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Miscellaneous Release—Data 310

Mineralogical Analyses of Ijolites and Related Rocks, Mesoproterozoic Prairie Lake Carbonatite Complex, Northwestern Ontario

by

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This publication can be downloaded from

http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=MRD310

This data release comprises the data set of electron microprobe analyses of garnet, clinopyroxene, nepheline, magnetite, wollastonite, and biotite from a variety of ijolites and related rocks from the Prairie Lake Carbonatite Complex. The Prairie Lake Carbonatite Complex (Mineral Deposit Inventory number MDI42E02SE00003 (Ontario Geological Survey 2013)) is located approximately 45 km northwest of Marathon, Ontario. The complex is part of a Mesoproterozoic Midcontinent Rift-related alkalic rock – carbonatite petrologic province north of Lake Superior, associated with the northern extension of the Trans Superior Tectonic Zone. The Prairie Lake Carbonatite Complex, approximately 8.8 km² in size, comprises carbonatite and carbonate-rich intrusive rocks along its periphery and ijolite-melteigite-urtite series rocks within its core. Orbicular ijolite occurs in bands or as dikes within medium-grained ijolite (UTM co-ordinates *approximately* 521300E, 5431400N, Zone 16, NAD83). This is the only known orbicular ijolite occurrence worldwide. This unique rock may provide clues about crystallochemical reactions that occurred during the later stages of emplacement and crystallization.

The collection and analysis of these samples were part of a study of the Prairie Lake Carbonatite Complex, which was published as Ontario Geological Survey Study 46 by R.P. Sage (1987), but the orbicular ijolite data were never published. Since this is the only orbicular ijolite occurrence known in the world, all specimens have been archived at the Royal Ontario Museum (ROM) in Toronto, Ontario (*see* Table 1 in the *MRD Tables Ijolite final.xlsx* Microsoft® Excel® file for sample identification numbers).

The Prairie Lake Carbonatite Complex study was part of a larger study of carbonatite complexes and alkalic intrusions conducted from 1974 to 1978 by the Ontario Geological Survey and published from 1985 to 1988 as Studies 30 to 53 by R.P. Sage.

Contents

Data in this release are contained within a single Microsoft® Excel® file: **MRD Tables Ijolite Final.xlsx**

The file **MRD Tables Ijolite Final.xlsx** contains the following 10 tables, accessible via the 10 worksheet tabs found along the bottom of the opened file window.

- Table 1: Sample identification (*from* Sage 1987)
- Table 2: Microprobe analysis of garnet in orbicular ijolite
- Table 3: Microprobe analysis of clinopyroxene in orbicular ijolite
- Table 4: Microprobe analysis of nepheline in orbicular ijolite
- Table 5: Microprobe analysis of magnetite in orbicular ijolite
- Table 6: Microprobe analysis of garnet in ijolite
- Table 7: Microprobe analysis of clinopyroxene in ijolite
- Table 8: Microprobe analysis of wollastonite in ijolite
- Table 9: Microprobe analysis of nepheline in ijolite
- Table 10: Microprobe analysis of biotite in ijolite

References

Sage, R.P. 1987. Geology of carbonatite – alkalic rock complexes in Ontario: Prairie Lake Carbonatite Complex, District of Thunder Bay; Ontario Geological Survey, Study 46, 91p.

Ontario Geological Survey 2013. Mineral Deposit Inventory—2013; Ontario Geological Survey. http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=MDI