

UNIVERSITY OF CALIFORNIA

Radiation Laboratory

Special Review of Declassified Reports

Authorized by USDOE JK Bratton
Unclassified TWX P182206Z May 79

REPORT PROPERLY DECLASSIFIED

J. A. Green
Authorized Derivative Classifier

11 9 1979
Date

BERKELEY, CALIFORNIA

DISCLAIMER

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor the Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or the Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or the Regents of the University of California.

00100603616

UCRL-151
Chemistry-General

UNIVERSITY OF CALIFORNIA
RADIATION LABORATORY

~~CONFIDENTIAL~~
~~CONFIDENTIAL~~

CLASSIFICATION CANCELLED BY AUTHORITY
OF THE DEPARTMENT OF ENERGY
BY THE DECLASSIFICATION COMMITTEE

THE ALPHA-PARTICLE ENERGY OF Ac²²⁷

A. Ghiorso, J. M. Hollander and I. Perlman

July 19, 1948

Special Review of Declassified Reports
Authorized by USDOE JK Bratton
Unclassified TWX P182206Z May 79

REPORT PROPERLY DECLASSIFIED

<u>J. N. Green</u>	<u>8-16-79</u>
Authorized Derivative Classifier	Date
<u>Andi Cohen</u>	<u>8-20-79</u>
By	Date

Berkeley, California

Standard DistributionNo. of Copies

Argonne National Laboratory	1-8
Armed Forces Special Weapons Project	9
Atomic Energy Commission, Washington	10-11
Battelle Memorial Institute	12
Brookhaven National Laboratory	13-22
Carbide & Carbon Chemicals Corp. K-25	23-26
Carbide & Carbon Chemicals Corp. Y-12	27-30
Columbia University (Failla)	31
General Electric Company	32-35
Hanford Directed Operations	36-42
Iowa State College	43
Kellogg Corporation	44-45
Los Alamos	46-48
Massachusetts Institute of Technology	49
Monsanto Chemical Company, Dayton	50-51
National Bureau of Standards	52-53
Naval Radiological Defense Laboratory	54
NEPA	55
New York Directed Operations	56-57
Oak Ridge National Laboratory	58-69
Patent Advisor, Washington	70
Technical Information Division, ORDO	71-85
UCLA Medical Research Laboratory (Warren)	86
University of California, Radiation Lab.	87-91
University of Rochester	92-93
Western Reserve University (Friedell)	94
Office of Chicago Directed Operations	95
Declassification Procedure	96-104

July 19, 1948

THE ALPHA-PARTICLE ENERGY OF Ac^{227}

A. Ghiorso, J. M. Hollander and I. Perlman

Radiation Laboratory, University of California
Berkeley, California

Using an alpha-particle pulse analyzer, the energy of the Ac^{227} alpha-particle has been measured on material obtained from the pile irradiation of $\text{Ra}^{226(1)}$. The Ac^{227} obtained in this way is free of Pa^{231} .*

*We wish to thank Dr. French Hagemann of the Argonne National Laboratory for the actinium used in these measurements.

The alpha-particle energy was obtained by comparing purified actinium with Ra^{226} (4.791 Mev) and Po^{210} (5.298 Mev) as primary standards. The value obtained was 4.94 (± 0.01) Mev, which is in good agreement with the value 4.95 Mev reported by Gregoire and Perey⁽²⁾ and by Peterson and Ghiorso⁽³⁾. However, the alpha-group in 15% abundance at 4.6 Mev attributed by Gregoire and Perey to fine structure in Ac^{227} alpha-decay was not in evidence. The pulse analysis curve for Ac^{227} is shown in Fig. 1 in comparison with that for Pa^{231} where a short-range group in about 15% abundance has been found.⁽⁴⁾

Incidental to the actinium measurements, the values obtained for the Pa^{231} alpha-groups are 5.02 ± 0.01 Mev and 4.72 ± 0.03 Mev.

