63 | 1.07 | 1.54 | 1.85 | 1.71 | 1.97 | 0.62 | 1.88 | 1.82 | 2.32 | 1.30 | 1.55 | 1.83 | 1.99 |
| Dy | 0.06 | 0.09 | 0.13 | 0.17 | 0.15 | 0.17 | 0.06 | 0.16 | 0.18 | 0.18 | 0.10 | 0.16 | 0.15 | 0.18 |
| Ho | 0.02 | 0.03 | 0.05 | 0.06 | 0.06 | 0.06 | 0.02 | 0.05 | 0.06 | 0.07 | 0.04 | 0.05 | 0.06 | 0.06 |
| Er | 0.08 | 0.16 | 0.25 | 0.30 | 0.27 | 0.32 | 0.09 | 0.31 | 0.27 | 0.40 | 0.19 | 0.24 | 0.30 | 0.33 |
| Tm | 0.02 | 0.03 | 0.06 | 0.06 | 0.05 | 0.07 | 0.01 | 0.06 | 0.06 | 0.08 | 0.04 | 0.05 | 0.06 | 0.07 |
| Yb | 0.19 | 0.37 | 0.52 | 0.63 | 0.51 | 0.65 | 0.18 | 0.60 | 0.62 | 0.76 | 0.37 | 0.46 | 0.64 | 0.67 |
| Lu | 0.04 | 0.06 | 0.11 | 0.12 | 0.11 | 0.13 | 0.03 | 0.11 | 0.11 | 0.14 | 0.07 | 0.07 | 0.12 | 0.12 |
| Ni | 1,696 | 1,820 | 2,048 | 2,298 | 2,171 | 2,083 | 1,850 | 1,901 | 2,200 | 1,820 | 1,843 | 1,894 | 2,094 | 2,211 |
| Ti | 122 | 77 | 208 | 200 | 190 | 192 | 127 | 173 | 182 | 187 | 165 | 175 | 180 | 225 |
| Cu | 1.10 | 1.10 | 0.97 | 0.90 | 1.06 | 1.06 | 0.76 | 0.94 | 1.19 | 1.03 | 1.26 | 0.98 | 0.92 | 1.83 |
| Zn | 134 | 132 | 140 | 133 | 133 | 132 | 120 | 130 | 140 | 137 | 126 | 125 | 126 | 130 |
| Mn | 2,379 | 2,294 | 2,293 | 2,308 | 2,279 | 2,315 | 2,135 | 2,273 | 2,306 | 2,302 | 2,214 | 2,230 | 2,251 | 2,297 |
| Sc | 10.52 | 10.30 | 8.83 | 9.90 | 9.76 | 11.65 | 8.07 | 10.13 | 9.83 | 11.20 | 12.12 | 10.91 | 10.75 | 10.40 |
| Al | 158.56 | 98.29 | 83.06 | 81.91 | 93.16 | 100.91 | 106.33 | 96.25 | 101.74 | 97.53 | 139.51 | 110.82 | 99.21 | 92.96 |
| Zr | 0.07 | 0.10 | 0.22 | 0.49 | 0.22 | 0.23 | 0.19 | 0.28 | 0.19 | 0.27 | 0.34 | 0.21 | 0.24 | 0.26 |
| Co | 186 | 196 | 196 | 185 | 189 | 184 | 195 | 194 | 194 | 192 | 194 | 196 | 180 | 178 |
| Ge | 0.95 | 0.81 | 0.77 | 0.82 | 0.78 | 0.86 | 0.86 | 0.85 | 0.83 | 0.84 | 0.98 | 0.65 | 0.81 | 0.85 |
| V | 13.00 | 8.06 | 6.55 | 5.78 | 6.30 | 6.06 | 6.26 | 5.95 | 6.34 | 6.30 | 8.66 | 7.74 | 7.32 | 6.95 |
| Li | 5.81 | 2.04 | 2.14 | 1.80 | 2.16 | 2.31 | 1.92 | 2.05 | 1.00 | 2.70 | 4.54 | 2.75 | 4.25 | 6.35 |

Note: No analyses: 1–130 – Northern Maslovsky, 131–191 – Southern Maslovsky, 192–213 – Noril'sk 1

**Table 10.3** Pyroxene composition from intrusive rocks of the Maslovsky deposit (wt %)

| No | No sample | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | OM-4/835.3 | 78.73 | 51.95 | 0.71 | 2.95 | 8.06 | 0.23 | 16.73 | 19.10 | 0.23 | 0.59 | 100.56 |
| 2 | OM-4/836.1 | 83.62 | 52.54 | 0.39 | 2.91 | 6.00 | 0.16 | 17.18 | 20.37 | 0.18 | 0.74 | 100.48 |
| 3 | OM-4/836.1 | 82.74 | 51.12 | 0.51 | 3.72 | 6.17 | 0.14 | 16.58 | 20.41 | 0.22 | 0.88 | 99.78 |
| 4 | OM-4/836.1 | 82.48 | 51.09 | 0.47 | 3.39 | 6.27 | 0.16 | 16.54 | 20.48 | 0.21 | 0.70 | 99.33 |
| 5 | OM-4/836.1 | 83.39 | 51.60 | 0.39 | 2.89 | 6.07 | 0.15 | 17.10 | 20.30 | 0.21 | 0.67 | 99.41 |
| 6 | OM-4/836.1 | 76.08 | 51.22 | 0.77 | 3.01 | 8.99 | 0.23 | 16.03 | 19.33 | 0.23 | 0.22 | 100.05 |
| 7 | OM-4/836.1 | 78.92 | 50.78 | 0.52 | 3.03 | 7.50 | 0.21 | 15.74 | 20.29 | 0.21 | 0.39 | 98.68 |
| 8 | OM-4/846.6 | 69.97 | 50.55 | 0.73 | 3.13 | 11.31 | 0.25 | 14.78 | 19.06 | 0.25 | 0.01 | 100.08 |
| 9 | OM-4/846.6 | 55.43 | 49.53 | 0.79 | 3.02 | 15.98 | 0.45 | 11.15 | 19.12 | 0.24 | 0.004 | 100.30 |
| 10 | OM-4/846.6 | 76.03 | 51.53 | 0.56 | 3.11 | 8.99 | 0.20 | 16.00 | 19.68 | 0.20 | 0.05 | 100.34 |
| 11 | OM-4/846.6 | 72.84 | 50.93 | 0.66 | 3.13 | 10.18 | 0.23 | 15.31 | 19.43 | 0.22 | 0.01 | 100.12 |
| 12 | OM-4/846.6 | 79.50 | 51.18 | 0.51 | 3.38 | 7.49 | 0.17 | 16.29 | 20.24 | 0.22 | 0.21 | 99.71 |
| 13 | OM-4/846.6 | 70.48 | 50.57 | 0.71 | 3.28 | 11.13 | 0.26 | 14.90 | 19.20 | 0.26 | 0.01 | 100.34 |
| 14 | OM-4/846.6 | 73.37 | 51.07 | 0.52 | 2.80 | 9.63 | 0.26 | 14.88 | 20.31 | 0.22 | 0.02 | 99.72 |
| 15 | OM-4/847.8 | 73.17 | 52.63 | 0.24 | 1.48 | 9.28 | 0.38 | 14.19 | 21.93 | 0.48 | 0.00 | 100.63 |
| 16 | OM-4/847.8 | 70.38 | 52.90 | 0.29 | 1.48 | 10.39 | 0.44 | 13.85 | 21.38 | 0.53 | 0.006 | 101.28 |
| 17 | OM-4/847.8 | 76.80 | 51.30 | 0.56 | 3.14 | 8.63 | 0.21 | 16.02 | 19.94 | 0.20 | 0.04 | 100.06 |
| 18 | OM-4/847.8 | 77.29 | 52.38 | 0.35 | 2.03 | 8.18 | 0.25 | 15.62 | 21.28 | 0.18 | 0.04 | 100.32 |
| 19 | OM-4/847.8 | 70.12 | 53.13 | 0.21 | 1.55 | 10.53 | 0.46 | 13.87 | 20.97 | 0.56 | 0.00 | 101.29 |
| 20 | OM-4/847.8 | 73.27 | 53.28 | 0.15 | 1.53 | 9.40 | 0.42 | 14.44 | 21.39 | 0.54 | 0.005 | 101.17 |
| 21 | OM-4/850.1 | 74.53 | 50.69 | 0.60 | 3.15 | 9.32 | 0.21 | 15.29 | 19.95 | 0.23 | 0.02 | 99.48 |
| 22 | OM-4/850.1 | 76.72 | 51.42 | 0.53 | 3.07 | 8.49 | 0.20 | 15.69 | 20.11 | 0.22 | 0.20 | 99.95 |
| 23 | OM-4/850.1 | 76.53 | 51.44 | 0.52 | 2.88 | 8.72 | 0.20 | 15.94 | 19.94 | 0.20 | 0.03 | 99.89 |
| 24 | OM-4/850.1 | 72.92 | 50.92 | 0.63 | 3.06 | 10.09 | 0.23 | 15.24 | 19.61 | 0.25 | 0.01 | 100.06 |
| 25 | OM-4/850.1 | 52.68 | 50.09 | 0.68 | 2.23 | 18.66 | 0.50 | 11.65 | 16.79 | 0.21 | 0.007 | 100.83 |
| 26 | OM-4/850.7 | 67.67 | 51.13 | 0.78 | 3.11 | 12.41 | 0.28 | 14.57 | 18.55 | 0.28 | 0.008 | 101.13 |
| 27 | OM-4/850.7 | 71.04 | 50.69 | 0.68 | 3.07 | 10.91 | 0.26 | 15.01 | 19.17 | 0.25 | 0.006 | 100.07 |
| 28 | OM-4/850.7 | 73.18 | 51.07 | 0.63 | 3.13 | 10.21 | 0.23 | 15.62 | 19.20 | 0.20 | 0.01 | 100.32 |
| 29 | OM-4/850.7 | 62.75 | 51.84 | 0.35 | 1.94 | 13.68 | 0.37 | 12.93 | 19.84 | 0.18 | 0.02 | 101.16 |
| 30 | OM-4/850.7 | 79.47 | 51.78 | 0.52 | 3.48 | 7.57 | 0.18 | 16.43 | 20.10 | 0.20 | 0.21 | 100.48 |
| 31 | OM-4/850.7 | 78.99 | 51.91 | 0.52 | 3.23 | 7.77 | 0.18 | 16.38 | 20.42 | 0.19 | 0.13 | 100.74 |
| 32 | OM-4/850.7 | 66.16 | 52.01 | 0.07 | 1.38 | 11.61 | 0.34 | 12.73 | 22.57 | 0.03 | 0.02 | 100.78 |
| 33 | OM-4/851.2 | 77.10 | 51.67 | 0.54 | 3.12 | 8.56 | 0.20 | 16.16 | 19.77 | 0.20 | 0.04 | 100.28 |
| 34 | OM-4/851.2 | 79.49 | 51.64 | 0.47 | 2.88 | 7.53 | 0.18 | 16.36 | 20.32 | 0.18 | 0.12 | 99.70 |
| 35 | OM-4/851.2 | 75.57 | 51.58 | 0.58 | 3.07 | 9.11 | 0.20 | 15.81 | 19.89 | 0.19 | 0.02 | 100.47 |
| 36 | OM-4/851.2 | 66.78 | 51.32 | 0.60 | 2.90 | 12.39 | 0.32 | 13.97 | 19.15 | 0.18 | 0.01 | 100.86 |
| 37 | OM-4/851.2 | 74.29 | 51.71 | 0.62 | 3.12 | 9.65 | 0.22 | 15.64 | 19.52 | 0.22 | 0.01 | 100.73 |
| 38 | OM-4/851.2 | 79.22 | 51.94 | 0.50 | 3.18 | 7.61 | 0.17 | 16.27 | 20.48 | 0.18 | 0.13 | 100.49 |
| 39 | OM-4/854.8 | 40.57 | 50.40 | 0.14 | 1.40 | 21.55 | 0.35 | 8.25 | 19.01 | 0.09 | 0.00 | 101.20 |
| 40 | OM-4/854.8 | 76.61 | 52.35 | 0.51 | 2.78 | 8.80 | 0.21 | 16.17 | 19.90 | 0.20 | 0.02 | 100.96 |
| 41 | OM-4/854.8 | 75.14 | 53.03 | 0.20 | 1.72 | 8.91 | 0.24 | 15.10 | 21.83 | 0.05 | 0.01 | 101.12 |
| 42 | OM-4/854.8 | 59.56 | 49.98 | 0.70 | 3.14 | 14.86 | 0.39 | 12.27 | 19.07 | 0.24 | 0.01 | 100.69 |
| 43 | OM-4/854.8 | 67.94 | 50.96 | 0.75 | 3.04 | 11.50 | 0.29 | 13.67 | 20.43 | 0.24 | 0.02 | 100.92 |
| 44 | OM-4/856.1 | 79.23 | 52.51 | 0.51 | 3.09 | 7.75 | 0.18 | 16.59 | 20.52 | 0.17 | 0.11 | 101.46 |
| 45 | OM-4/856.1 | 78.88 | 52.26 | 0.51 | 3.14 | 7.87 | 0.18 | 16.48 | 20.43 | 0.20 | 0.11 | 101.19 |
| 46 | OM-4/856.1 | 66.51 | 51.88 | 0.56 | 2.68 | 12.16 | 0.34 | 13.55 | 20.47 | 0.23 | 0.008 | 101.90 |
| 47 | OM-4/856.1 | 65.07 | 49.74 | 0.83 | 3.33 | 12.32 | 0.34 | 12.87 | 20.19 | 0.26 | 0.22 | 100.11 |
| 48 | OM-4/856.1 | 79.09 | 53.27 | 0.55 | 2.44 | 7.59 | 0.18 | 16.11 | 21.57 | 0.21 | 0.23 | 102.18 |
| 49 | OM-4/856.1 | 68.90 | 51.72 | 0.67 | 3.37 | 11.14 | 0.29 | 13.84 | 20.81 | 0.22 | 0.006 | 102.07 |
| 50 | OM-4/856.1 | 53.97 | 48.37 | 0.61 | 3.09 | 16.61 | 0.46 | 10.92 | 18.61 | 0.21 | 0.01 | 98.91 |
| 51 | OM-4/856.1 | 77.56 | 50.83 | 0.54 | 3.11 | 8.31 | 0.20 | 16.11 | 19.86 | 0.21 | 0.05 | 99.24 |
| 52 | OM-4/856.1 | 65.35 | 49.96 | 0.75 | 3.56 | 12.72 | 0.30 | 13.46 | 19.31 | 0.26 | 0.01 | 100.35 |
| 53 | OM-4/856.1 | 71.81 | 50.96 | 0.68 | 3.04 | 10.43 | 0.25 | 14.90 | 19.91 | 0.24 | 0.01 | 100.44 |

