Accepted Manuscript

Trace elements in olivine of ultramafic lamprophyres controlled by phlogopiterich mineral assemblages in the mantle source

Marina Veter, Stephen F. Foley, Regina Mertz-Kraus, Nora Groschopf

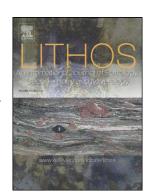
PII: S0024-4937(17)30298-0

DOI: doi:10.1016/j.lithos.2017.08.020

Reference: LITHOS 4403

To appear in: LITHOS

Received date: 19 May 2017 Accepted date: 24 August 2017



Please cite this article as: Veter, Marina, Foley, Stephen F., Mertz-Kraus, Regina, Groschopf, Nora, Trace elements in olivine of ultramafic lamprophyres controlled by phlogopite-rich mineral assemblages in the mantle source, LITHOS (2017), doi:10.1016/j.lithos.2017.08.020

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Trace elements in olivine of ultramafic lamprophyres controlled by phlogopite-rich mineral assemblages in the mantle source

Marina Veter^{1,2,*}, Stephen F. Foley^{1,2}, Regina Mertz-Kraus², Nora Groschopf²

¹ Department of Earth and Planetary Sciences, Macquarie University, North Ryde, NSW 2109, Australia

² Institute for Geosciences, Johannes Gutenberg University of Mainz, 55099 Mainz, Germany

* Corresponding author: Marina Veter, marina.veter@hdr.mq.edu.au

Abstract

Carbonate-rich ultramafic lamprophyres (aillikites) and associated rocks characteristically occur during the early stages of thinning and rifting of cratonic mantle lithosphere, prior to the eruption of melilitites, nephelinites and alkali basalts. It is accepted that they require volatile-rich melting conditions, and the presence of phlogopite and carbonate in the source, but the exact source rock assemblages are debated. Melts similar to carbonate-rich ultramafic lamprophyres (aillikites) have been produced by melting of peridotites in the presence of CO₂ and H₂O, whereas isotopes and trace elements appear to favour distinct phlogopite-bearing rocks.

Olivine macrocrysts in aillikites are usually rounded and abraded, so that it is debated whether they are phenocrysts or mantle xenocrysts. We have analysed minor and trace element composition in olivines from the type aillikites from Aillik Bay in Labrador, Canada. We characterize five groups of

Download English Version:

https://daneshyari.com/en/article/5783972

Download Persian Version:

https://daneshyari.com/article/5783972

<u>Daneshyari.com</u>