*** Name Origin:**

After the city of Dubna Russia home to the Joint Institute for Nuclear Research

*** Sources:**

First synthisized by bombarding ^{243}Am with ^{22}Ne

*** Uses:**

None

*** Additional Notes:**

In 1967 G. N. Flerov reported that a Soviet team working at the Joint Institute for Nuclear Research at Dubna may have produced a few atoms of ^{260}Db and ^{261}Db by bombarding ^{243}Am with ^{22}Ne. Their evidence was based on time-coincidence measurements of alpha energies. More recently, it was reported that early in 1970 Dubna scientists synthesized Element 105 and that by the end of April 1970 “had investigated all the types of decay of the new element and had determined its chemical properties.” The Soviet group proposed the name joliotium for Element 105. In late April 1970, it was announced that Ghiorso, Nurmia, Harris, K. A. Y. Eskola, and P. L. Eskola, working at the University of California at Berkeley, had positively identified Element 105. The discovery was made by bombarding a target of ^{249}Cf with a beam of 84 MeV nitrogen nuclei in the Heavy Ion Linear Accelerator (HILAC). When a 15N nuclear is absorbed by a ^{249}Cf nucleus, four neutrons are emitted and a new atom of ^{260}Db with a halflife of 1.6 s is formed. While the first atoms of Element 105 are said to have been detected conclusively on March 5, 1970, there is evidence that Element 105 had been formed in Berkeley experiments a year earlier by the method described. Ghiorso and his associates have attempted to confirm Soviet findings by more sophisticated methods without success. In October 1971, it was announced that two new isotopes of Element 105 were synthesized with the heavy ion linear accelerator by A. Ghiorso and co-workers at Berkeley. Element ^{261}Db was produced both by bombarding ^{250}Cf with ^{15}N and by bombarding ^{249}Bk with ^{16}O. The isotope emits 8.93-MeV aparticles and decays to ^{257}Lr with a half-life of about 1.8 s. Element ^{262}Db was produced by bombarding ^{249}Bk with ^{18}O. It emits 8.45 MeV aparticles and decays to ^{258}Lr with a half-life of about 40 s. Eight isotopes of Element 105 are now recognized. In 1997, the International Union of Pure and Applied Chemistry adopted the name dubnium for Element 105.