(continued)

**Table 10.3** (continued)

| No | No sample | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 | OM-4/856.1 | 52.43 | 51.74 | 0.20 | 1.40 | 17.41 | 0.40 | 10.77 | 19.47 | 0.19 | 0.01 | 101.60 |
| 55 | OM-4/856.1 | 63.14 | 50.82 | 0.78 | 2.80 | 13.18 | 0.38 | 12.66 | 20.10 | 0.25 | 0.01 | 101.00 |
| 56 | OM-4/858.3 | 79.27 | 52.48 | 0.46 | 2.95 | 7.69 | 0.18 | 16.50 | 20.31 | 0.21 | 0.10 | 100.90 |
| 57 | OM-4/858.3 | 65.03 | 52.31 | 0.23 | 1.67 | 13.05 | 0.33 | 13.61 | 20.11 | 0.15 | 0.00 | 101.48 |
| 58 | OM-4/858.3 | 70.75 | 51.48 | 0.60 | 2.99 | 11.01 | 0.26 | 14.94 | 19.45 | 0.22 | 0.01 | 100.98 |
| 59 | OM-4/858.3 | 75.80 | 52.84 | 0.22 | 1.99 | 8.36 | 0.23 | 14.69 | 22.50 | 0.06 | 0.01 | 100.92 |
| 60 | OM-4/858.3 | 79.88 | 51.43 | 0.47 | 3.17 | 7.42 | 0.17 | 16.52 | 20.31 | 0.18 | 0.16 | 99.85 |
| 61 | OM-4/858.3 | 67.46 | 51.79 | 0.26 | 1.90 | 11.83 | 0.30 | 13.75 | 20.41 | 0.17 | 0.01 | 100.44 |
| 62 | OM-4/859 | 79.71 | 51.43 | 0.47 | 3.12 | 7.39 | 0.17 | 16.29 | 20.48 | 0.18 | 0.16 | 99.71 |
| 63 | OM-4/859 | 42.43 | 50.85 | 0.11 | 1.38 | 20.37 | 0.34 | 8.42 | 19.81 | 0.13 | 0.00 | 101.43 |
| 64 | OM-4/859 | 79.44 | 52.16 | 0.48 | 3.12 | 7.53 | 0.17 | 16.31 | 20.41 | 0.19 | 0.15 | 100.54 |
| 65 | OM-4/859 | 80.03 | 51.41 | 0.49 | 3.40 | 7.31 | 0.17 | 16.43 | 20.13 | 0.20 | 0.26 | 99.83 |
| 66 | OM-4/859 | 72.98 | 50.75 | 0.61 | 3.05 | 9.90 | 0.27 | 15.00 | 19.90 | 0.21 | 0.01 | 99.72 |
| 67 | OM-4/859 | 74.70 | 51.03 | 0.42 | 2.42 | 9.03 | 0.23 | 14.96 | 21.27 | 0.12 | 0.01 | 99.51 |
| 68 | OM-4/861.1 | 67.74 | 50.78 | 0.70 | 3.07 | 11.22 | 0.38 | 13.21 | 20.73 | 0.24 | 0.01 | 100.35 |
| 69 | OM-4/861.1 | 73.65 | 51.26 | 0.59 | 2.94 | 9.83 | 0.22 | 15.41 | 19.68 | 0.23 | 0.01 | 100.20 |
| 70 | OM-4/861.1 | 81.81 | 52.15 | 0.39 | 3.02 | 6.68 | 0.16 | 16.84 | 20.42 | 0.19 | 0.49 | 100.35 |
| 71 | OM-4/861.1 | 56.51 | 50.60 | 0.63 | 2.26 | 15.28 | 0.55 | 11.14 | 19.98 | 0.26 | 0.004 | 100.71 |
| 72 | OM-4/861.1 | 70.22 | 50.99 | 0.72 | 3.09 | 10.68 | 0.37 | 14.12 | 20.35 | 0.25 | 0.01 | 100.59 |
| 73 | OM-4/861.1 | 61.44 | 50.44 | 0.70 | 2.69 | 13.79 | 0.47 | 12.33 | 19.80 | 0.24 | 0.22 | 100.70 |
| 74 | OM-4/876 | 80.61 | 51.43 | 0.45 | 3.32 | 6.94 | 0.16 | 16.19 | 20.30 | 0.20 | 0.35 | 99.36 |
| 75 | OM-4/876 | 79.98 | 50.78 | 0.45 | 3.11 | 7.18 | 0.17 | 16.09 | 20.38 | 0.19 | 0.21 | 98.58 |
| 76 | OM-4/876 | 80.87 | 50.65 | 0.44 | 3.33 | 6.83 | 0.15 | 16.18 | 20.45 | 0.20 | 0.34 | 98.60 |
| 77 | OM-4/876 | 80.63 | 51.33 | 0.43 | 3.15 | 6.97 | 0.16 | 16.28 | 20.42 | 0.18 | 0.28 | 99.22 |
| 78 | OM-4/876 | 66.18 | 50.44 | 0.77 | 2.72 | 12.05 | 0.34 | 13.23 | 20.04 | 0.26 | 0.11 | 99.97 |
| 79 | OM-4/880.9 | 66.39 | 49.41 | 0.74 | 3.04 | 11.66 | 0.31 | 12.92 | 20.25 | 0.29 | 0.01 | 98.64 |
| 80 | OM-4/880.9 | 75.87 | 50.72 | 0.53 | 3.07 | 8.74 | 0.19 | 15.42 | 19.73 | 0.22 | 0.03 | 98.67 |
| 81 | OM-4/880.9 | 79.36 | 51.46 | 0.47 | 3.16 | 7.37 | 0.16 | 15.89 | 20.37 | 0.21 | 0.21 | 99.32 |
| 82 | OM-4/880.9 | 79.52 | 50.85 | 0.50 | 3.71 | 7.29 | 0.18 | 15.87 | 19.84 | 0.19 | 0.52 | 98.97 |
| 83 | OM-4/881.7 | 59.89 | 51.53 | 0.63 | 2.44 | 14.63 | 0.44 | 12.25 | 19.72 | 0.23 | 0.02 | 101.90 |
| 84 | OM-4/881.7 | 64.61 | 51.48 | 0.66 | 2.55 | 13.24 | 0.36 | 13.55 | 19.43 | 0.19 | 0.02 | 101.50 |
| 85 | OM-4/881.7 | 58.71 | 51.61 | 0.63 | 2.30 | 15.08 | 0.44 | 12.02 | 19.67 | 0.22 | 0.01 | 101.99 |
| 86 | OM-4/881.7 | 56.51 | 51.20 | 0.56 | 2.02 | 16.94 | 0.46 | 12.35 | 17.86 | 0.17 | 0.003 | 101.58 |
| 87 | OM-4/881.7 | 48.25 | 50.79 | 0.05 | 1.30 | 17.82 | 0.28 | 9.32 | 20.27 | 0.26 | 0.03 | 100.15 |
| 88 | OM-4/888.2 | 77.07 | 51.40 | 0.47 | 3.16 | 8.39 | 0.19 | 15.82 | 20.10 | 0.20 | 0.22 | 99.97 |
| 89 | OM-4/888.2 | 80.89 | 52.42 | 0.44 | 3.11 | 7.01 | 0.16 | 16.64 | 20.57 | 0.20 | 0.22 | 100.79 |
| 90 | OM-4/888.2 | 66.04 | 52.52 | 0.23 | 1.36 | 12.18 | 0.29 | 13.28 | 20.22 | 0.20 | 0.02 | 100.31 |
| 91 | OM-4/888.2 | 71.46 | 51.57 | 0.56 | 2.80 | 10.65 | 0.26 | 14.96 | 19.46 | 0.23 | 0.06 | 100.57 |
| 92 | OM-4/888.2 | 79.91 | 52.84 | 0.43 | 3.01 | 7.29 | 0.23 | 16.25 | 20.67 | 0.17 | 0.21 | 101.12 |
| 93 | OM-4/888.2 | 78.18 | 51.93 | 0.43 | 2.80 | 7.99 | 0.19 | 16.06 | 20.23 | 0.19 | 0.16 | 100.00 |
| 94 | OM-4/901.9 | 69.53 | 50.48 | 0.90 | 3.23 | 11.72 | 0.29 | 15.00 | 18.42 | 0.30 | 0.02 | 100.38 |
| 95 | OM-4/901.9 | 68.74 | 50.65 | 0.81 | 2.48 | 12.36 | 0.34 | 15.24 | 17.78 | 0.23 | 0.01 | 99.92 |
| 96 | OM-4/901.9 | 77.10 | 50.41 | 0.77 | 3.95 | 8.35 | 0.20 | 15.77 | 19.76 | 0.24 | 0.33 | 99.80 |
| 97 | OM-4/901.9 | 74.11 | 51.77 | 0.60 | 2.51 | 9.98 | 0.25 | 16.03 | 18.81 | 0.24 | 0.03 | 100.24 |
| 98 | OM-4/903.5 | 77.39 | 51.19 | 0.69 | 3.28 | 8.46 | 0.21 | 16.23 | 19.50 | 0.25 | 0.11 | 99.94 |
| 99 | OM-4/903.5 | 73.83 | 49.79 | 1.07 | 2.83 | 9.92 | 0.27 | 15.69 | 18.23 | 0.29 | 0.18 | 98.30 |
| 100 | OM-4/903.5 | 75.08 | 50.85 | 0.81 | 2.75 | 9.59 | 0.25 | 16.20 | 18.57 | 0.26 | 0.05 | 99.35 |
| 101 | OM-4/903.5 | 75.30 | 50.97 | 0.89 | 3.05 | 9.20 | 0.23 | 15.74 | 19.39 | 0.30 | 0.06 | 99.85 |
| 102 | OM-4/903.5 | 78.86 | 51.88 | 0.63 | 3.14 | 7.96 | 0.22 | 16.65 | 19.23 | 0.23 | 0.10 | 100.06 |
| 103 | OM-4/903.5 | 75.08 | 51.14 | 0.94 | 3.03 | 9.32 | 0.23 | 15.75 | 19.31 | 0.30 | 0.05 | 100.09 |
| 104 | OM-4/903.5 | 66.96 | 52.17 | 0.25 | 1.46 | 11.79 | 0.25 | 13.40 | 20.55 | 0.39 | 0.01 | 100.30 |
| 105 | OM-4/903.5 | 75.46 | 51.25 | 0.93 | 3.08 | 9.25 | 0.23 | 15.96 | 19.52 | 0.28 | 0.06 | 100.58 |

