

**Data documentation for size and shape characteristics of
South African actinolite asbestos (ferro-actinolite)**

Title

Size and shape characteristics of South African actinolite asbestos (ferro-actinolite)

Authors

Ann G. Wylie
Robert L. Virta

Corresponding Author

Ann G. Wylie
University of Maryland, College Park
awylie@umd.edu

Contributors

Several individuals worked on this study and/or related studies by Ann G. Wylie et al.
These individuals include:

Jim Bergen
P. Burke
Michael Eisner
Larry Johnson
M. Kempa
D. Kightlinger
Jim Lowry
Robin Reichlin
Berta Schreiber
Joe Segretti
Kim Shedd
Janet Snyder
Eric Steel
P. Sweitzer
D. Vroblesky

Data Files

The csv version contains the same data as the corresponding xlsx file, but its structure has been modified to make well-formed csv. The csv file is provided as a software-independent alternative to the xlsx format.

1. wylie_actinolite_south_africa.xlsx
2. wylie_actinolite_south_africa.csv

Temporal Extent

Sample obtained and measured ca. 1980.

Spatial Extent

Actinolite sample is from the Northern Cape Province, South Africa.

Abstract

This material was characterized by the University of Maryland in collaboration with the US Bureau of Mines (USBM) as part of studies on the nature of asbestos.

The actinolite sample came from the Northern Cape Province, South Africa. It is likely from the Prieska area and may be called prieskaite. It was part of the USBM Mineral Collection housed at College Park. It is referred to as Sample 115 in some of the associated publications.

The mineral forming the fibers can be described chemically as about 72% ferro-actinolite and 28% tremolite components.

Sample preparation included dispersal in water and deposition on 0.1 μ m Nucleopore filters. A portion of the filters was copper coated and examined by SEM equipped with EDXA. Measurements of width were made at 20,000X and lengths at 10,000 to 15,000. 1.099 latex spheres co-mounted on the SEM stubs were used to calibrate measurements. Particles to be measured were chosen by moving the specimen tab in increments and recording the length and width of the particle whose center fell closest to the center of the field of view. Precision is estimated as $\pm 0.06 \mu\text{m}$.

Instruments

Scanning Electron Microscopy (SEM) with Energy-Dispersive X-Ray Analysis (EDXA) capability.

Variables/Parameters

length	particle length in micrometers - μm
width	particle width in micrometers - μm

Keywords/Topics

Actinolite
 Ferro-actinolite
 Amphibole group
 Granulometry

Associated Publications

Analyses of these data or analysis of the same sample (sample #115 in some publications) can be found in the following publications:

Wylie, A.G., and Schweitzer, P. 1982. The effects of sample preparation and measuring techniques on the shape and shape characterization of mineral particles: The case of wollastonite: *Environmental Research*, v. 27, p. 52-73,
[http://dx.doi.org/10.1016/0013-9351\(82\)90057-3](http://dx.doi.org/10.1016/0013-9351(82)90057-3)

Wylie, A.G., 1988, Relationship between the growth habit of asbestos and the dimensions of asbestos fibers: *Mining Engineering*, Nov., p. 1036-1040.

Wylie, A.G., 1988, Discriminating amphibole cleavage fragments from asbestos: Rationale and methodology, *in* Proceedings of the VIIth: International Pneumoconioses Conference Part II: Pittsburg, PA., US Department of Health and Human Services (NIOSH) Publication no. 90108, p. 1065-1069. <http://www.cdc.gov/niosh/docs/90-108/>

Verkouteren, J.R., and Wylie, A.G., 2000, The tremolite-actinolite-ferro-actinolite series: Systematic relationships among cell parameters, composition, optical properties, and habit, and evidence of discontinuities: *American Mineralogist*, v. 85, p. 1239-1254,
<http://dx.doi.org/10.2138/am-2000-8-917>

Verkouteren, J.R., and Wylie, A.G., 2002, Anomalous optical properties of fibrous tremolite, actinolite and ferro-actinolite: *American Mineralogist*, v. 87, p. 1090-1095,
<http://dx.doi.org/10.2138/am-2002-8-905>

Data Citation

Wylie, A.G., and Virta, R.L., 2015, *Size and shape characteristics of South African actinolite asbestos (ferro-actinolite)*: Digital Repository at the University of Maryland, <http://dx.doi.org/10.13016/M2S138>

DOI

10.13016/M2S138

Data Repository

Digital Repository at the University of Maryland (DRUM)

<http://drum.lib.umd.edu>

drum-help@umd.edu

Date Released

2016

Availability

Open Access