

National Argon Map: an AuScope Initiative

$^{40}\text{Ar}/^{39}\text{Ar}$ Geochronology Laboratory Sample Submission Form

This form must be fully completed before any work can be submitted to the Laboratory.

Person submitting samples: Naina (PhD student- MinEx CRC), ANU
Project Title: Cambro-Ordovician magmatism and deformation at the eastern margin of Gondwana, South Australia: Insights into tectonic processes and mineral potential
Sample Number: N1926 (2 samples)
Date submitted:

GEOGRAPHIC AREA/ PROVINCE/ BASIN: Padthaway Ridge	
1:250k SHEET NAME: Barker	NUMBER: S15413
1:100k SHEET NAME: Mobilong	NUMBER: 6727
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94) WGS84	
ZONE:	
EASTING:	NORTHING:
LATITUDE: -35.14806°	LONGITUDE: 139.3028°

STRATIGRAPHIC UNIT FORMAL NAME: Murray Bridge Granite
STRATIGRAPHIC UNIT INFORMAL NAME: Murray Bridge Granite
LITHOLOGY: Granite, massive, coarse-grained. A-type with rapakivi texture.

DRILLHOLE ID (if applicable):
PROSPECT (if applicable):
DEPTH FROM (metres):
DEPTH TO (metres):

Dating Objective

What is the geological question $^{40}\text{Ar}/^{39}\text{Ar}$ analysis will address?

The granites outcropping in south-east South Australia have been poorly dated through U-Pb 15-20 years ago, and have never been dated using Ar-Ar geochronology, doing so would help in constructing the thermal history of these A-type granites.

What type of age(s) are expected? (e.g. magmatic crystallisation, metamorphism, fluid alteration/mineralisation, cooling, shearing etc):

Magmatic crystallisation, alteration, metamorphic and cooling ages.

Mineral target(s) for dating (provide approximate K content if known):

Mineral targets for this sample are Biotite (9%K) and K-Feldspar (11%K) content.

Estimated $^{40}\text{Ar}/^{39}\text{Ar}$ age (e.g. Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archean – provide estimated numerical age range if possible):

Estimated age for this unit is 470Ma.

Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology):

Sample Information

Location description (e.g. a sample of x was collected from y, z km from abc town or locality):

The sample was collected in south-east South Australia outcropping in the Murray Basin (-35.14806°, 139.3028°)

Lithological characteristics (rock description):

Murray Bridge granite is a coarse-grained granite with K-feldspar+Plagioclase+Quartz+mafics. Zoned K-feldspar observed, rapakivi texture observed.

Thin section description (if available): No thin section description available.

Photograph(s) e.g. field site, hand-specimen, photomicrograph: Below is a photograph of the marcollat granite from my PhD field trip in September 2019.



Relevant bibliographic references:

Rochow, K. A. (1971). Geology of the Naracoorte 1:25000 Sheet Area. Department of Mines South Australia.