

| DataPoint | mineral     | Na  | Si  | Mg  | Al  | Ca  | Mn  | Fe  | Ti  | Cr  | Ni  | K   | Ba  | Sr  | Zn  | Nb   |
|-----------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 42 / 1 .  | Garnet core | -2  | 230 | 245 | 210 | 259 | 312 | 790 | 250 |     |     |     |     |     |     |      |
| 43 / 1 .  | Garnet rim  | 343 | 215 | 241 | 217 | 256 | 313 | 821 | 255 |     |     |     |     |     |     |      |
| 44 / 1 .  | Garnet rim  | 353 | 223 | 242 | 227 | 252 | 308 | 804 | 250 |     |     |     |     |     |     |      |
| 45 / 1 .  | Garnet rim  | -2  | 230 | 248 | 206 | 246 | 323 | 806 | 264 |     |     |     |     |     |     |      |
| 46 / 1 .  | Garnet rim  | 399 | 224 | 235 | 211 | 244 | 311 | 795 | 251 |     |     |     |     |     |     |      |
| 47 / 1 .  | Bt rim      | 404 | 267 | 237 | 222 | 252 | 313 | 676 | 294 |     |     | 453 |     |     |     |      |
| 48 / 1 .  | Bt rim      | 370 | 260 | 238 | 210 | 239 | 296 | 702 | 294 |     |     | 440 |     |     |     |      |
| 49 / 1 .  | Bt core     | 388 | 266 | 252 | 220 | 242 | 294 | 604 | 303 |     |     | 441 |     |     |     |      |
| 50 / 1 .  | Bt core     | 389 | 267 | 239 | 214 | 234 | 290 | 590 | 295 |     |     | 445 |     |     |     |      |
| 51 / 1 .  | Bt rim      | 406 | 272 | 244 | 219 | 235 | 307 | 679 | 278 |     |     | 435 |     |     |     |      |
| 52 / 1 .  | Phyl        | 438 | 291 | 261 | 325 | 288 |     | 530 | 0   |     |     | 476 | 996 | -1  |     |      |
| 53 / 1 .  | Phyl        | 363 | 293 | 244 | 308 | 321 |     | 456 | 356 |     |     | 530 | 981 | 986 |     |      |
| 54 / 1 .  | Phyl        | 482 | 299 | 237 | 319 | 310 |     | 528 | 363 |     |     | 486 | 967 | 0   |     |      |
| 55 / 1 .  | Bt rim      | 391 | 257 | 241 | 217 | 232 | 298 | 685 | 293 |     |     | 396 |     |     |     |      |
| 56 / 1 .  | Chl         | -1  | 247 | 252 | 211 | 227 | 293 | 731 | 274 |     |     | 296 |     |     |     |      |
| 57 / 1 .  | Chl         | 0   | 260 | 249 | 229 | 228 | 285 | 743 | 284 |     |     | 309 |     |     |     |      |
| 58 / 1 .  | Ilm         |     | 191 | 216 | 160 |     | 341 | 820 | 349 | 0   | 0   |     |     |     | 663 | 1048 |
| 59 / 1 .  | Ilm         |     | 188 | 210 | 161 |     | 345 | 789 | 347 | 405 | 419 |     |     |     | -4  | 941  |
| 60 / 1 .  | Rut         |     | 158 | 189 | 102 |     |     | 314 | 877 | 214 |     |     |     |     |     | 516  |
| 61 / 1 .  | Rut         |     | 158 | 191 | 104 |     |     | 328 | 883 | 211 |     |     |     |     |     | 527  |
| 62 / 1 .  | Rut         |     | 158 | 190 | 103 |     |     | 340 | 861 | 218 |     |     |     |     |     | 515  |
| 63 / 1 .  | Grt core    | 0   | 222 | 246 | 222 | 264 | 308 | 830 | 261 |     |     |     |     |     |     |      |
| 64 / 1 .  | Grt rim     | 376 | 225 | 247 | 203 | 249 | 316 | 835 | 260 |     |     |     |     |     |     |      |
| 65 / 1 .  | Grt core    | 363 | 224 | 251 | 223 | 261 | 315 | 812 | 265 |     |     |     |     |     |     |      |
| 66 / 1 .  | Grt rim     | -1  | 225 | 252 | 207 | 255 | 314 | 833 | 259 |     |     |     |     |     |     |      |
| 67 / 1 .  | Grt rim     | 359 | 225 | 247 | 208 | 231 | 314 | 838 | 250 |     |     |     |     |     |     |      |
| 68 / 1 .  | Chl         | 0   | 246 | 246 | 226 | 232 | 282 | 732 | 280 |     |     | 302 |     |     |     |      |
