**Whole rock XRF methods**

Eight samples were large enough to analyse for major and trace element compositions. Whole rock samples were analysed for major and trace elements using a PANalytical Axios Advanced X-Ray Spectrometer after the methods of Watson (1986) and Robinson (2003). Samples were milled into a powder and 0.5 g of powder was combined with 4.5 g of 12-22 Flux (a pre-fused mixture consisting of 12 parts Li2B4O7 and 22 parts LiBO2 Lithium Tetraborate-Metaborate mix) and 0.0606 g LiNO3 (added as 100 *µ*l of 60.6% LiNO3). The mix was fused at 1100 °C for 15 minutes before being cast in a 32 mm 5% Au- 95% Pt mould. Loss on ignition (LOI) was determined on ~2 g of sample powder ignited overnight at 1000°C in 5 mL platinum crucibles. Corrections for mass absorption are calculated using Philips X40 software with De Jongh’s calibration model and Philip’s (or CSIRO) alpha coefficients. Compton scattering is also used for many trace elements Calibrations are on pure element oxide mixes in pure silica, along with international and Tasmanian standard rocks used. Major and trace element results for international standard rocks are reported in Falloon et al., (2007).

The LOI value of an analysed sample is a measure of low temperature alteration and in oceanic rocks can illustrate the degree of seawater alteration. The analysed dredged samples range between 0.37−2.77 wt% LOI and six samples have <2 wt% LOI, which is broadly used to indicate minor alteration.

**References**

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