

NE-20-23439, Combined Effects Testing of High-Temperature and Neutron Fluence to Support the Qualification of NE-300, a High-Temperature Neutron Shielding Material

Neutroelectric is a radiation shielding materials start-up company serving the commercial nuclear industry with unique, low-density, neutron shield materials that operate at significantly higher temperatures than similar existing materials. High-temperature neutron shielding materials are needed in spent nuclear fuel management containers, reactor equipment, and daily plant operations.

Neutroelectric's initial product, NE-300, is best suited for the commercial nuclear industry with its differentiating property being high-temperature operation. The material is unique with low-density, high-temperature, high-neutron stopping power per cm^{-1} . NE-300 is particularly applicable for the management of spent nuclear fuel, protecting reactor components, and shielding reactor workers.

To date, only separate effects tests have been possible during the development and demonstration of NE-300. Neutroelectric and Oak Ridge National Laboratory will perform critical combined tests at the High Flux Isotope Reactor in support of qualification of this new material for use in commercial nuclear reactor applications. The project will demonstrate the performance of the material, help to develop the licensing case, and provide future customer confidence.