| 69 / 1 .  | Chl         | -22 | 254 | 243 | 237 | 239 | 288 | 781 | 264 |     |     | 303 |     |     |     |      |
| 70 / 1 .  | Chl         | 418 | 260 | 251 | 225 | 238 | 306 | 763 | 270 |     |     | 304 |     |     |     |      |
| 71 / 1 .  | Phyl        | 391 | 267 | 216 | 218 | 208 | 281 | 541 | 265 |     |     | 404 |     |     |     |      |
| 72 / 1 .  | Phyl        | 347 | 256 | 209 | 224 | 213 | 285 | 466 | 268 |     |     | 421 |     |     |     |      |
| 73 / 1 .  | Phyl        | 307 | 258 | 205 | 215 | 243 | 296 | 483 | 268 |     |     | 397 |     |     |     |      |
| 74 / 1 .  | Chl         | 398 | 246 | 251 | 226 | 235 | 298 | 734 | 283 |     |     | 300 |     |     |     |      |
| 75 / 1 .  | Chl         | 390 | 252 | 236 | 222 | 242 | 284 | 734 | 269 |     |     | 306 |     |     |     |      |
| 76 / 1 .  | Phyl        | 338 | 261 | 208 | 215 | 227 | 289 | 507 | 279 |     |     | 406 |     |     |     |      |
| 77 / 1 .  | Ilm         |     | 209 | 247 | 173 |     | 383 | 883 | 392 | -1  | 0   |     |     |     | -1  | 1109 |
| 78 / 1 .  | Grt rim     | -2  | 221 | 242 | 205 | 246 | 315 | 852 | 260 |     |     |     |     |     |     |      |
| 79 / 1 .  | Grt rim     | -2  | 222 | 242 | 215 | 270 | 314 | 878 | 260 |     |     |     |     |     |     |      |
| 80 / 1 .  | Grt rim     | 0   | 222 | 245 | 206 | 259 | 321 | 860 | 0   |     |     |     |     |     |     |      |
| 81 / 1 .  | Chl         | 410 | 250 | 249 | 226 | 225 | 291 | 755 | 284 |     |     | 307 | 843 |     |     |      |
| 82 / 1 .  | Chl         | 439 | 253 | 242 | 229 | 238 | 300 | 753 | 281 |     |     | 297 | 836 |     |     |      |
| 83 / 1 .  | Phyl        | 371 | 253 | 220 | 224 | 234 | 291 | 569 | 271 |     |     | 395 | 845 |     |     |      |
| 84 / 1 .  | Pheng/mus   | 352 | 266 | 203 | 217 | 238 | 0   | 428 | 273 |     |     | 431 | 909 |     |     |      |
| 85 / 1 .  | Pheng/mus   | 370 | 258 | 199 | 213 | 240 | 0   | 415 | 265 |     |     | 419 | 866 |     |     |      |
| 86 / 1 .  | Phyl        | 366 | 257 | 200 | 216 | 250 | 273 | 487 | 279 |     |     | 389 | 885 |     |     |      |
| 87 / 1 .  | Pheng/mus   | 352 | 254 | 207 | 219 | 232 | 281 | 455 | 276 |     |     | 438 | 882 |     |     |      |
| 88 / 1 .  | Grt core    | 344 | 222 | 238 | 214 | 251 | 313 | 822 | 254 |     |     |     |     |     |     |      |
| 89 / 1 .  | Grt core    | 362 | 225 | 230 | 214 | 257 | 311 | 837 | 256 |     |     |     |     |     |     |      |
| 90 / 1 .  | Chl         | 0   | 254 | 244 | 235 | 226 | 288 | 732 | 288 |     |     | 310 | 827 |     |     |      |
| 91 / 1 .  | Bt rim      | 421 | 256 | 241 | 223 | 243 | 297 | 713 | 305 |     |     | 391 | 908 |     |     |      |
| 92 / 1 .  | Chl         | 0   | 251 | 239 | 212 | 228 | 294 | 741 | 270 |     |     | 299 | 0   |     |     |      |
| 93 / 1 .  | Chl         | -1  | 246 | 252 | 227 | 239 | 294 | 730 | 276 |     |     | 314 | 822 |     |     |      |
| 94 / 1 .  | Grt rim     | -3  | 220 | 240 | 207 | 259 | 300 | 821 | 263 |     |     |     |     |     |     |      |
| 95 / 1 .  | Grt rim     | 369 | 219 | 234 | 209 | 260 | 312 | 824 | 260 |     |     |     |     |     |     |      |
| 96 / 1 .  | Grt core    | 375 | 220 | 243 | 213 | 247 | 303 | 800 | -1  |     |     |     |     |     |     |      |

