

UNDERSTANDING ELEMENTAL DISTRIBUTIONS OF TRINITITE USING MICRO X-RAY FLUORESCENCE

Velma Montoya, Robert Hermes, William Strickfaden and George J. Havrilla
Los Alamos National Laboratory

The glassy remnants of the Trinity Site atomic bomb test in the desert of the White Sands Missile Test Range are referred to as Trinitite. Trinitite is the result of the vaporized steel tower holding the bomb and melted desert sand which turned into a glassy green substance. This work explores the formation of Trinitite based on the elemental distribution of the various forms found at Trinity site. One theory to explain the formation of Trinitite is that the sand and other materials were vaporized and melted in the atmosphere. The molten material fell to the ground and as it cooled formed a smooth surface. In addition to this cooled molten material on the ground, small round pellets have been discovered at the Site. One explanation for these round objects is they cooled sufficiently in the air to maintain their shape after hitting the ground. Micro X-ray fluorescence provides elemental distributions for several different forms of Trinitite. This information allows further interpretation of how these different Trinitite species were formed.