

Isotopes Principles And Applications 3rd Edition

Actinium Together with polonium, radium, and radon, actinium was one of the first non-primordial radioactive elements to be discovered. The actinide series, a set of 15 elements between actinium and lawrencium in the periodic table, are named for actinium. In all those applications, ^{227}Ac (a beta source) is merely a progenitor which generates alpha-emitting isotopes upon Actinium is a chemical element; it has symbol Ac and atomic number 89. americium-beryllium and radium-beryllium pairs. It was discovered by Friedrich Oskar Giesel in 1902, who gave it the name emanium; the element got its name by being wrongly identified with a substance André-Louis Debierne found in 1899 and called actinium

Lutetium produce isotopes of ytterbium), with some alpha and positron emission; the heavier isotopes decay primarily via beta decay, producing hafnium isotopes. Lutetium is the last element in the lanthanide series, and it is traditionally counted among the rare earth elements; it can also be classified as the first element of the 6th-period transition metals. It is a silvery white metal, which resists corrosion in dry air, but not in moist air. Experiments Lutetium is a chemical element; it has symbol Lu and atomic number 71

Tin is a post-transition metal in group 14 of the periodic table of elements. It is obtained chiefly from the mineral cassiterite, which contains stannic oxide, SnO_2 . Tin shows a chemical similarity to both of its neighbors in group 14, germanium and lead, and has two main oxidation states, +2 and the slightly more stable +4. Tin is the 49th most abundant element on Earth, making up 0.00022% of its crust, and with 10 stable isotopes, it has the largest number of stable isotopes...

Thulium It is the thirteenth element in the lanthanide series of metals. Despite its high price and rarity, thulium is used as a dopant in solid-state lasers, and as the radiation source in some portable X-ray devices. It is the second-least abundant lanthanide in the Earth's crust, after radioactively unstable promethium. The longest-lived Thulium is a chemical element; it has symbol Tm and atomic number 69. It is fairly soft and slowly tarnishes in air. It has no significant biological role and is not particularly toxic. It is an easily workable metal with a bright silvery-gray luster. before the stable isotope, ^{169}Tm , is electron capture to erbium isotopes, and the primary mode after is beta emission to ytterbium isotopes

Hafnium's large neutron capture cross section makes it a good material for neutron absorption...

Dye laser). In Duarte FJ (ed. Garcia-Moreno I, Gomez C (2016).). Tunable Laser Applications (3rd ed. pp A dye laser is a laser that uses an organic dye as the lasing medium, usually as a liquid solution. The wide bandwidth makes them particularly suitable for tunable lasers and pulsed lasers. Compared to gases and most solid state lasing media, a dye can usually be used for a much wider range of wavelengths, often spanning 50 to 100 nanometers or more. The dye rhodamine 6G, for example, can be tuned from 635 nm (orangish-red) to 560 nm (greenish-yellow), and produce pulses as short as 16 femtoseconds. "Medical Applications of Organic Dye Lasers". Moreover, the dye

can be replaced by another type in order to generate an even broader range of wavelengths with the same laser, from the near-infrared to the near-ultraviolet, although this usually requires replacing other optical components in the laser as well, such as dielectric mirrors or pump. Boca Raton: CRC Press 07332a1ff1

Gunter Faure ISBN 978-1402052330 Isotopes: Principles and Applications, Gunter Faure and Teresa M. Mensing Gunter Faure is a geochemist who currently holds the position of professor emeritus in the school of earth science of Ohio State University. He obtained his PhD from the Massachusetts Institute of Technology in 1961. Mensing, Springer, 2007, 526 pp. Gunter Faure and Teresa M 07332a1ff1

Arthur Holmes Holmes was a pioneer of geochronology, and performed the first accurate uranium-lead Arthur Holmes (14 January 1890 – 20 September 1965) was an English geologist who made two major contributions to the understanding of geology. He pioneered the use of radiometric dating of minerals, and was the first earth scientist to grasp the mechanical and thermal implications of mantle convection, which led eventually to the acceptance of plate tectonics. After his death, she edited the third edition of the Principles 07332a1ff1

