

Beryllium Oxide Glovebox Beryllium Technology Facility

Los Alamos National Laboratory
Los Alamos, New Mexico

Merrick & Company teamed with JONA Machining Company to perform design and fabrication of a glovebox to handle Beryllium Oxide (BeO) at the Beryllium Technology Facility (BTF) at Los Alamos National Laboratory (LANL). Merrick performed detailed design of the glovebox including development of build-to-print fabrication drawings and the development of a seismic analysis to validate the structural integrity of the glovebox in a seismic event.

The glovebox includes two workstations for handling BeO powder with a panel and door inside the glovebox separating two workstations.

Airflow through the glovebox is continuous and filtered from the right hand side of the glovebox through the separation panel and exhausted through a push-through HEPA filter housing above the transfer area.

Design and fabrication was performed in accordance with a quality assurance program meeting the requirements of 10 CFR 830.120 and ASME NQA-1. Drawings met the requirements of ASME Y14.5 and applicable LANL standards. Merrick developed the drawings in 3D using Pro/Engineer™.

The glovebox was fabricated by JONA in Broomfield, Colorado, and tested in JONA's shop in Los Alamos, New Mexico. Materials of construction included type 304L and 316L stainless steel. Windows were a clamp-strip style, with laminated safety glass viewing panes. Gloverings were manufactured by Central Research Laboratories and are of the push-through type for safer changing of gloves. The glovebox was helium leak tested to 1×10^{-6} std cc/sec.