(continued)

**Table 10.3** (continued)

| No | No обр. | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 106 | OM-4/912.9 | 81.26 | 50.90 | 0.62 | 4.02 | 6.81 | 0.17 | 16.56 | 19.78 | 0.26 | 0.79 | 99.94 |
| 107 | OM-4/912.9 | 81.14 | 51.07 | 0.62 | 3.94 | 6.84 | 0.17 | 16.52 | 19.70 | 0.24 | 0.80 | 99.92 |
| 108 | OM-4/918.2 | 78.28 | 51.39 | 0.75 | 3.88 | 7.94 | 0.17 | 16.06 | 20.30 | 0.23 | 0.46 | 101.21 |
| 109 | OM-4/918.2 | 76.48 | 52.05 | 0.67 | 3.27 | 8.76 | 0.20 | 15.98 | 20.20 | 0.23 | 0.23 | 101.60 |
| 110 | OM-4/918.2 | 77.83 | 51.71 | 0.74 | 3.57 | 8.23 | 0.20 | 16.20 | 20.07 | 0.23 | 0.29 | 101.26 |
| 111 | OM-4/918.2 | 77.50 | 51.13 | 0.75 | 3.73 | 8.36 | 0.20 | 16.15 | 19.75 | 0.24 | 0.30 | 100.63 |
| 112 | OM-4/918.2 | 76.57 | 51.07 | 0.70 | 3.09 | 8.66 | 0.21 | 15.88 | 19.66 | 0.23 | 0.14 | 99.66 |
| 113 | OM-4/918.2 | 76.46 | 50.81 | 0.70 | 3.02 | 8.77 | 0.22 | 15.98 | 19.48 | 0.25 | 0.11 | 99.36 |
| 114 | OM-4/918.2 | 77.75 | 51.38 | 0.53 | 2.55 | 8.40 | 0.21 | 16.45 | 19.53 | 0.21 | 0.07 | 99.35 |
| 115 | OM-4/920.6 | 79.90 | 51.59 | 0.63 | 3.63 | 7.49 | 0.18 | 16.70 | 20.02 | 0.22 | 0.46 | 100.94 |
| 116 | OM-4/920.6 | 70.44 | 49.75 | 1.05 | 2.99 | 11.65 | 0.32 | 15.58 | 17.37 | 0.30 | 0.01 | 99.04 |
| 117 | OM-4/920.6 | 74.50 | 50.02 | 0.79 | 3.16 | 9.62 | 0.24 | 15.77 | 18.97 | 0.30 | 0.02 | 98.91 |
| 118 | OM-4/920.6 | 79.07 | 49.80 | 0.60 | 3.60 | 7.58 | 0.19 | 16.05 | 19.43 | 0.27 | 0.72 | 98.26 |
| 119 | OM-4/920.6 | 79.34 | 50.91 | 0.62 | 3.57 | 7.47 | 0.18 | 16.08 | 20.24 | 0.26 | 0.38 | 99.73 |
| 120 | OM-4/920.6 | 73.30 | 50.34 | 0.91 | 3.19 | 10.00 | 0.25 | 15.40 | 18.98 | 0.30 | 0.03 | 99.42 |
| 121 | OM-4/920.6 | 72.49 | 50.59 | 1.00 | 2.95 | 10.37 | 0.26 | 15.33 | 19.00 | 0.32 | 0.02 | 99.85 |
| 122 | OM-4/920.6 | 77.39 | 51.22 | 0.67 | 3.06 | 8.28 | 0.20 | 15.88 | 20.08 | 0.23 | 0.10 | 99.74 |
| 123 | OM-4/920.6 | 78.70 | 51.47 | 0.63 | 3.13 | 7.80 | 0.18 | 16.15 | 20.27 | 0.24 | 0.18 | 100.07 |
| 124 | OM-4/920.6 | 79.22 | 50.33 | 0.62 | 3.69 | 7.51 | 0.18 | 16.07 | 20.05 | 0.25 | 0.40 | 99.12 |
| 125 | OM-4/926.2 | 76.94 | 51.74 | 0.98 | 4.43 | 8.31 | 0.20 | 15.54 | 19.40 | 0.48 | 0.70 | 101.80 |
| 126 | OM-4/926.2 | 82.04 | 52.95 | 0.43 | 3.45 | 6.47 | 0.16 | 16.56 | 20.76 | 0.22 | 0.77 | 101.78 |
| 127 | OM-4/926.2 | 82.93 | 52.95 | 0.41 | 3.55 | 6.10 | 0.14 | 16.63 | 20.81 | 0.20 | 0.85 | 101.66 |
| 128 | OM-4/926.2 | 78.96 | 53.29 | 0.41 | 2.92 | 7.70 | 0.19 | 16.21 | 20.55 | 0.19 | 0.28 | 101.76 |
| 129 | OM-4/926.2 | 83.43 | 53.66 | 0.37 | 2.88 | 6.12 | 0.15 | 17.29 | 20.57 | 0.21 | 0.53 | 101.80 |
| 130 | OM-4/932.8 | 82.11 | 50.56 | 0.48 | 3.85 | 6.26 | 0.16 | 16.11 | 20.53 | 0.22 | 0.87 | 99.06 |
| 131 | OM-4/932.8 | 82.32 | 51.62 | 0.46 | 3.84 | 6.16 | 0.14 | 16.09 | 20.75 | 0.21 | 0.98 | 100.27 |
| 132 | OM-4/932.8 | 82.28 | 51.91 | 0.45 | 3.66 | 6.30 | 0.16 | 16.41 | 20.50 | 0.22 | 0.86 | 100.48 |
| 133 | OM-4/932.8 | 82.61 | 52.31 | 0.39 | 3.25 | 6.14 | 0.14 | 16.36 | 20.84 | 0.22 | 0.78 | 100.44 |
| 134 | OM-4/932.8 | 81.96 | 52.00 | 0.46 | 3.62 | 6.34 | 0.14 | 16.16 | 20.67 | 0.23 | 0.84 | 100.47 |
| 135 | OM-4/935.9 | 83.48 | 52.03 | 0.39 | 3.02 | 6.01 | 0.15 | 17.03 | 20.85 | 0.18 | 0.67 | 100.36 |
| 136 | OM-4/935.9 | 84.31 | 52.00 | 0.40 | 3.59 | 5.56 | 0.12 | 16.75 | 21.15 | 0.20 | 1.01 | 100.80 |
| 137 | OM-4/935.9 | 83.53 | 51.93 | 0.39 | 3.61 | 5.84 | 0.14 | 16.61 | 21.06 | 0.21 | 0.98 | 100.78 |
| 138 | OM-4/945 | 81.63 | 50.99 | 0.51 | 3.94 | 6.94 | 0.16 | 17.30 | 19.06 | 0.20 | 0.97 | 100.08 |
| 139 | OM-4/945 | 79.54 | 52.33 | 0.51 | 3.53 | 7.75 | 0.16 | 16.90 | 19.28 | 0.23 | 0.95 | 101.66 |
| 140 | OM-4/945 | 82.89 | 52.95 | 0.53 | 3.48 | 6.27 | 0.15 | 17.03 | 20.48 | 0.23 | 0.95 | 102.08 |
| 141 | OM-4/945 | 82.21 | 52.18 | 0.58 | 3.68 | 6.55 | 0.16 | 16.98 | 19.80 | 0.21 | 0.94 | 101.09 |
| 142 | OM-4/966.9 | 82.61 | 52.09 | 0.52 | 3.40 | 6.20 | 0.15 | 16.51 | 20.61 | 0.23 | 0.81 | 100.54 |
| 143 | OM-4/966.9 | 82.39 | 51.71 | 0.55 | 3.55 | 6.22 | 0.15 | 16.33 | 20.44 | 0.24 | 0.90 | 100.10 |
| 144 | OM-4/966.9 | 78.65 | 51.19 | 1.09 | 3.00 | 8.09 | 0.20 | 16.71 | 19.31 | 0.24 | 0.13 | 99.98 |
| 145 | OM-4/966.9 | 82.70 | 51.49 | 0.52 | 3.71 | 6.20 | 0.16 | 16.63 | 20.27 | 0.23 | 0.90 | 100.12 |
| 146 | OM-4/966.9 | 83.16 | 51.66 | 0.47 | 3.50 | 5.94 | 0.14 | 16.46 | 20.76 | 0.21 | 0.81 | 99.98 |
| 147 | OM-4/966.9 | 83.01 | 51.19 | 0.51 | 3.68 | 6.01 | 0.14 | 16.47 | 20.55 | 0.22 | 0.79 | 99.59 |
| 148 | OM-4/970 | 83.40 | 53.73 | 0.47 | 2.82 | 6.18 | 0.15 | 17.42 | 20.42 | 0.22 | 0.63 | 102.06 |
| 149 | OM-4/970 | 83.68 | 53.68 | 0.46 | 2.80 | 6.12 | 0.15 | 17.60 | 20.40 | 0.22 | 0.65 | 102.10 |
| 150 | OM-4/970 | 82.85 | 53.08 | 0.58 | 3.74 | 6.26 | 0.15 | 16.95 | 20.30 | 0.24 | 1.03 | 102.35 |
| 151 | OM-4/974 | 83.95 | 51.29 | 0.56 | 4.15 | 5.77 | 0.13 | 16.94 | 20.17 | 0.24 | 1.18 | 100.45 |
| 152 | OM-4/974 | 84.79 | 53.25 | 0.46 | 3.22 | 5.51 | 0.13 | 17.23 | 20.87 | 0.22 | 0.91 | 101.81 |
| 153 | OM-4/974 | 84.23 | 52.78 | 0.55 | 3.65 | 5.64 | 0.13 | 16.89 | 20.75 | 0.23 | 1.03 | 101.68 |
| 154 | OM-4/974 | 85.25 | 52.44 | 0.42 | 2.95 | 5.32 | 0.13 | 17.25 | 20.90 | 0.21 | 0.81 | 100.45 |
| 155 | OM-4/976.4 | 83.22 | 52.32 | 0.71 | 3.30 | 6.01 | 0.14 | 16.73 | 20.32 | 0.29 | 0.93 | 100.78 |
| 156 | OM-4/976.4 | 83.17 | 51.98 | 0.70 | 3.02 | 6.00 | 0.15 | 16.64 | 20.28 | 0.29 | 0.87 | 99.95 |
| 157 | OM-4/981.2 | 84.04 | 53.24 | 0.68 | 2.95 | 5.84 | 0.15 | 17.23 | 20.27 | 0.29 | 0.80 | 101.46 |
| 158 | OM-4/981.2 | 83.56 | 52.81 | 0.83 | 3.28 | 6.01 | 0.16 | 17.13 | 20.12 | 0.31 | 0.90 | 101.56 |

