

## ***Sr isotope study of andesites from the southern Albuquerque Basin, New Mexico***

D.G. Brookins, J.A. Kasten, and A.M. Kudo

Isochron/West, Bulletin of Isotopic Geochronology, v. 27, pp. 27-28

Downloaded from: <https://geoinfo.nmt.edu/publications/periodicals/isochronwest/home.cfm?Issue=27>

---

Isochron/West was published at irregular intervals from 1971 to 1996. The journal was patterned after the journal *Radiocarbon* and covered isotopic age-dating (except carbon-14) on rocks and minerals from the Western Hemisphere. Initially, the geographic scope of papers was restricted to the western half of the United States, but was later expanded. The journal was sponsored and staffed by the New Mexico Bureau of Mines (now Geology) & Mineral Resources and the Nevada Bureau of Mines & Geology.



**ISOCHRON/WEST**  
*A Bulletin of Isotopic Geochronology*

All back-issue papers are available for free: <https://geoinfo.nmt.edu/publications/periodicals/isochronwest>

*This page is intentionally left blank to maintain order of facing pages.*

# SR ISOTOPE STUDY OF ANDESITES FROM THE SOUTHERN ALBUQUERQUE BASIN, NEW MEXICO

D. G. BROOKINS  
J. A. KASTEN  
A. M. KUDO

*Department of Geology, University of New Mexico, Albuquerque, NM 87131*

This article reports our findings for andesites from the Cerro de Los Lunas (106°48'00"W, 34°48'00"N) and Tome (106°42'00"W, 34°45'00"N; Valencia Co., NM) volcanoes. These rocks are petrographically interesting and have been described in detail by Kasten (1977).

All  $^{87}\text{Sr}/^{86}\text{Sr}$  ratios have been normalized to  $^{86}\text{Sr}/^{88}\text{Sr} = 0.1194$ .

Partial financial support was provided by U.S.G.S. Grant 14-08-0001-G-348.

## DISCUSSION

Fresh samples of andesite were available from the Cerro de Los Lunas Volcano, but only inclusion- and calcite(?) bearing samples were available from the Tome Volcano. Both suites of samples are predominantly andesitic in composition despite the presence of inclusions (Kasten, 1977). Four samples of Tome andesites were leached with vycor distilled HCl to determine if intergranular material was calcite or not; the data are presented below. Because of the variable amounts of inclusions and other evidences of extreme sample inhomogeneity, the aliquots used as untreated whole rocks were not identical to those aliquots used for the leaching experiments. The data below clearly show higher  $^{87}\text{Sr}/^{86}\text{Sr}$  for the leach than the insoluble residues for the Tome samples; but only two of the four samples yield whole rock data intermediate in  $^{87}\text{Sr}/^{86}\text{Sr}$  between the leach and the insoluble residue, which attests to the sample inhomogeneity. The Cerro de Los Lunas samples are much fresher, contain fewer inclusions, and possess virtually no calcite (based on petrography and  $\text{CO}_2$  chemical determinations; Kasten, 1977), hence the whole rock values are assumed to be representative of the parent material. The relatively high initial  $^{87}\text{Sr}/^{86}\text{Sr}$  ratios are probably due to crustal contamination because a positive correlation of  $^{87}\text{Sr}/^{86}\text{Sr}$  with  $\text{SiO}_2$  content is noted for these and other Rio Grande Rift andesites and basaltic andesites (Zimmerman and Kudo, 1979).

## RESULTS

	$^{87}\text{Sr}/^{86}\text{Sr}$ (insoluble residue)	$^{87}\text{Sr}/^{86}\text{Sr}$ (whole rock)	$^{87}\text{Sr}/^{86}\text{Sr}$ (leach)
1. Tome Volcanics			
Tome-1-TS-7a (inner core)	0.7072	0.7080	0.7093
Tome-1-TS-7a (outer rim)	0.7070	0.7052	0.7096
Tome-2-TP-11 (inner core)	0.7061	0.7057	0.7063
Tome-2-TP-11 (outer rim)	0.7037	0.7054	0.7061
2. Los Lunas Volcanics			
LP-1		0.7060	
LP-2		0.7052	
LP-3		0.7047	
LP-4		0.7050	

## REFERENCES

- Kasten, J. A. (1977) Petrology and geochemistry of calc-alkaline andesites within the Albuquerque Basin, Valencia County, New Mexico: M.S. Thesis, Univ. New Mexico (Geology Dept.), 79 p.
- Zimmerman, C. J., and Kudo, A. M. (1979) Geochemistry of andesites and related rocks, Rio Grande Rift, New Mexico: Internat. Symposium Rio Grande Rift (in press, 1979).

8