

Geoscience Australia

Geochronology Laboratory Sample Submission Form

This form must be fully completed before any work can be submitted to the Laboratory. It is a requirement that sample location and description data be entered into the GA databases before laboratory work begins.

Person submitting samples:	A Clark		
Project Code:		Project Name:	
Sample Number (SITE ID):	2018339553 / 2786131		
Date submitted:	29 Apr 2019		
GEOGRAPHIC AREA/ PROVINCE/ BASIN:	Warramunga Province		
1:250k SHEET NAME:	Alroy	NUMBER:	SE5315
1:100k SHEET NAME:	Dalmore	NUMBER:	6058
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94)	GDA94		
ZONE:			
EASTING:		NORTHING:	
LATITUDE:	-19.520077	LONGITUDE:	135.95583
FORMAL NAME:	N/A		
INFORMAL NAME:	Graphitic andalusite-muscovite schist		
LITHOLOGY:	Schist		
DRILLHOLE ID:	DDH005	DEPTH FROM:	253.40
PROSPECT:		DEPTH TO:	253.60

Dating Objective

What is the geological question Ar-Ar analysis will potentially solve?

Ar-Ar ages from this sample will help determine the timing of metamorphism/deformation in the Alroy/Tennant East/Barkley region. Upper amphibolite-facies metamorphism and deformation of rocks in this drill-core are known to have occurred at ~1845 Ma (unpublished monazite ages). However, this sample is comprised of lower-grade minerals such as fine grained muscovite, quartz and abundant andalusite porphyroblasts. It also lacks biotite. A brittle fault separates this low-grade domain from the upper-amphibolite facies assemblage. As the metamorphic grade of this rock is moderate (low-mid amphibolite facies), the muscovite age is likely to approach the true metamorphic age.

What type of age(s) are expected? (e.g. magmatic crystallisation, metamorphism, maximum depositional age, detrital age spectrum):

Metamorphic age (muscovite)

Mineral target for dating:

Muscovite

Sample Information

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

Lithological characteristics (rock description):

This sample is a qtz-muscovite-graphite-andalusite schist. Relict bedding is visible as compositional banding. Muscovite and quartz define a schistosity that parallels compositional layering. Andalusite porphyroblasts overgrow this fabric, but are subtly wrapped by an overprinting crenulation cleavage that cuts the main schistosity in the sample. This crenulation does not appear to be associated with significant mica recrystallisation.

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

A single population of metamorphic monazite from a higher-grade package of rocks in this drill-core has an age of 1844 ± 3 Ma (in prep). No other age information is available.

Thin section description (if available):

See sample description above.

Photograph(s):

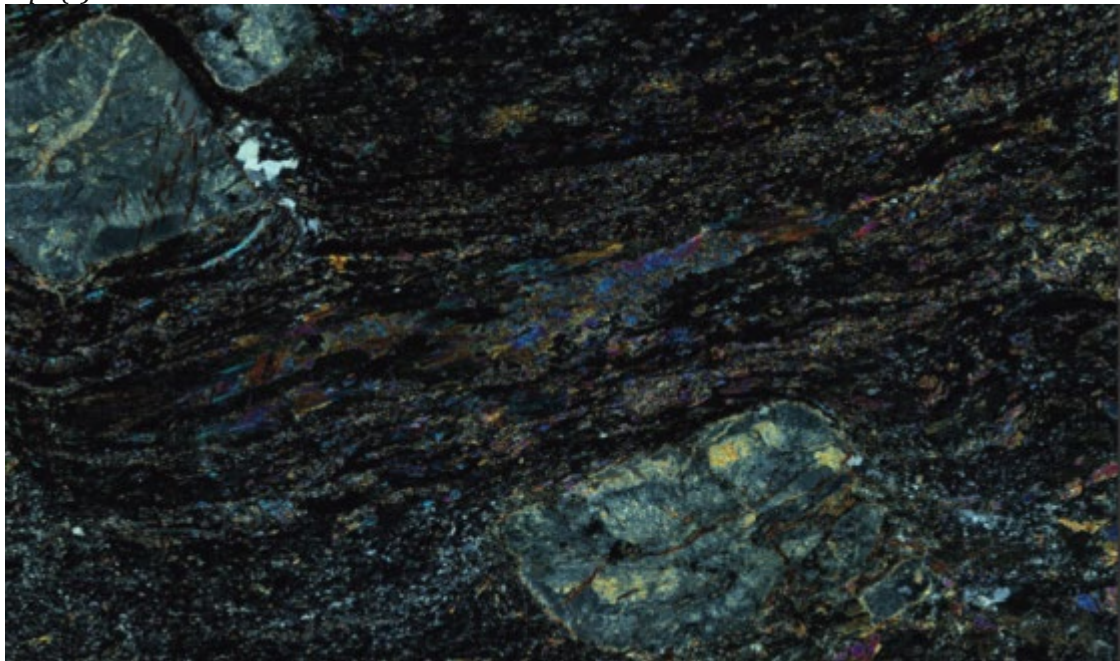


Figure 1: XPL image of sample showing muscovite, quartz-graphite matrix surrounding andalusite porphyroblasts. FOV approx. 8mm across.

Relevant bibliographic references:

Confidential Data

Is this sample confidential? No

If so, until what date and reason?