|          |          |     |     |     |     |     |     |     |     |
|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|
| 97 / 1 . | Grt core | 344 | 223 | 237 | 197 | 266 | 316 | 778 | 254 |
| 98 / 1 . | Grt core | 380 | 224 | 237 | 211 | 256 | 315 | 780 | 253 |

Supplemental Table S1. Detection limits of EMPA analyses in ppm.

| Ta   | Comment            | X     | Y     | Z    |
|------|--------------------|-------|-------|------|
|      | IV12-05_pos01_1    | 12338 | 31291 | -11  |
|      | IV12-05_pos01_2    | 12139 | 31101 | -11  |
|      | IV12-05_pos01_3    | 12265 | 31074 | -11  |
|      | IV12-05_pos01_4    | 12459 | 31134 | -13  |
|      | IV12-05_pos01_6    | 12610 | 31094 | -15  |
|      | IV12-05_pos01_7    | 12558 | 31116 | -15  |
|      | IV12-05_pos01_8    | 12538 | 31188 | -15  |
|      | IV12-05_pos01_9    | 12767 | 31243 | -19  |
|      | IV12-05_pos01_10   | 12233 | 30928 | -17  |
|      | IV12-05_pos01_11   | 12234 | 30961 | -17  |
|      | IV12-05_pos01_12   | 12438 | 30987 | -17  |
|      | IV12-05_pos01_13   | 12543 | 30983 | -17  |
|      | IV12-05_pos01_14   | 12279 | 30999 | -17  |
|      | IV12-05_pos01_15   | 12348 | 30856 | -17  |
|      | IV12-05_pos01_16   | 12373 | 30891 | -17  |
|      | IV12-05_pos01_17   | 12184 | 30842 | -17  |
| 1150 | IV12-05_pos01_18   | 17831 | 22603 | -78  |
| 1155 | IV12-05_pos01_19   | 18042 | 22604 | -78  |
|      | IV12-05_pos01_20   | 17932 | 22531 | -78  |
|      | IV12-05_pos01_21   | 17947 | 22582 | -78  |
|      | IV12-05_pos01_22   | 18004 | 22759 | -78  |
|      | IV12-05_pos02_23   | 17724 | 22788 | -73  |
|      | IV12-05_pos02_24   | 17782 | 22708 | -73  |
|      | IV12-05_pos02_25   | 17861 | 22743 | -73  |
|      | IV12-05_pos02_26   | 17879 | 22703 | -73  |
|      | IV12-05_pos02_27   | 17865 | 22589 | -77  |
|      | IV12-05_pos02_28   | 18133 | 22696 | -82  |
|      | IV12-05_pos02_29   | 18227 | 22651 | -85  |
|      | IV12-05_pos02_30   | 17792 | 22633 | -82  |
|      | IV12-05_pos02_31   | 17829 | 22589 | -82  |
|      | IV12-05_pos02_32   | 17936 | 22758 | -82  |
|      | IV12-05_pos02_33   | 17947 | 22744 | -82  |
|      | IV12-05_pos02_34   | 17835 | 22554 | -82  |
|      | IV12-05_pos02_35   | 17835 | 22554 | -82  |
|      | IV12-05_pos02_36   | 17729 | 22638 | -82  |
| 1269 | IV12-05_pos03_37   | 16696 | 16242 | -102 |
|      | IV12-05_pos03_38   | 16993 | 16635 | -102 |
|      | IV12-05_pos03_39   | 16934 | 16603 | -99  |
|      | IV12-05_pos03_40   | 16937 | 16448 | -99  |
|      | IV12-05_pos03_41   | 16945 | 16232 | -103 |
|      | IV12-05_pos03_42   | 16981 | 16233 | -103 |
|      | IV12-05_pos03_43   | 16912 | 16276 | -103 |
|      | IV12-05_pos03_44   | 16970 | 16277 | -103 |
|      | IV12-05_pos03_45   | 16731 | 16234 | -103 |
|      | IV12-05_pos03_46   | 17005 | 16257 | -103 |
|      | IV12-05_pos03_47   | 16581 | 16500 | -103 |
|      | IV12-05_grt1_c     | 16811 | 15481 | -100 |
|      | IV12-05_grt1_r     | 16648 | 15610 | -100 |
|      | IV12-05_pos04_48   | 2393  | 23044 | 12   |
|      | IV12-05_pos04_49   | 2487  | 23203 | 12   |
|      | IV12-05_pos04_50   | 2264  | 23191 | 12   |
|      | IV12-05_pos04_51   | 2187  | 22927 | 12   |
|      | IV12-05_pos04_52   | 2395  | 23026 | 12   |
|      | IV12-05_pos04_53   | 2489  | 23188 | 12   |
|      | IV12-05_pos04_54_c | 2684  | 23008 | 12   |

|                    |      |       |    |
|--------------------|------|-------|----|
| IV12-05_pos04_55_c | 2658 | 22820 | 12 |
| IV12-05_pos04_56_c | 2878 | 22833 | 12 |