*** Name Origin:**

Lutetia, ancient name for Paris, sometimes called cassiopeium by the Germans.

*** Sources:**

Found with ytterbium in gadolinite and xenotime.

*** Uses:**

Used in alloys and can be used as a catalyst in cracking, hydrogenation, polymerization and alkylation.

*** Additional Notes:**

In 1907, Urbain described a process by which Marignac's ytterbium (1879) could be separated into the two elements, ytterbium (neoytterbium)and lutetium. These elements were identical with "aldebaranium" and "cassiopeium," independently discovered by von Welsbach about the same time. Charles James of the University of New Hampshire also independently prepared the very pure oxide, lutecia, at this time. The spelling of the element was changed from lutecium to lutetium in 1949. Lutetium occurs in very small amounts in nearly all minerals containing yttrium, and is present in monazite to the extent of about 0.003%, which is a commercial source. The pure metal has been isolated only in recent years and is one of the most difficult to prepare. It can be prepared by the reduction of anhydrous LuCl3 or LuF3 by an alkali or alkaline earth metal. The metal is silvery white and relatively stable in air. While new techniques, including ion-exchange reactions, have been developed to separate the various rare-earth elements, lutetium is still the most costly of all rare earths. 176Lu occurs naturally (97.41%) with ^{175}Lu (2.59%), which is radioactive with a very long half-life. It is radioactive with a half-life of about 4×10^{10} years. Lutetium has 49 isotopes and isomers that are now recognized. Stable lutetium nuclides, which emit pure beta radiation after thermal neutron activation, can be used as catalysts in cracking, alkylation, hydrogenation, and polymerization. Virtually no other commercial uses have been found yet for lutetium. While lutetium, like other rare-earth metals, is thought to have a low toxicity rating, it should be handled with care until more information is available.