(continued)

**Table 10.3** (continued)

| No | No sample | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 159 | OM-4/981.2 | 84.33 | 53.31 | 0.58 | 3.04 | 5.72 | 0.14 | 17.26 | 20.50 | 0.27 | 0.83 | 101.66 |
| 160 | OM-4/981.2 | 84.00 | 52.67 | 0.70 | 3.39 | 5.79 | 0.14 | 17.06 | 20.44 | 0.27 | 0.92 | 101.40 |
| 161 | OM-4/981.2 | 83.61 | 52.31 | 0.74 | 3.53 | 5.98 | 0.15 | 17.10 | 19.98 | 0.29 | 0.95 | 101.05 |
| 162 | OM-4/984.9 | 84.49 | 52.58 | 0.54 | 3.24 | 5.50 | 0.13 | 16.82 | 20.63 | 0.24 | 0.88 | 100.58 |
| 163 | OM-4/984.9 | 83.97 | 51.26 | 0.63 | 3.69 | 5.64 | 0.13 | 16.56 | 20.51 | 0.27 | 1.01 | 99.71 |
| 164 | OM-4/990.7 | 83.80 | 51.30 | 0.56 | 4.00 | 5.65 | 0.13 | 16.39 | 20.73 | 0.23 | 1.07 | 100.08 |
| 165 | OM-4/990.7 | 84.68 | 52.08 | 0.64 | 3.04 | 5.24 | 0.14 | 16.26 | 21.54 | 0.37 | 0.96 | 100.29 |
| 166 | OM-4/997.1 | 83.31 | 52.24 | 1.08 | 2.86 | 6.25 | 0.17 | 17.49 | 19.72 | 0.35 | 0.71 | 100.88 |
| 167 | OM-4/998.3 | 82.82 | 50.11 | 0.67 | 3.72 | 5.97 | 0.15 | 16.15 | 20.16 | 0.36 | 0.98 | 98.29 |
| 168 | OM-4/999.1 | 85.51 | 53.75 | 0.58 | 2.21 | 5.07 | 0.16 | 16.78 | 21.64 | 0.51 | 0.69 | 101.41 |
| 169 | OM-24/506.2 | 62.66 | 49.99 | 1.01 | 2.47 | 13.74 | 0.46 | 12.94 | 18.25 | 0.46 | 0.00 | 99.34 |
| 170 | OM-24/506.2 | 63.85 | 51.56 | 0.79 | 1.84 | 13.66 | 0.45 | 13.53 | 18.04 | 0.40 | 0.01 | 100.29 |
| 171 | OM-24/506.2 | 64.26 | 51.25 | 0.86 | 1.98 | 13.62 | 0.46 | 13.73 | 17.99 | 0.40 | 0.00 | 100.30 |
| 172 | OM-24/510.3 | 42.37 | 50.68 | 0.57 | 0.89 | 21.97 | 0.64 | 9.06 | 16.53 | 0.28 | 0.00 | 100.63 |
| 173 | OM-24/510.3 | 34.95 | 49.98 | 0.49 | 0.79 | 23.91 | 0.66 | 7.21 | 16.99 | 0.30 | 0.00 | 100.35 |
| 174 | OM-24/510.3 | 48.62 | 51.50 | 0.61 | 1.04 | 20.81 | 0.63 | 11.05 | 15.23 | 0.32 | 0.00 | 101.19 |
| 175 | OM-24/510.3 | 51.42 | 51.72 | 0.65 | 1.15 | 18.74 | 0.55 | 11.13 | 16.87 | 0.29 | 0.00 | 101.10 |
| 176 | OM-24/512 | 53.80 | 50.79 | 0.63 | 1.13 | 18.85 | 0.59 | 12.31 | 15.06 | 0.28 | 0.009 | 99.65 |
| 177 | OM-24/513.2 | 54.36 | 50.37 | 0.61 | 1.18 | 18.11 | 0.51 | 12.10 | 16.62 | 0.16 | 0.00 | 99.68 |
| 178 | OM-24/513.2 | 54.02 | 50.24 | 0.63 | 1.32 | 18.65 | 0.54 | 12.29 | 16.07 | 0.22 | 0.01 | 99.99 |
| 179 | OM-24/513.2 | 54.40 | 49.19 | 0.69 | 1.45 | 18.17 | 0.52 | 12.16 | 16.44 | 0.23 | 0.00 | 98.87 |
| 180 | OM-24/523 | 49.97 | 50.86 | 0.65 | 1.11 | 18.90 | 0.56 | 10.59 | 17.18 | 0.32 | 0.001 | 100.17 |
| 181 | OM-24/523 | 51.82 | 50.78 | 0.67 | 1.20 | 18.63 | 0.55 | 11.24 | 16.79 | 0.28 | 0.00 | 100.16 |
| 182 | OM-24/523 | 52.23 | 51.31 | 0.65 | 1.08 | 17.96 | 0.51 | 11.02 | 17.81 | 0.30 | 0.00 | 100.65 |
| 183 | OM-24/523 | 54.10 | 52.23 | 0.68 | 1.20 | 16.77 | 0.59 | 11.08 | 18.59 | 0.32 | 0.001 | 101.48 |
| 184 | OM-24/528.3 | 21.30 | 48.62 | 0.92 | 1.18 | 27.53 | 0.63 | 4.18 | 17.94 | 0.26 | 0.003 | 101.28 |
| 185 | OM-24/528.3 | 30.95 | 50.04 | 0.58 | 0.82 | 25.38 | 0.64 | 6.38 | 17.54 | 0.21 | 0.002 | 101.61 |
| 186 | OM-24/528.3 | 35.87 | 50.41 | 0.63 | 0.98 | 24.35 | 0.65 | 7.64 | 16.85 | 0.22 | 0.00 | 101.75 |
| 187 | OM-24/528.3 | 41.96 | 50.27 | 0.71 | 1.29 | 21.28 | 0.54 | 8.63 | 18.28 | 0.22 | 0.00 | 101.24 |
| 188 | OM-24/529.5 | 48.07 | 50.86 | 0.66 | 1.06 | 20.08 | 0.58 | 10.43 | 16.56 | 0.24 | 0.00 | 100.49 |
| 189 | OM-24/529.5 | 51.96 | 50.92 | 0.75 | 1.27 | 18.85 | 0.57 | 11.44 | 16.37 | 0.25 | 0.00 | 100.42 |
| 190 | OM-24/530.5 | 47.84 | 50.37 | 0.58 | 1.13 | 18.64 | 0.74 | 9.59 | 18.37 | 0.27 | 0.00 | 99.70 |
| 191 | OM-24/530.5 | 50.29 | 50.90 | 0.64 | 1.19 | 19.35 | 0.52 | 10.98 | 17.12 | 0.24 | 0.00 | 100.96 |
| 192 | OM-24/544.8 | 48.70 | 51.21 | 0.74 | 1.25 | 19.93 | 0.54 | 10.61 | 17.05 | 0.24 | 0.006 | 101.58 |
| 193 | OM-24/544.8 | 45.20 | 50.75 | 0.51 | 0.95 | 19.24 | 0.71 | 8.90 | 19.25 | 0.20 | 0.00 | 100.53 |
| 194 | OM-24/544.8 | 45.53 | 50.44 | 0.52 | 1.17 | 18.90 | 0.67 | 8.86 | 19.21 | 0.21 | 0.008 | 100.01 |
| 195 | OM-24/568.3 | 60.36 | 51.34 | 0.71 | 1.49 | 15.13 | 0.41 | 12.92 | 18.24 | 0.28 | 0.003 | 100.55 |
| 196 | OM-24/568.3 | 61.85 | 51.75 | 0.70 | 1.48 | 14.66 | 0.40 | 13.33 | 18.47 | 0.30 | 0.004 | 101.12 |
| 197 | OM-24/568.3 | 58.40 | 51.49 | 0.65 | 1.13 | 16.64 | 0.47 | 13.10 | 16.82 | 0.27 | 0.00 | 100.58 |
| 198 | OM-24/568.3 | 61.41 | 51.79 | 0.71 | 1.50 | 14.80 | 0.42 | 13.21 | 18.35 | 0.27 | 0.00 | 101.06 |
| 199 | OM-24/568.3 | 61.34 | 51.64 | 0.71 | 1.44 | 14.72 | 0.41 | 13.10 | 18.41 | 0.24 | 0.00 | 100.69 |
| 200 | OM-24/568.3 | 59.67 | 51.61 | 0.74 | 1.46 | 15.57 | 0.45 | 12.92 | 17.82 | 0.23 | 0.01 | 100.81 |
| 201 | OM-24/570 | 62.63 | 52.21 | 0.70 | 1.43 | 14.37 | 0.40 | 13.51 | 18.61 | 0.26 | 0.001 | 101.50 |
| 202 | OM-24/570 | 61.74 | 52.14 | 0.68 | 1.39 | 15.08 | 0.43 | 13.65 | 17.80 | 0.29 | 0.003 | 101.48 |
| 203 | OM-24/570 | 62.13 | 52.10 | 0.69 | 1.44 | 14.77 | 0.42 | 13.59 | 18.19 | 0.26 | 0.006 | 101.48 |
| 204 | OM-24/570 | 59.39 | 51.58 | 0.75 | 1.55 | 16.07 | 0.46 | 13.18 | 17.48 | 0.28 | 0.01 | 101.39 |
| 205 | OM-24/570 | 62.37 | 52.16 | 0.72 | 1.44 | 14.51 | 0.40 | 13.49 | 18.53 | 0.25 | 0.005 | 101.52 |
| 206 | OM-24/570 | 56.89 | 50.46 | 0.77 | 1.46 | 16.52 | 0.46 | 12.23 | 17.55 | 0.27 | 0.006 | 99.74 |
| 207 | OM-24/589.2 | 65.83 | 50.99 | 0.68 | 1.62 | 13.25 | 0.42 | 14.32 | 17.01 | 0.30 | 0.001 | 98.61 |
| 208 | OM-24/589.2 | 67.55 | 51.86 | 0.69 | 1.69 | 12.43 | 0.36 | 14.52 | 18.20 | 0.35 | 0.003 | 100.12 |
| 209 | OM-24/589.2 | 67.02 | 52.44 | 0.62 | 1.24 | 12.79 | 0.39 | 14.58 | 18.27 | 0.35 | 0.00 | 100.70 |
| 210 | OM-24/589.2 | 65.95 | 52.22 | 0.66 | 1.60 | 13.44 | 0.40 | 14.61 | 17.52 | 0.36 | 0.003 | 100.82 |
| 211 | OM-24/589.2 | 66.89 | 51.77 | 0.68 | 1.64 | 12.76 | 0.38 | 14.46 | 17.95 | 0.33 | 0.007 | 99.98 |

