

Preparing Enriched Stable Isotope Targets at Oak Ridge National Laboratory

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Since the 1960s, the U.S. Department of Energy (DOE) Isotope Program, through the Stable Isotope Group at the Oak Ridge National Laboratory (ORNL), has been developing and supplying enriched stable isotope targets for nuclear, medical, academic, and industrial research around the world. This Group maintains the DOE inventory of enriched stable isotopes, provides customer quotations, and dispenses isotopes through the National Isotope Development Center's Isotope Business Office located at ORNL. Chemical and pyrochemical techniques are used to prepare enriched stable isotopes from this inventory in the desired chemical and physical form. Metallurgical, ceramic, or vacuum processing methods are then used to prepare the isotopes in a wide range of physical forms—from powders, thin films, foils, and coatings to large fabricated shapes—to meet the needs of experimenters. Significant characterization capabilities are also available to assist in the preparation and evaluation of these custom materials. This work is part of the DOE Isotope Program, Office of Nuclear Physics within the DOE Office of Science. A goal of this program is to enable research and development. My goal is to transform any material in our inventory into whatever form is needed to optimize the user's success. This presentation will focus on the custom preparation of enriched stable isotope targets and other research materials.

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