A soft, silvery-white radioactive metal, actinium reacts rapidly with oxygen and moisture in air forming a white coating of actinium oxide that prevents further oxidation. As with most lanthanides and many actinides, actinium assumes oxidation state +3 in nearly all its chemical... 07332a1ff1 In 1879, the Swedish chemist Per Teodor Cleve separated two previously unknown components, which he called holmia and thulia, from the rare-earth mineral erbia; these were the oxides of holmium and thulium, respectively. His example... 07332a1ff1 Hafnium is used in filaments and electrodes. Some semiconductor fabrication processes use its oxide for integrated circuits at 45 nanometers and smaller feature lengths. Some superalloys used for special applications contain hafnium in combination with niobium, titanium, or tungsten. 07332a1ff1 Lutetium was independently discovered in 1907 by French scientist Georges Urbain, Austrian mineralogist Baron Carl Auer von Welsbach, and American chemist Charles James. All of these researchers found lutetium as an impurity in ytterbium. The dispute on the priority of the discovery occurred shortly after, with Urbain and Welsbach accusing each other of publishing results influenced by the published research of the other; the naming honor... 07332a1ff1

Liquid scintillation counting The purpose is to allow more efficient counting due to the intimate contact of the activity with the scintillator. zinc sulfide), and counting the resultant photon emissions. It is generally used for alpha particle or beta particle detection. g. 178. p. Beryamin/Cummuings. Liquid Scintillation Counting, University of Wisconsin-Milwaukee Radiation Safety Program Principles and Applications Liquid scintillation counting is the measurement of radioactive activity of a sample material which uses the technique of mixing the active material with a liquid scintillator (e. Biochemistry 3rd Edition 07332a1ff1

Hafnium Isotopes of hafnium and lutetium (along with ytterbium) are also used in isotope geochemistry and geochronological applications, in lutetium-hafnium Hafnium is a chemical element; it has symbol Hf and atomic number 72. such scales. Its existence was predicted by Dmitri Mendeleev in 1869, though it was not identified until 1922, by Dirk Coster and George de Hevesy. Hafnium is named after Hafnia, the Latin name for Copenhagen, where it was discovered. A lustrous, silvery gray, tetravalent transition metal, hafnium chemically resembles zirconium and is found in many zirconium minerals 07332a1ff1

Ruthenium A new application of ruthenium is. Ruthenium is usually found as a minor component of platinum ores; the annual production has risen from about 19 tonnes in

2009 to some 35. Additionally, 34 synthetic radioactive isotopes have been discovered. Most ruthenium produced is used in wear-resistant electrical contacts and thick-film resistors. It is a rare transition metal belonging to the platinum group of the periodic table. 5 tonnes in 2017. A minor application for ruthenium is in platinum alloys and as a chemical catalyst. Like the other metals of the platinum group, ruthenium is unreactive to most chemicals. Of these radioisotopes Ruthenium is a chemical element; it has symbol Ru and atomic number 44. Karl Ernst Claus, a Russian scientist of Baltic-German ancestry, discovered the element in 1844 at Kazan State University and named it in honor of Russia, using the Latin name Ruthenia. ruthenium is composed of seven stable isotopes: 96, 98-102, 104 07332a1ff1

Tin Earth, making up 0. 00022% of its crust, and with 10 stable isotopes, it has the largest number of stable isotopes in the periodic table, due to its magic Tin is a chemical element; it has symbol Sn (from Latin stannum) and atomic number 50. A metallic-gray metal, tin is soft enough to be cut with little force, and a bar of tin can be bent by hand with little effort. When bent, a bar of tin makes a sound, the so-called "tin cry", as a result of twinning in tin crystals 07332a1ff1

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