(continued)

**Table 10.3** (continued)

| No | No sample | MgO# | $SiO_2$ | $TiO_2$ | $Al2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 212 | OM-24/607 | 69.49 | 51.11 | 0.67 | 2.11 | 11.56 | 0.29 | 14.77 | 18.94 | 0.29 | 0.007 | 99.77 |
| 213 | OM-24/607 | 70.01 | 51.89 | 0.62 | 1.87 | 11.89 | 0.31 | 15.57 | 18.23 | 0.30 | 0.002 | 100.70 |
| 214 | OM-24/607 | 68.73 | 51.75 | 0.68 | 2.02 | 12.20 | 0.33 | 15.04 | 18.64 | 0.31 | 0.001 | 100.98 |
| 215 | OM-24/607 | 70.21 | 51.87 | 0.69 | 2.13 | 11.50 | 0.29 | 15.20 | 18.95 | 0.27 | 0.006 | 100.92 |
| 216 | OM-24/607 | 61.41 | 51.38 | 0.73 | 1.94 | 15.82 | 0.48 | 14.12 | 16.33 | 0.31 | 0.004 | 101.13 |
| 217 | OM-24/607 | 69.63 | 51.30 | 0.68 | 2.12 | 11.78 | 0.32 | 15.15 | 18.76 | 0.30 | 0.00 | 100.42 |
| 218 | OM-24/607 | 69.11 | 50.48 | 0.70 | 2.22 | 11.58 | 0.30 | 14.53 | 18.76 | 0.34 | 0.002 | 98.92 |
| 219 | OM-24/607 | 69.37 | 50.52 | 0.71 | 2.22 | 11.48 | 0.30 | 14.58 | 19.01 | 0.34 | 0.006 | 99.17 |
| 220 | OM-24/607 | 69.33 | 50.41 | 0.70 | 2.23 | 11.46 | 0.29 | 14.53 | 18.96 | 0.33 | 0.00 | 98.92 |
| 221 | OM-24/607 | 69.31 | 50.49 | 0.70 | 2.29 | 11.48 | 0.29 | 14.54 | 18.87 | 0.30 | 0.00 | 98.97 |
| 222 | OM-24/607 | 69.64 | 50.66 | 0.70 | 2.23 | 11.38 | 0.29 | 14.64 | 19.06 | 0.31 | 0.00 | 99.28 |
| 223 | OM-24/608 | 69.53 | 51.51 | 0.71 | 2.14 | 11.72 | 0.30 | 15.00 | 18.66 | 0.32 | 0.006 | 100.38 |
| 224 | OM-24/608 | 68.85 | 51.75 | 0.66 | 1.95 | 11.90 | 0.32 | 14.75 | 18.72 | 0.30 | 0.002 | 100.37 |
| 225 | OM-24/608 | 70.13 | 51.43 | 0.73 | 2.26 | 11.30 | 0.29 | 14.88 | 19.09 | 0.32 | 0.008 | 100.32 |
| 226 | OM-24/608 | 69.36 | 51.76 | 0.66 | 2.06 | 11.80 | 0.30 | 14.98 | 18.60 | 0.33 | 0.01 | 100.52 |
| 227 | OM-24/608 | 69.60 | 51.53 | 0.72 | 2.26 | 11.59 | 0.30 | 14.88 | 18.83 | 0.34 | 0.005 | 100.46 |
| 228 | OM-24/608 | 70.06 | 51.62 | 0.71 | 2.23 | 11.33 | 0.28 | 14.87 | 19.16 | 0.29 | 0.003 | 100.50 |
| 229 | OM-24/608 | 69.78 | 51.75 | 0.69 | 2.13 | 11.53 | 0.31 | 14.93 | 19.00 | 0.30 | 0.002 | 100.65 |
| 230 | OM-24/608 | 69.74 | 51.88 | 0.72 | 2.23 | 11.52 | 0.29 | 14.89 | 19.01 | 0.32 | 0.001 | 100.88 |
| 231 | OM-24/608 | 69.53 | 50.94 | 0.71 | 2.34 | 11.37 | 0.28 | 14.55 | 19.03 | 0.34 | 0.004 | 99.58 |
| 232 | OM-24/608 | 68.41 | 51.38 | 0.76 | 2.24 | 11.89 | 0.31 | 14.44 | 19.13 | 0.33 | 0.00 | 100.49 |
| 233 | OM-24/612 | 71.17 | 51.50 | 0.78 | 2.32 | 10.68 | 0.25 | 14.79 | 19.60 | 0.36 | 0.002 | 100.29 |
| 234 | OM-24/612 | 68.81 | 51.09 | 0.72 | 2.29 | 11.79 | 0.29 | 14.59 | 18.62 | 0.39 | 0.002 | 99.79 |
| 235 | OM-24/612 | 71.05 | 51.66 | 0.74 | 2.32 | 10.70 | 0.25 | 14.74 | 19.52 | 0.34 | 0.001 | 100.28 |
| 236 | OM-24/612 | 69.96 | 51.19 | 0.79 | 2.21 | 11.46 | 0.35 | 14.97 | 18.51 | 0.65 | 0.004 | 100.14 |
| 237 | OM-24/613.5 | 69.68 | 51.24 | 0.70 | 2.06 | 11.38 | 0.31 | 14.67 | 18.82 | 0.36 | 0.00 | 99.54 |
| 238 | OM-24/613.5 | 68.48 | 51.29 | 0.72 | 2.28 | 11.65 | 0.32 | 14.20 | 18.65 | 0.42 | 0.001 | 99.53 |
| 239 | OM-24/613.5 | 69.77 | 51.83 | 0.68 | 1.91 | 11.61 | 0.33 | 15.03 | 18.29 | 0.36 | 0.006 | 100.07 |
| 240 | OM-24/613.5 | 69.50 | 51.36 | 0.69 | 1.99 | 11.47 | 0.32 | 14.66 | 18.65 | 0.37 | 0.01 | 99.53 |
| 241 | OM-24/613.5 | 68.63 | 51.11 | 0.75 | 2.11 | 11.91 | 0.35 | 14.62 | 18.15 | 0.36 | 0.008 | 99.39 |
| 242 | OM-24/616.5 | 70.14 | 51.26 | 0.78 | 2.29 | 11.03 | 0.31 | 14.54 | 19.37 | 0.38 | 0.011 | 99.97 |
| 243 | OM-24/616.5 | 69.92 | 51.56 | 0.74 | 2.18 | 11.16 | 0.30 | 14.55 | 19.25 | 0.34 | 0.008 | 100.09 |
| 244 | OM-24/616.5 | 69.81 | 51.62 | 0.71 | 2.07 | 11.44 | 0.30 | 14.84 | 18.68 | 0.33 | 0.000 | 100.00 |
| 245 | OM-24/616.5 | 68.87 | 51.63 | 0.77 | 2.12 | 11.81 | 0.36 | 14.66 | 18.45 | 0.48 | 0.001 | 100.29 |
| 246 | OM-24/620.5 | 76.57 | 51.84 | 0.58 | 2.37 | 8.67 | 0.22 | 15.89 | 20.06 | 0.25 | 0.02 | 99.91 |
| 247 | OM-24/620.5 | 78.22 | 52.16 | 0.49 | 2.26 | 8.10 | 0.19 | 16.32 | 20.41 | 0.27 | 0.03 | 100.25 |
| 248 | OM-24/630.2 | 71.21 | 51.56 | 0.76 | 2.50 | 10.62 | 0.25 | 14.73 | 19.72 | 0.37 | 0.01 | 100.54 |
| 249 | OM-24/630.2 | 72.02 | 51.80 | 0.74 | 2.47 | 10.33 | 0.22 | 14.91 | 19.95 | 0.32 | 0.00 | 100.75 |
| 250 | OM-24/630.2 | 71.91 | 51.69 | 0.75 | 2.43 | 10.30 | 0.24 | 14.79 | 19.73 | 0.36 | 0.007 | 100.30 |
| 251 | OM-24/630.2 | 71.98 | 51.05 | 0.72 | 2.56 | 10.18 | 0.22 | 14.67 | 19.85 | 0.36 | 0.00 | 99.63 |
| 252 | OM-24/630.2 | 68.20 | 50.80 | 0.83 | 2.69 | 12.54 | 0.32 | 15.09 | 17.28 | 0.39 | 0.008 | 99.96 |
| 253 | OM-24/630.2 | 72.00 | 51.70 | 0.72 | 2.49 | 10.33 | 0.23 | 14.89 | 19.84 | 0.39 | 0.004 | 100.62 |
| 254 | OM-24/630.2 | 69.95 | 52.10 | 0.60 | 1.68 | 11.86 | 0.33 | 15.48 | 17.95 | 0.33 | 0.002 | 100.35 |
| 255 | OM-24/634 | 71.90 | 51.50 | 0.66 | 2.72 | 10.38 | 0.22 | 14.90 | 19.93 | 0.30 | 0.00 | 100.63 |
| 236 | OM-24/655.2 | 76.59 | 52.53 | 0.55 | 2.06 | 8.64 | 0.22 | 15.85 | 20.17 | 0.29 | 0.01 | 100.34 |
| 237 | OM-24/657 | 73.21 | 51.33 | 0.56 | 2.14 | 10.33 | 0.26 | 15.83 | 18.72 | 0.28 | 0.007 | 99.47 |
| 238 | OM-24/657 | 74.40 | 51.65 | 0.58 | 2.37 | 9.54 | 0.22 | 15.55 | 19.94 | 0.29 | 0.01 | 100.16 |
| 239 | OM-24/657 | 74.36 | 51.71 | 0.59 | 2.39 | 9.57 | 0.22 | 15.57 | 19.91 | 0.29 | 0.02 | 100.29 |
| 240 | OM-24/657 | 75.20 | 51.50 | 0.60 | 2.43 | 9.19 | 0.21 | 15.63 | 20.04 | 0.28 | 0.006 | 99.91 |
| 241 | OM-24/657 | 75.48 | 51.47 | 0.60 | 2.39 | 9.11 | 0.21 | 15.73 | 19.99 | 0.27 | 0.01 | 99.79 |
| 242 | OM-24/657 | 74.97 | 51.73 | 0.58 | 2.28 | 9.48 | 0.23 | 15.93 | 19.59 | 0.25 | 0.02 | 100.11 |
| 243 | OM-24/657 | 75.29 | 52.01 | 0.56 | 2.25 | 9.42 | 0.23 | 16.10 | 19.59 | 0.27 | 0.02 | 100.46 |
| 244 | OM-24/657 | 75.34 | 51.72 | 0.58 | 2.36 | 9.23 | 0.22 | 15.82 | 19.83 | 0.27 | 0.01 | 100.05 |

