



AMERICA'S STRENGTH, FORGED IN ISOTOPES

Isotopes—distinct forms of elements—represent critical resources pivotal to nearly every sector across the nation. The Office of Isotope R&D and Production is charged with ensuring a robust domestic supply chain of these essential materials. This foundational work enables cutting-edge technologies and scientific breakthroughs that underpin America's economic competitiveness and technological leadership in areas such as:



Medicine

Ac-225,
At-211, Pb-203



Energy

Ho-166m,
Cf-252, Ba-133



Quantum & Fusion

He-3,
Si-28, D₂O



National Security

Ni-63,
Li-6, He-3



Discovery Science

Bk-249,
Es-255, Cm-248



Industry

Ir-192,
Se-75, Co-60

The Office of Isotope R&D and Production (IRP) is the sole producer for approximately 300 isotopes domestically and 40 globally, underscoring the United States' vital role in isotope leadership. Recognizing that current domestic capacity falls short of demand for some crucial isotopes, IRP is dedicated to establishing and securing new domestic supply chains through public private partnerships. To ensure consistent production and rapid deployment of new novel isotope products, the IRP actively advances research in nuclear and radiochemistry, reactor and accelerator science, and isotope enrichment.

Vision

To establish the United States as the world's undisputed leader in isotope science and production, ensuring a secure, resilient, and innovative domestic supply of critical isotopes essential for national prosperity, health, and security. This vision is supported by three core pillars:

Secure and Resilient Supply: Commitment to a robust domestic ecosystem that minimizes reliance on foreign sources and withstands disruptions.

Innovation: Emphasis on continuous advancement through strategic R&D, new technologies, and a skilled workforce.

Critical Impact: Acknowledgment of the vital role isotopes play across diverse sectors, including medicine, national security, industry, and fundamental research.

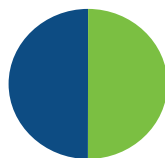
Enabling Commercial Isotope Markets Through DOE Leadership



Federal Market Establishment

IRP may provide 100% of supply to establish availability and demonstrate demand.

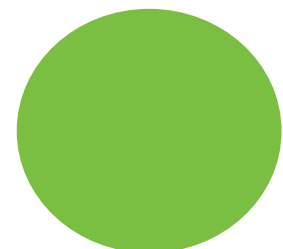
e.g. thorium-228



Public-Private Transition

Public-private partnerships to facilitate transition to commercial isotope production.

e.g. actinium-225



Market Maturity

Commercial suppliers provide the isotope to the market. IRP may retain standby capacity.

e.g. strontium-82

Recent Achievements

- Interagency Cooperation Transforms Legacy Waste into Strategic Medical Radioisotope Supply (5/19/26)
- DOE, Missouri and Mizzou Break Ground on Radioisotope Science Center to Expand U.S. Isotope Supply (5/18/26)
- DOE and MURR Secure Critical Radioisotope Supply Chain for Medical Imaging (3/24/26)
- U.S. Department of Energy Advances Domestic Capabilities for Producing Quantum Materials (3/4/26)

5 Key Isotopes to Know About

- Ac** Actinium-225 – Targeted Cancer Therapy
- At** Astatine-211 – Targeted Cancer Therapy
- Cf** Californium-252 – Oil and Gas Industry
- Am** Americium-241 – Radioisotope Power Source
- Si** Silicon-28 – Quantum Computing

IRP-supplied isotopes are currently supporting over 30 active clinical trials

Annually, IRP executes over 1,000 shipments to deliver critical isotopes

Isotope Availability

The DOE Office of Isotope R&D and Production (IRP) provides access to a broad portfolio of isotopes, including more than 225 stable isotopes and over 85 radioactive isotopes, supporting research, medical, and industrial applications.

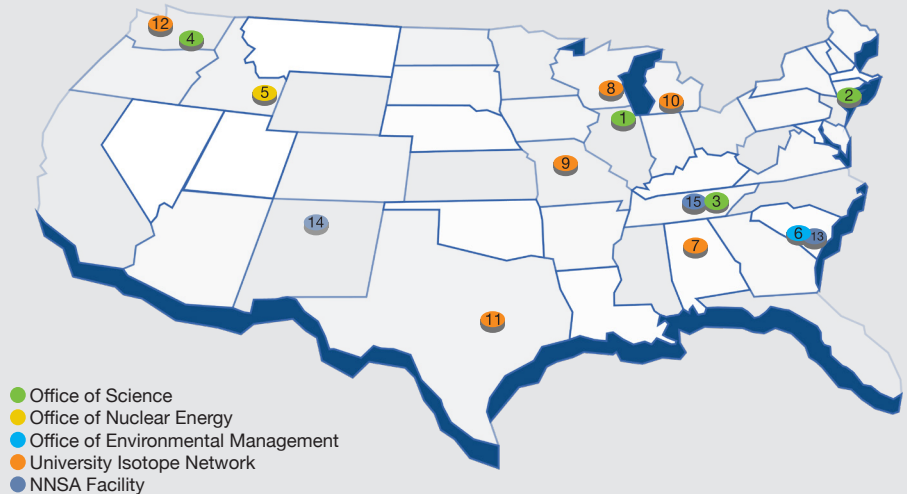
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Aligning the Nation's Key Isotope Producers

- 1 Argonne National Laboratory
- 2 Brookhaven National Laboratory
- 3 Oak Ridge National Laboratory
- 4 Pacific Northwest National Laboratory
- 5 Idaho National Laboratory
- 6 Savannah River National Laboratory
- 7 University of Alabama at Birmingham
- 8 University of Wisconsin
- 9 University of Missouri (MURR)
- 10 Michigan State University
- 11 Texas A&M University
- 12 University of Washington
- 13 Savannah River Site
- 14 Los Alamos National Laboratory
- 15 Y-12



IRP strategically manages a unique national infrastructure, leveraging a network of national laboratories and universities. IRP harnesses the power of advanced research reactors, particle accelerators, cutting-edge stable isotope enrichment and sophisticated chemical processing capabilities to produce high-value isotopes essential for the nation. IRP is working to ensure future self-sufficiency and technological dominance.

