

Stable Isotope Production Facility

Production and Research Facility



The Department of Energy (DOE) built the Stable Isotope Production Facility (SIPF) to produce stable isotopes that are in short supply and could not be enriched with existing domestic capabilities. These isotopes are critical to medicine, industrial manufacturing, nuclear and physical science research, and homeland security.

Completed in 2025, the \$27 million facility on the ORNL campus has state-of-the-art systems to protect the technology and materials produced there. SIPF is establishing a domestic full-production cascade for enriched stable isotopes. Stable isotopes produced at SIPF will fill government research and other domestic needs not met by commercial suppliers. SIPF will reduce the nation's reliance on foreign sources for enriched stable isotopes by facilitating new capabilities to produce priority stable isotopes.

DETAILS



Centrifuge cascade system and associated infrastructure



Optimized gas centrifuge isotope separator (GCIS) machine to produce Xe-129



Mechanically tested cascade and centrifuges as a complete system

Facilitating Lung Imaging

SIPF will produce Xe-129. This isotope can provide increased resolution and sensitivity in lung imaging without ionizing radiation, so it can be used for repeated imaging throughout the course of treatment. It is produced with gas centrifuge isotope separation (GCIS) equipment and feed-and-withdrawal systems in a cascade that ultimately can generate highly enriched Xe-129.



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