Zircon: Characteristics, Origins and Applications

by Dom Einhorn

Article published on December 10th 2011 | Business

Learn more about the mineral called zircon - its characteristics, history, and uses and applications. Zircon is a mineral under the nesosilicate subclass of minerals and the chief source of zirconium, a widely used industrial metal. It has a chemical formula of ZrSiO4 (zirconium silicate) and manifests as a crystals with tetragonal crystal structure. It is one of the most common mineral found in the Earthâ€™s crust, appearing in igneous rocks as well as metamorphic and sedimentary rocks as detrital grains. It is also the birthstone for December.

Characteristics

While most zircon specimens have colors that range from reddish brown and yellow to blue, gray, and green, there are specimens of zircon that are colorless as well. Very thin sections also tend to be pale brown or colorless under bright light. Colored samples have white streaks and a luster described by mineralogists as vitreous to adamantine. Zircon can also appear greasy when metamict. Its appearance ranges from transparent to opaque. Zircon contains trace amounts of uranium and thorium â€“ two metals that make it radioactive. With its uranium and thorium content, zircon has become instrumental in the development of radiometric dating. Zircon falls under 7.5 in the Mohs hardness scale; this makes it a suitable crystal for use in gemstone making and jewelries. Some zircon specimens have also been observed to be fluorescent.

Origin and History

Zircon was officially recognized as a mineral of interest in 1789 when Martin Klaporth discovered it in Germany. However, historians believe that zircon has been in use in centuries prior to that discovery. It was used as an amulet of sorts in the middle ages, presumably due to its remedial power that protects wearers against certain diseases. Its name is believed to be derived from the Arabic words â€œzarâ€• and â€œgunâ€• which mean â€œgoldâ€• and â€œcolorâ€•, respectively. There a of zircon since its discovery in the 1700s. Some of the well known sources of zircon include Australia; Italy and Norway in Europe; Russia, Sri Lanka, India, Thailand, Indonesia, and Cambodia in Asia; South Africa and Madagascar in Africa; and Canada, the United States, and Barbados in North and Central America. Australia is the worldâ€™s top producer of zircon, with its mines supplying 37% of the worldâ€™s zircon. This is followed by Barbados with 12% of the worldâ€™s zircon supply.

Uses and Applications

Zircon is primarily used as a gemstone. When colorless, zircon becomes an effective substitute for diamond. Colorless zircon matches the fire and luster of diamonds, and can even be mistaken for real diamonds even by experienced jewelers. This diamond substitute is known in the gemstone market as Matura diamond. Aside from colorless zircon, this gemstone is also valued for the range of colors it takes. In its natural state, zircon appears in red, pink, and brown as well as yellow, hazel, and even black in rare instances. This range of colors expands when zircon is introduced to heat. With heat, different colors of zircon are produced such as golden yellow and blue. Zircon is also used as an opacifier, a major component used in decorative ceramics. Another lesser known use of zircon is its being the primary precursor to metallic zirconium. Zirconium oxide, another application of zircon, is also recognized as one of the most refractory materials presently in use in industries.

This article is brought to you by PublicMining.org, a free resource for mining investors that serves as a showcase of public mining companies, including junior mining companies.

Article Source:
http://www.articleside.com/business-articles/zircon-characteristics-origins-and-applications.htm - Article Side

Dom Einhorn - About Author:
PublicMining.org is a free resource directory listing thousands of public mining companies, with a special emphasis on a junior miners.

Article Keywords:
mining, metals, gold, silver, platinum, business, metallurgy, newsletters, investing, finance, stocks

You can find more free articles on Article Side. Sign up today and share your knowledge to the community! It is completely FREE!