(continued)

**Table 10.3** (continued)

| No | No sample | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 245 | OM-24/666.6 | 74.63 | 51.10 | 0.53 | 2.28 | 9.32 | 0.25 | 15.38 | 19.94 | 0.29 | 0.02 | 99.12 |
| 246 | OM-24/666.6 | 74.48 | 50.31 | 0.59 | 2.43 | 9.45 | 0.22 | 15.47 | 19.42 | 0.26 | 0.01 | 98.17 |
| 247 | OM-24/666.6 | 75.45 | 50.54 | 0.58 | 2.45 | 8.90 | 0.21 | 15.34 | 19.97 | 0.27 | 0.01 | 98.30 |
| 248 | OM-24/666.6 | 75.46 | 50.42 | 0.55 | 2.39 | 8.91 | 0.22 | 15.37 | 19.94 | 0.28 | 0.02 | 98.12 |
| 249 | OM-24/666.6 | 76.14 | 50.69 | 0.53 | 2.33 | 8.68 | 0.20 | 15.54 | 19.94 | 0.26 | 0.02 | 98.21 |
| 250 | OM-24/666.6 | 76.13 | 51.18 | 0.55 | 2.22 | 8.82 | 0.21 | 15.78 | 19.93 | 0.31 | 0.01 | 99.02 |
| 251 | OM-24/666.6 | 75.52 | 50.99 | 0.57 | 2.41 | 9.08 | 0.21 | 15.71 | 19.98 | 0.28 | 0.02 | 99.26 |
| 252 | OM-24/666.6 | 76.36 | 51.17 | 0.54 | 2.32 | 8.72 | 0.20 | 15.80 | 20.06 | 0.27 | 0.03 | 99.12 |
| 253 | OM-24/666.6 | 76.98 | 51.56 | 0.50 | 2.22 | 8.51 | 0.21 | 15.96 | 20.13 | 0.27 | 0.01 | 99.39 |
| 254 | OM-24/666.6 | 75.63 | 51.29 | 0.58 | 2.38 | 9.00 | 0.21 | 15.67 | 19.99 | 0.29 | 0.03 | 99.46 |
| 255 | OM-24/675.5 | 62.20 | 50.81 | 0.49 | 1.22 | 14.41 | 0.43 | 13.30 | 18.29 | 0.23 | 0.002 | 99.20 |
| 256 | OM-24/675.5 | 62.57 | 50.71 | 0.67 | 1.49 | 14.62 | 0.43 | 13.71 | 17.53 | 0.27 | 0.005 | 99.44 |
| 257 | OM-24/675.5 | 61.15 | 50.19 | 0.65 | 1.42 | 16.23 | 0.47 | 14.33 | 15.65 | 0.22 | 0.00 | 99.17 |
| 258 | OM-24/675.5 | 44.62 | 43.72 | 1.81 | 4.90 | 23.90 | 0.39 | 10.80 | 14.04 | 0.88 | 0.006 | 100.45 |
| 259 | OM-24/675.5 | 60.89 | 50.87 | 0.67 | 1.43 | 15.48 | 0.45 | 13.52 | 17.21 | 0.25 | 0.00 | 99.89 |
| 260 | OM-24/685.4 | 78.33 | 51.48 | 0.49 | 2.26 | 7.92 | 0.19 | 16.06 | 20.42 | 0.24 | 0.05 | 99.13 |
| 261 | OM-24/685.4 | 77.82 | 51.37 | 0.53 | 2.31 | 8.09 | 0.19 | 15.92 | 20.25 | 0.26 | 0.04 | 98.98 |
| 262 | OM-24/685.4 | 78.14 | 51.33 | 0.52 | 2.31 | 8.02 | 0.20 | 16.08 | 20.26 | 0.24 | 0.06 | 99.03 |
| 263 | OM-24/685.4 | 77.91 | 51.50 | 0.52 | 2.34 | 8.06 | 0.18 | 15.94 | 20.28 | 0.22 | 0.05 | 99.10 |
| 264 | OM-24/685.4 | 76.94 | 51.18 | 0.54 | 2.35 | 8.41 | 0.19 | 15.74 | 20.12 | 0.21 | 0.04 | 98.81 |
| 265 | OM-24/685.4 | 78.15 | 52.01 | 0.51 | 2.33 | 8.07 | 0.19 | 16.19 | 20.28 | 0.23 | 0.06 | 99.89 |
| 266 | OM-24/685.4 | 75.28 | 51.78 | 0.54 | 2.20 | 9.22 | 0.22 | 15.75 | 19.80 | 0.29 | 0.01 | 99.83 |
| 267 | OM-24/685.4 | 76.97 | 51.72 | 0.46 | 2.24 | 8.52 | 0.20 | 15.97 | 20.15 | 0.22 | 0.06 | 99.56 |
| 268 | OM-24/709.2 | 73.15 | 51.16 | 0.61 | 2.19 | 10.21 | 0.26 | 15.60 | 19.05 | 0.28 | 0.01 | 99.38 |
| 269 | OM-24/709.2 | 79.32 | 51.20 | 0.51 | 2.57 | 7.60 | 0.18 | 16.35 | 20.20 | 0.23 | 0.13 | 98.99 |
| 270 | OM-24/709.2 | 79.81 | 51.06 | 0.44 | 2.21 | 7.38 | 0.18 | 16.36 | 20.38 | 0.23 | 0.13 | 98.39 |
| 271 | OM-24/709.2 | 79.88 | 51.21 | 0.46 | 2.40 | 7.35 | 0.18 | 16.37 | 20.44 | 0.23 | 0.15 | 98.80 |
| 272 | OM-24/711.4 | 78.97 | 51.30 | 0.56 | 3.29 | 7.71 | 0.19 | 16.24 | 20.01 | 0.22 | 0.23 | 99.76 |
| 273 | OM-24/711.4 | 79.84 | 51.93 | 0.45 | 2.82 | 7.33 | 0.18 | 16.28 | 20.61 | 0.22 | 0.17 | 100.01 |
| 274 | OM-24/711.4 | 79.69 | 51.57 | 0.48 | 2.77 | 7.35 | 0.17 | 16.18 | 20.70 | 0.21 | 0.15 | 99.60 |
| 275 | OM-24/711.4 | 79.90 | 51.92 | 0.44 | 2.74 | 7.30 | 0.18 | 16.28 | 20.55 | 0.23 | 0.17 | 99.83 |
| 276 | OM-24/711.4 | 79.72 | 51.58 | 0.45 | 2.73 | 7.34 | 0.17 | 16.18 | 20.58 | 0.23 | 0.15 | 99.43 |
| 277 | OM-24/711.4 | 79.73 | 51.77 | 0.48 | 2.81 | 7.35 | 0.17 | 16.22 | 20.55 | 0.24 | 0.16 | 99.77 |
| 278 | OM-24/711.4 | 79.63 | 51.49 | 0.49 | 2.81 | 7.38 | 0.18 | 16.18 | 20.61 | 0.23 | 0.15 | 99.54 |
| 279 | OM-24/711.4 | 73.66 | 51.13 | 0.64 | 2.65 | 9.75 | 0.23 | 15.29 | 19.50 | 0.27 | 0.04 | 99.52 |
| 280 | OM-24/711.4 | 79.97 | 52.08 | 0.42 | 2.47 | 7.42 | 0.18 | 16.62 | 20.15 | 0.22 | 0.13 | 99.71 |
| 281 | OM-24/711.4 | 73.53 | 49.64 | 1.10 | 5.18 | 9.27 | 0.19 | 14.44 | 19.60 | 0.33 | 0.12 | 99.89 |
| 282 | OM-24/715.4 | 79.70 | 52.02 | 0.40 | 2.12 | 7.62 | 0.19 | 16.78 | 19.45 | 0.22 | 0.12 | 98.94 |
| 283 | OM-24/715.4 | 79.18 | 50.33 | 0.57 | 3.00 | 7.50 | 0.18 | 16.00 | 20.11 | 0.23 | 0.23 | 98.17 |
| 284 | OM-24/715.4 | 79.44 | 50.47 | 0.50 | 2.66 | 7.50 | 0.18 | 16.25 | 20.04 | 0.22 | 0.17 | 98.00 |
| 285 | OM-24/715.4 | 79.67 | 50.83 | 0.48 | 2.47 | 7.37 | 0.17 | 16.20 | 20.34 | 0.24 | 0.15 | 98.27 |
| 286 | OM-24/731.1 | 79.88 | 52.14 | 0.56 | 2.87 | 7.45 | 0.17 | 16.59 | 20.30 | 0.22 | 0.27 | 100.60 |
| 287 | OM-24/731.1 | 79.59 | 52.52 | 0.48 | 2.25 | 7.60 | 0.18 | 16.62 | 20.50 | 0.21 | 0.12 | 100.49 |
| 288 | OM-24/731.1 | 80.76 | 52.42 | 0.43 | 2.35 | 7.10 | 0.17 | 16.72 | 20.65 | 0.22 | 0.27 | 100.35 |
| 289 | OM-24/731.1 | 81.11 | 52.44 | 0.43 | 2.33 | 6.98 | 0.17 | 16.81 | 20.74 | 0.22 | 0.30 | 100.43 |
| 290 | OM-24/731.4 | 81.23 | 51.79 | 0.42 | 2.22 | 6.88 | 0.16 | 16.70 | 20.44 | 0.23 | 0.30 | 99.15 |
| 291 | OM-24/731.4 | 80.23 | 51.08 | 0.45 | 2.60 | 7.08 | 0.17 | 16.12 | 20.35 | 0.25 | 0.28 | 98.39 |
| 292 | OM-24/731.4 | 81.59 | 51.63 | 0.37 | 2.23 | 6.72 | 0.17 | 16.70 | 19.67 | 0.26 | 0.33 | 98.10 |
| 293 | OM-24/731.4 | 67.76 | 49.95 | 0.82 | 2.17 | 12.15 | 0.31 | 14.32 | 18.28 | 0.32 | 0.009 | 98.34 |
| 294 | OM-24/733 | 80.79 | 51.59 | 0.44 | 2.53 | 7.02 | 0.16 | 16.56 | 20.50 | 0.24 | 0.33 | 99.39 |
| 295 | OM-24/733 | 79.77 | 51.80 | 0.51 | 2.77 | 7.52 | 0.18 | 16.63 | 19.90 | 0.24 | 0.26 | 99.83 |
| 296 | OM-24/733 | 69.58 | 51.13 | 0.71 | 2.14 | 11.51 | 0.28 | 14.77 | 18.77 | 0.28 | 0.01 | 99.62 |
| 297 | OM-24/733 | 80.75 | 51.71 | 0.43 | 2.45 | 7.00 | 0.17 | 16.47 | 20.59 | 0.25 | 0.27 | 99.35 |