References

1. Peterson, S., reported by G. T. Seaborg, Amer. Scientist 36, 1 (1948).
2. Gregoire, R. G., and M. Perey, Compt. Rend. 225, 733 (1947).
3. Peterson, S., and A. Ghiorso, Plutonium Project Record, Vol. 14B, No. 19.10 (1946) (to be published).
4. San-Tsiang Tsien, M. Bachelet and G. Bouissieres, Phys. Rev. 69, 39 (1946).

This work was performed under the auspices of the Atomic Energy Commission.

0 0 1 0 0 6 0 3 6 2 0

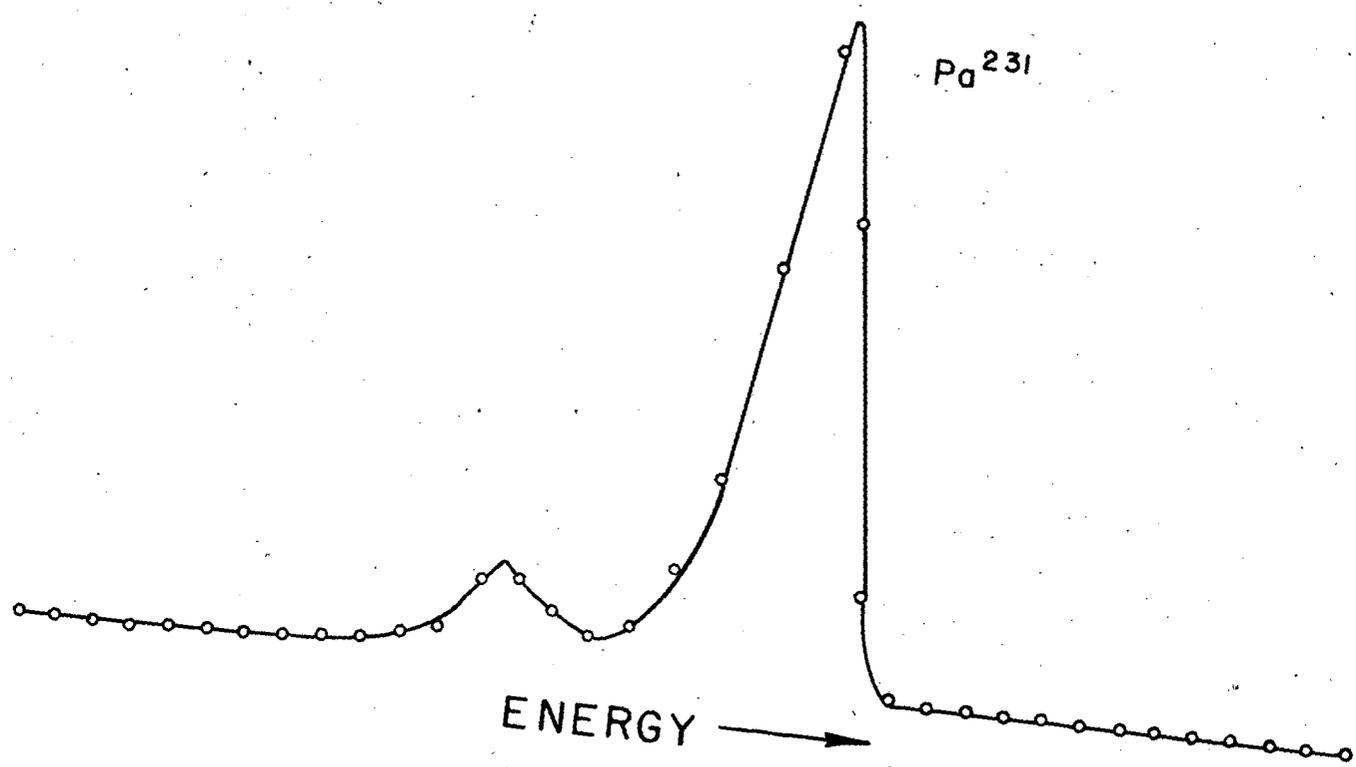
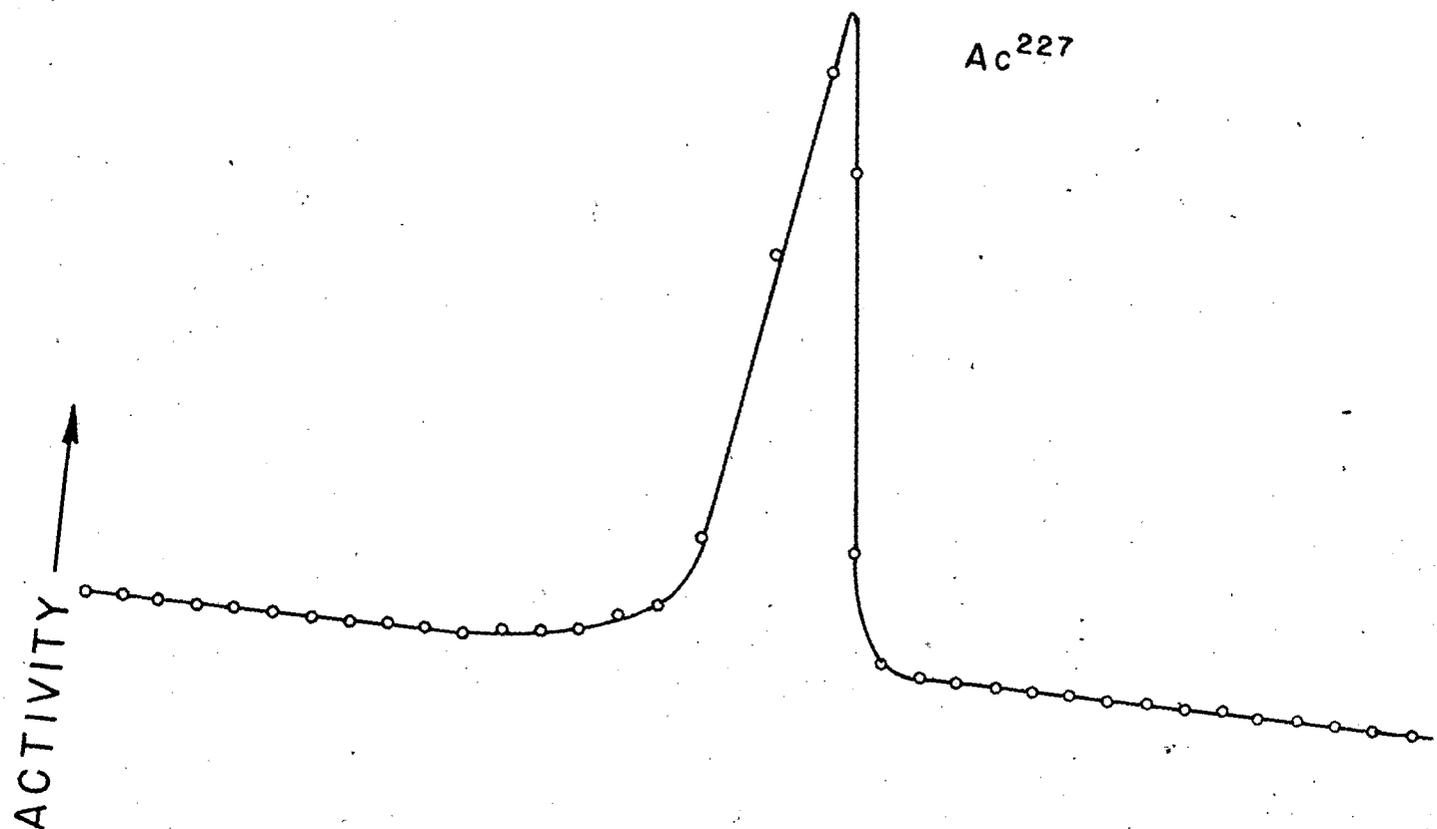
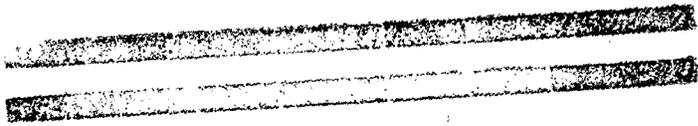


FIG. 1



CLASSIFICATION CANCELLED BY AUTHORITY
OF THE SECRETARY OF DEFENSE
BY THE DECLASSIFICATION COMMITTEE