SUPPLEMENTARY MATERIAL

Significance of compositional zoning in cumulate chromites of the Kabanga chonoliths, Tanzania

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Appendix A – Data table

Table A.1 - EPMA analysis (wavelength dispersive spectrometry) of zoned chromites at Kabanga. Fe2O3 has been calculated assuming perfect spinel stoichiometry.

Appendix B – X-ray intensity images and zoning profiles

Figure S1. Photomicrograph (above) and X-ray intensity images for Fe, Mg, Al and Cr (below) for a group of euhedral chromite enclosed in orthopyroxene (sample KN92-26-167m Spot-14 – location of analysed profile X-Y of grain K is shown, c.f. Figure S2).

Figure S2. EPMA analysis profile X-Y of major element ratios and minor element concentrations of grain K shown in Fig. S1, illustrating simple normal gradational zoning.

Figure S3. Photomicrograph (above) and X-ray intensity images for Fe, Mg, Al and Cr (below) for a group of euhedral chromite enclosed in olivine (sample P1-19-506m Spot-05 – location of analysed profile X-Y of grain M is shown, c.f. Figure S4).

Figure S4. EPMA analysis profile X-Y of major element ratios and minor element concentrations of grain M shown in Fig. S3, illustrating simple reverse gradational zoning.

Figure S5. Photomicrograph (above) and X-ray intensity images for Fe, Mg, Al and Cr (below) for a subhedral chromite grain at the boundary between sulphide (po) and olivine (ol) (sample KN91-02-215m Spot-01 – location of analysed profile X-Y of grain W is shown, c.f. Figure S6).

Figure S6. EPMA analysis profile X-Y of major element ratios and minor element concentrations of grain W shown in Fig. S5, illustrating composite zoning.

Figure S7. EPMA X-ray intensity images for grain A enclosed in orthopyroxene (sample KN92-26-164m Spot-17A). Scale bar on all images is 200 micrometres.

Figure S8. EPMA X-ray intensity images for grain J enclosed in orthopyroxene (sample KN92-26-164m Spot-03A, B, C, D). Scale bar on all images is 200 micrometres.

Figure S9. EPMA X-ray intensity images for grain S enclosed in altered plagioclase (sample KN92-26-164m Spot-16A). X-ray images of Al and Mg showed anomalous variations of intensity during stage scanning. Scale bar on all images is 200 micrometres.

Figure S10. EPMA X-ray intensity images for grain V enclosed between phlogopite and sulphide (sample KN92-26-164m Spot-05A). X-ray images of Al and Mg showed anomalous variations of intensity during stage scanning. Scale bar on all images is 200 micrometres.

Figure S11. EPMA X-ray intensity images for grain L enclosed in olivine (sample P1-19-506m Spot-09A). X-ray images of Al and Mg showed anomalous variations of intensity during stage scanning. Scale bar on all images is 200 micrometres.