(continued)

**Table 10.3** (continued)

| No | No обр. | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 298 | OM-24/758.6 | 81.07 | 51.51 | 0.53 | 3.32 | 6.84 | 0.16 | 16.43 | 20.47 | 0.26 | 0.58 | 100.11 |
| 299 | OM-24/758.6 | 81.80 | 52.18 | 0.42 | 2.35 | 6.70 | 0.17 | 16.89 | 20.29 | 0.24 | 0.46 | 99.72 |
| 300 | OM-24/758.6 | 82.21 | 52.59 | 0.42 | 2.73 | 6.45 | 0.15 | 16.72 | 20.87 | 0.23 | 0.61 | 100.79 |
| 301 | OM-24/758.6 | 82.09 | 52.81 | 0.41 | 2.23 | 6.59 | 0.16 | 16.94 | 20.49 | 0.23 | 0.42 | 100.30 |
| 302 | OM-24/758.6 | 81.41 | 52.29 | 0.42 | 2.58 | 6.88 | 0.16 | 16.90 | 20.03 | 0.23 | 0.49 | 100.00 |
| 303 | OM-24/758.6 | 82.14 | 52.69 | 0.36 | 2.02 | 6.65 | 0.17 | 17.16 | 20.13 | 0.23 | 0.39 | 99.82 |
| 304 | OM-24/758.6 | 82.05 | 52.27 | 0.40 | 2.33 | 6.47 | 0.15 | 16.59 | 20.66 | 0.23 | 0.46 | 99.59 |
| 305 | OM-24/758.6 | 81.41 | 52.06 | 0.46 | 2.51 | 6.69 | 0.15 | 16.43 | 20.68 | 0.25 | 0.35 | 99.60 |
| 306 | OM-24/758.6 | 80.38 | 52.54 | 0.46 | 2.37 | 7.18 | 0.17 | 16.50 | 20.64 | 0.21 | 0.17 | 100.27 |
| 307 | OM-24/758.6 | 80.04 | 52.88 | 0.48 | 2.34 | 7.38 | 0.17 | 16.60 | 20.45 | 0.24 | 0.14 | 100.70 |
| 308 | OM-24/758.6 | 80.01 | 52.48 | 0.50 | 2.51 | 7.41 | 0.18 | 16.64 | 20.27 | 0.25 | 0.17 | 100.42 |
| 309 | OM-24/758.6 | 79.51 | 52.40 | 0.52 | 2.66 | 7.59 | 0.19 | 16.52 | 20.24 | 0.23 | 0.15 | 100.51 |
| 310 | OM-24/758.6 | 80.08 | 52.34 | 0.46 | 2.30 | 7.35 | 0.17 | 16.57 | 20.42 | 0.23 | 0.14 | 100.00 |
| 311 | OM-24/758.6 | 80.49 | 52.52 | 0.46 | 2.35 | 7.14 | 0.17 | 16.52 | 20.67 | 0.23 | 0.18 | 100.26 |
| 312 | OM-24/762.9 | 82.78 | 51.71 | 0.38 | 2.72 | 6.17 | 0.15 | 16.64 | 20.64 | 0.22 | 0.81 | 99.46 |
| 313 | OM-24/762.9 | 82.13 | 51.47 | 0.48 | 3.39 | 6.29 | 0.14 | 16.21 | 20.63 | 0.24 | 1.01 | 99.89 |
| 314 | OM-24/762.9 | 76.85 | 51.42 | 0.58 | 2.10 | 8.52 | 0.21 | 15.86 | 20.00 | 0.25 | 0.04 | 99.00 |
| 315 | OM-24/762.9 | 78.08 | 51.50 | 0.44 | 2.88 | 7.92 | 0.19 | 15.82 | 20.27 | 0.27 | 0.73 | 100.03 |
| 316 | OM-24/762.9 | 81.92 | 51.68 | 0.45 | 2.86 | 6.46 | 0.15 | 16.42 | 20.69 | 0.23 | 0.65 | 99.61 |
| 317 | OM-24/762.9 | 81.18 | 51.83 | 0.41 | 2.95 | 6.64 | 0.15 | 16.06 | 20.69 | 0.26 | 0.88 | 99.88 |
| 318 | OM-24/762.9 | 82.61 | 51.44 | 0.43 | 3.01 | 6.18 | 0.15 | 16.47 | 20.76 | 0.24 | 0.89 | 99.58 |
| 319 | OM-24/762.9 | 82.16 | 51.11 | 0.47 | 3.31 | 6.30 | 0.15 | 16.27 | 20.69 | 0.23 | 0.90 | 99.45 |
| 320 | OM-24/762.9 | 82.84 | 51.48 | 0.40 | 2.92 | 6.11 | 0.14 | 16.54 | 20.60 | 0.27 | 0.87 | 99.35 |
| 321 | OM-24/762.9 | 82.10 | 51.41 | 0.47 | 3.46 | 6.37 | 0.15 | 16.39 | 20.45 | 0.25 | 1.02 | 99.99 |
| 322 | OM-24/762.9 | 82.65 | 51.67 | 0.42 | 2.98 | 6.14 | 0.14 | 16.41 | 20.70 | 0.25 | 0.88 | 99.61 |
| 323 | OM-24/762.9 | 82.59 | 51.33 | 0.45 | 3.17 | 6.13 | 0.15 | 16.31 | 20.91 | 0.27 | 0.91 | 99.65 |
| 324 | OM-24/762.9 | 79.67 | 52.15 | 0.53 | 2.40 | 7.47 | 0.17 | 16.42 | 20.45 | 0.23 | 0.11 | 99.95 |
| 325 | OM-24/762.9 | 76.81 | 51.76 | 0.53 | 2.36 | 8.49 | 0.21 | 15.77 | 20.16 | 0.25 | 0.17 | 99.71 |
| 326 | OM-24/762.9 | 82.73 | 51.62 | 0.40 | 2.77 | 6.16 | 0.14 | 16.55 | 20.80 | 0.24 | 0.72 | 99.42 |
| 327 | OM-24/762.9 | 82.47 | 50.51 | 0.46 | 3.34 | 6.09 | 0.14 | 16.07 | 20.85 | 0.22 | 1.02 | 98.71 |
| 328 | OM-24/762.9 | 67.14 | 49.74 | 0.63 | 2.79 | 12.86 | 0.33 | 14.74 | 16.83 | 0.25 | 0.009 | 98.19 |
| 329 | OM-24/762.9 | 82.66 | 51.56 | 0.42 | 2.82 | 6.18 | 0.14 | 16.52 | 20.78 | 0.21 | 0.76 | 99.41 |
| 330 | OM-24/762.9 | 81.31 | 51.58 | 0.47 | 2.65 | 6.76 | 0.16 | 16.50 | 20.65 | 0.24 | 0.39 | 99.42 |
| 331 | OM-24/769.8 | 81.00 | 51.28 | 0.55 | 3.34 | 6.78 | 0.16 | 16.21 | 20.26 | 0.22 | 0.72 | 99.55 |
| 332 | OM-24/769.8 | 82.04 | 52.09 | 0.41 | 2.02 | 6.51 | 0.16 | 16.68 | 20.77 | 0.24 | 0.33 | 99.22 |
| 333 | OM-24/769.8 | 79.71 | 51.85 | 0.52 | 2.94 | 7.59 | 0.19 | 16.72 | 19.44 | 0.26 | 0.37 | 99.90 |
| 334 | OM-24/769.8 | 66.31 | 51.21 | 0.99 | 1.95 | 14.06 | 0.38 | 15.52 | 15.85 | 0.27 | 0.00 | 100.24 |
| 335 | OM-24/774.7 | 80.93 | 51.38 | 0.49 | 2.71 | 6.93 | 0.16 | 16.50 | 20.73 | 0.28 | 0.44 | 99.64 |
| 336 | OM-24/774.7 | 72.59 | 50.65 | 0.75 | 2.37 | 10.86 | 0.28 | 16.13 | 17.90 | 0.28 | 0.03 | 99.27 |
| 337 | OM-24/774.7 | 76.77 | 51.36 | 0.68 | 2.64 | 8.60 | 0.21 | 15.94 | 19.78 | 0.29 | 0.09 | 99.60 |
| 338 | OM-24/774.7 | 82.10 | 51.01 | 0.46 | 3.04 | 6.32 | 0.16 | 16.26 | 20.69 | 0.27 | 0.90 | 99.13 |
| 339 | OM-24/774.7 | 82.65 | 51.86 | 0.40 | 2.74 | 6.15 | 0.14 | 16.43 | 20.80 | 0.26 | 0.80 | 99.61 |
| 340 | OM-24/780.7 | 65.47 | 50.22 | 1.25 | 2.66 | 12.88 | 0.31 | 13.70 | 18.60 | 0.31 | 0.01 | 99.96 |
| 341 | OM-24/780.7 | 69.76 | 50.55 | 1.00 | 2.61 | 11.26 | 0.28 | 14.57 | 18.92 | 0.31 | 0.02 | 99.53 |
| 342 | OM-24/780.7 | 80.74 | 52.52 | 0.42 | 1.99 | 7.21 | 0.18 | 16.95 | 19.84 | 0.23 | 0.41 | 99.78 |
| 343 | OM-24/780.7 | 79.84 | 51.81 | 0.57 | 2.87 | 7.30 | 0.18 | 16.22 | 20.21 | 0.25 | 0.59 | 100.02 |
| 344 | OM-24/793.3 | 75.96 | 50.80 | 0.74 | 2.29 | 8.97 | 0.22 | 15.90 | 19.39 | 0.27 | 0.07 | 98.67 |
| 345 | OM-24/793.3 | 77.88 | 50.98 | 0.64 | 2.36 | 8.15 | 0.19 | 16.09 | 19.88 | 0.27 | 0.13 | 98.70 |
| 346 | OM-24/793.3 | 80.34 | 51.33 | 0.54 | 2.63 | 7.07 | 0.16 | 16.21 | 20.36 | 0.26 | 0.43 | 99.02 |
| 347 | OM-24/793.3 | 81.80 | 51.33 | 0.55 | 3.34 | 6.46 | 0.15 | 16.29 | 20.58 | 0.24 | 0.65 | 99.61 |
| 348 | OM-24/793.3 | 82.80 | 52.49 | 0.38 | 1.88 | 6.41 | 0.16 | 17.31 | 20.04 | 0.23 | 0.40 | 99.32 |
| 349 | OM-24/793.3 | 81.77 | 51.01 | 0.56 | 3.38 | 6.45 | 0.14 | 16.23 | 20.55 | 0.26 | 0.68 | 99.29 |
| 350 | OM-24/793.3 | 80.96 | 51.79 | 0.46 | 2.20 | 6.96 | 0.17 | 16.60 | 20.25 | 0.24 | 0.39 | 99.08 |

