Gold 2 Essay, Research Paper

Gold, nothing can compare to this precious metal. A symbol of wealth and prosperity, it has been a value for explorers and adventurers and a lure for conquerors. Today it is vital to commerce and finance; popular in ornamentation, and increasing importance in technology.

The nature of gold is diverse. The chemical element gold is a heavy, soft metal. It weighs nearly twice as much as lead. Shiny and deep yellow in color, gold is one of two metals, which are not gray or white when pure. Gold is the most ductile of metals.

Properties of gold are:

? Symbol – Au

? Atomic Number 79

? Atomic Weight 196.967

? Electron Configuration – -32-18-1

? Group in Periodic Table 1B

? Density at 68 F 19.3 g/cm^3

? Boiling Point 5,370.8 F

? Melting Point 1,945.4 F

? Number of Protons/Electrons 79

? Number of Neutrons 118

? Classification Transition Metal

? Crystal Structure Cubic

Facts:

? Date of Discovery Circa 3000 BC

? Discover Unknown

? Name of Origin From the Old English word geolo (yellow)

? Symbol Origin From the Latin word aurum (gold)

? Uses electronics, jewelry, coins

? Obtained From crust of the earth, copper ores

Atomic and Chemical Properties:

In it s usual state atomic mass number 197 gold is stable. However, there are radioactive (unstable) isotopes of mass number 186 to 196 and 198 to 203. Gold normally exhibits a chemical valence of one or three.

Gold is the noblest of the noble metals (gold, platinum, palladium, and rhodium), so termed because of their inertness, or reluctance to enter into chemical reactions. Gold will not react with common acids but is attacked by a three-to-one mixture of hydrochloric and nitric acids. This combination is called aqua regia because it reacts with the so-called royal metal. Gold will not combine directly with oxygen, but oxides may be formed indirectly. Gold will also combine with the halogens (fluorine, chlorine bromine, and iodine) and with the cyanides.

The purity of gold is expressed in Karats (KT), on a scale of 24, or in fineness, on a scale of 1,000. Pure gold is 24 Karat or 1,000 fine. An alloy containing 75 percent gold would be described as 18- Karat gold or 750 fine.

History:

(Sanskrit Jval; Anglo Saxon gold; L. aurum, gold) Known and highly valued from earliest times, gold is found in nature as the free metal and in tellurides; it is very widely distributed and is almost always associated with quarts or pyrite.

The Lure of Gold:

Since the prehistoric day when a man first picked a shining nugget of gold, this rare metal has been a lure. The first uses of gold may well have been practical. Primitive man could shape or work it with stones as his only tools. When Christopher Columbus reached the West Indies, he found natives fishing with gold hooks, similar hooks were in use in remote parts of Colombia n the 20th Century.

The Uses of Gold:

Gold, eternally attractive to man has found it s principal use as a store of value and has become an increasing important industrial metal. Because of its rarity and durability, gold tended to remain relatively stable in valuable and thus almost universally acceptable as money. In the past gold coins could circulate in the United States. They were withdrawn from circulation when a worldwide economics depression forced devaluation of the dollar. For 100 years before 1934, the United States had valued gold at $20.67 per fine troy ounce. In 1934 the price was increased to $35, in 1972 to $38, and in 1973 to $42.22.

With the last devaluation of the dollar, the International Monetary Fund (IMF) reset the exchange rate for gold at $ 42.22 per ounce. It was then selling for about $65 on the free market. The IMF abolished the official price of gold effective April 1978, and by year-end it s value rose to $226.37. The market price, more than doubled in one year. By mid- January 1980 gold was sold at a record high of $880.

Sources:

It occurs in veins and alluvial deposits, and is often separated from rocks and other minerals by mining and panning operations. About two thirds of the world s gold output comes from South America, and about two thirds of the total U.S production comes from South Dakota and Nevada. The metal is recovered from its ores by cyaniding, amalgamating, and smelting processes. Refining is also frequently done by electrolysis. Gold occurs in seawater to the extent of 0.1 to 2 mg/ton, depending on the location where the sample is taken. As yet, no method has been found for recovering gold from seawater profitably.

Bibliography:

? Compton s Encyclopedia

? Academic American Encyclopedia

? Internet