(continued)

**Table 10.3** (continued)

| No | No обр. | MgO# | $SiO_2$ | $TiO_2$ | $Al_2O_3$ | FeO | MnO | MgO | CaO | $Na_2O$ | $Cr_2O_3$ | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 351 | OM-24/793.5 | 77.76 | 52.44 | 0.56 | 2.42 | 8.24 | 0.19 | 16.16 | 20.37 | 0.24 | 0.03 | 100.67 |
| 352 | OM-24/793.5 | 77.66 | 52.10 | 0.53 | 2.28 | 8.22 | 0.20 | 16.03 | 20.31 | 0.23 | 0.04 | 99.96 |
| 353 | OM-24/793.5 | 75.48 | 52.21 | 0.57 | 2.19 | 9.12 | 0.22 | 15.75 | 19.97 | 0.28 | 0.00 | 100.32 |
| 354 | OM-24/798.3 | 77.49 | 51.39 | 0.62 | 2.62 | 8.56 | 0.23 | 16.53 | 18.41 | 0.27 | 0.27 | 98.91 |
| 355 | OM-24/798.3 | 78.58 | 51.17 | 0.61 | 2.64 | 7.78 | 0.19 | 16.01 | 20.03 | 0.24 | 0.36 | 99.05 |
| 356 | OM-24/798.3 | 73.84 | 51.31 | 0.83 | 2.35 | 10.39 | 0.27 | 16.45 | 17.91 | 0.27 | 0.05 | 99.84 |
| 357 | OM-24/798.3 | 74.54 | 51.21 | 0.84 | 2.56 | 9.63 | 0.24 | 15.81 | 19.09 | 0.31 | 0.07 | 99.77 |
| 358 | OM-24/798.3 | 74.53 | 51.52 | 0.83 | 2.53 | 9.67 | 0.24 | 15.87 | 19.07 | 0.31 | 0.07 | 100.12 |
| 359 | OM-24/803.3 | 82.55 | 51.63 | 0.44 | 2.36 | 6.29 | 0.16 | 16.69 | 20.55 | 0.21 | 0.38 | 98.73 |
| 360 | OM-24/803.3 | 81.78 | 50.80 | 0.54 | 3.12 | 6.59 | 0.16 | 16.59 | 19.93 | 0.25 | 0.60 | 98.59 |
| 361 | OM-24/803.3 | 81.20 | 50.49 | 0.56 | 3.57 | 6.86 | 0.16 | 16.62 | 19.26 | 0.25 | 0.82 | 98.61 |
| 362 | OM-24/803.3 | 81.24 | 51.11 | 0.53 | 2.86 | 6.89 | 0.17 | 16.73 | 19.91 | 0.25 | 0.56 | 99.03 |
| 363 | OM-24/803.3 | 82.58 | 51.34 | 0.40 | 2.00 | 6.43 | 0.16 | 17.10 | 19.97 | 0.25 | 0.44 | 98.11 |
| 364 | OM-24/803.3 | 77.05 | 50.51 | 0.77 | 2.84 | 8.52 | 0.20 | 16.04 | 19.32 | 0.28 | 0.20 | 98.69 |
| 365 | OM-24/803.3 | 79.41 | 50.84 | 0.58 | 2.80 | 7.73 | 0.18 | 16.72 | 18.99 | 0.26 | 0.43 | 98.54 |

**Table 10.4** Composition of rocks from Nadezhdinsky (nd) and Morongovsky (mr) Formations

| No пп | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| No обр. | g-5 | g-5_1 | g-5_2 | g-7 | 491/1 | 492/1 | 492/2 | 4,031/3 | 4,031/6 | 4,032 |
| Свита | $nd_3$ | $nd_3$ | $nd_3$ | $nd_3$ | $nd_1$ | $nd_1$ | $nd_1$ | mr | mr | mr |
| $SiO_2$ | 52.07 | 52.40 | 53.61 | 53.23 | 52.64 | 52.72 | 53.13 | 48.45 | 49.34 | 50.31 |
| $TiO_2$ | 0.97 | 1.02 | 0.97 | 1.05 | 0.93 | 0.76 | 1.01 | 1.29 | 1.18 | 1.12 |
| $Al_2O_3$ | 16.06 | 15.85 | 15.06 | 15.10 | 16.20 | 15.57 | 15.42 | 14.67 | 15.73 | 15.64 |
| FeO | 9.54 | 9.75 | 9.72 | 10.08 | 9.25 | 8.95 | 9.28 | 11.65 | 11.07 | 11.03 |
| MnO | 0.22 | 0.19 | 0.15 | 0.16 | 0.13 | 0.18 | 0.15 | 0.18 | 0.15 | 0.19 |
| MgO | 7.53 | 6.63 | 6.50 | 5.89 | 6.25 | 6.37 | 6.47 | 7.64 | 7.06 | 7.10 |
| CaO | 8.94 | 10.80 | 10.70 | 8.91 | 9.83 | 11.92 | 9.87 | 11.22 | 11.80 | 11.61 |
| $Na_2O$ | 2.31 | 1.95 | 1.98 | 2.77 | 2.44 | 1.97 | 2.88 | 2.10 | 2.04 | 2.10 |
| $K_2O$ | 1.68 | 0.94 | 0.91 | 1.94 | 1.65 | 0.96 | 1.49 | 0.39 | 0.17 | 0.34 |
| $P_2O_5$ | 0.12 | 0.11 | 0.11 | 0.11 | 0.15 | 0.10 | 0.12 | 0.15 | 0.13 | 0.14 |
| Сумма | 99.44 | 99.64 | 99.71 | 99.24 | 99.49 | 99.51 | 99.82 | 97.73 | 98.67 | 99.56 |
| Rb | 50.86 | 18.21 | 27.85 | 72.31 | 44.66 | 33.06 | 45.52 | 5.72 | 2.90 | 3.78 |
| Ba | 639 | 392 | 350 | 495 | 602 | 274 | 371 | 126 | 99 | 120 |
| Th | 3.60 | 3.30 | 3.44 | 3.61 | 3.13 | 3.03 | 3.59 | 1.16 | 1.26 | 1.14 |
| U | 1.01 | 0.94 | 0.93 | 0.92 | 0.71 | 0.80 | 1.02 | 0.43 | 0.53 | 0.45 |
| Nb | 8.31 | 8.15 | 8.11 | 8.87 | 7.69 | 6.99 | 8.36 | 4.23 | 4.89 | 4.41 |
| Ta | 0.53 | 0.50 | 0.55 | 0.55 | 0.46 | 0.44 | 0.51 | 0.26 | 0.30 | 0.27 |
| La | 19.0 | 17.4 | 18.3 | 19.2 | 18.7 | 15.8 | 18.2 | 8.1 | 8.2 | 7.8 |
| Ce | 39.4 | 36.4 | 37.2 | 39.4 | 37.7 | 32.1 | 37.5 | 18.2 | 18.6 | 17.5 |
| Pb | 7.59 | 12.46 | 7.65 | 7.23 | 6.78 | 5.66 | 5.61 | 1.44 | 2.49 | 1.62 |
| Pr | 4.66 | 4.41 | 4.48 | 4.75 | 4.64 | 3.96 | 4.52 | 2.51 | 2.52 | 2.39 |
| Nd | 19.0 | 18.0 | 18.5 | 19.3 | 19.0 | 16.1 | 18.2 | 11.8 | 11.6 | 11.3 |
| Sr | 323 | 241 | 274 | 394 | 332 | 261 | 395 | 181 | 210 | 188 |
| Sm | 4.24 | 3.91 | 4.01 | 4.22 | 3.98 | 3.49 | 3.87 | 3.25 | 3.18 | 3.04 |
| Zr | 136 | 123 | 128 | 142 | 131 | 106 | 117 | 88 | 92 | 89 |
| Hf | 3.54 | 3.16 | 3.32 | 3.61 | 3.27 | 2.76 | 2.96 | 2.34 | 2.40 | 2.31 |
| Eu | 1.17 | 1.09 | 1.12 | 1.13 | 1.13 | 1.05 | 1.07 | 1.11 | 1.11 | 1.05 |
| Ti | 6,034 | 5,970 | 5,878 | 6,527 | 5,790 | 5,174 | 5,963 | 6,507 | 7,140 | 7,073 |

(continued)

**Table 10.4** (continued)

| No пп | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| No обр. | g-5 | g-5_1 | g-5_2 | g-7 | 491/1 | 492/1 | 492/2 | 4,031/3 | 4,031/6 | 4,032 |
| Свита | $nd_3$ | $nd_3$ | $nd_3$ | $nd_3$ | $nd_1$ | $nd_1$ | $nd_1$ | mr | mr | mr |
| Gd | 4.37 | 4.10 | 4.25 | 4.47 | 4.17 | 3.72 | 4.02 | 4.02 | 3.92 | 3.85 |
| Tb | 0.70 | 0.65 | 0.68 | 0.72 | 0.66 | 0.61 | 0.65 | 0.69 | 0.67 | 0.64 |
| Dy | 4.52 | 4.23 | 4.39 | 4.51 | 4.18 | 3.83 | 4.15 | 4.65 | 4.40 | 4.35 |
| Ho | 0.92 | 0.85 | 0.91 | 0.90 | 0.86 | 0.78 | 0.83 | 0.97 | 0.93 | 0.91 |
| Y | 25.1 | 23.2 | 23.9 | 24.8 | 23.0 | 21.1 | 22.8 | 26.0 | 24.7 | 25.2 |
| Er | 2.71 | 2.45 | 2.50 | 2.56 | 2.47 | 2.27 | 2.42 | 2.78 | 2.68 | 2.61 |
| Tm | 0.38 | 0.35 | 0.36 | 0.37 | 0.35 | 0.33 | 0.35 | 0.40 | 0.39 | 0.39 |
| Yb | 2.57 | 2.34 | 2.43 | 2.56 | 2.31 | 2.18 | 2.29 | 2.73 | 2.68 | 2.60 |
| Lu | 0.38 | 0.35 | 0.38 | 0.38 | 0.35 | 0.33 | 0.33 | 0.41 | 0.39 | 0.39 |
| Ni | 49 | 52 | 47 | 40 | 39 | 19 | 19 | 120 | 128 | 139 |
| Cu | 286 | 420 | 200 | 319 | 36 | 22 | 15 | 82 | 133 | 139 |
| Zn | 124 | 153 | 122 | 129 | 84 | 86 | 97 | 88 | 95 | 89 |
| Mn | 1,434 | 1,433 | 1,148 | 1,286 | 1,267 | 1,216 | 1,065 | 1,390 | 1,477 | 1,552 |
| Sc | 35 | 35 | 34 | 34 | 36 | 33 | 33 | 42 | 40 | 43 |
| Co | 136 | 123 | 128 | 142 | 40 | 35 | 39 | 47 | 51 | 54 |

Analyses were carried out in Max-Planck Institute of Chemistry (Mainz, Germany). Major elements were done by EPMA in glasses and rare elements by LA-ICP-MS. Analysts B. Stoll, D. Kuzmin and N. Krivolutskaya