Gold (Au)

Atomic number: 79

Atomic Mass: 196.967

Description: The name is Anglo Saxon word for the metal and the symbol comes from the Latin word 'Aurum', gold.

Discovered in: Approx. 3000BC and its discoverer is unknown.

Properties:

Melting Point: 1337.33K Boiling point: 3109K

Density: 19.3 g/cm^3 State: Solid

Group: 11 Period: 6 Block: d

Electronic Configuration: [Xe] $4f^{14}5d^{10}6s^2$

Isotopes: ^{197}Au

Appearance: A soft metal with a characteristic yellow color. It is chemically unreactive, although it dissolves in aqua regia (a mixture of nitric and hydrochloric acid).

Uses:

1) It is extensively in jewellery either in its pure form or as an alloy. The term ‘carat’ indicates the amount of gold present in alloy, 24-carat is pure gold, but it very soft. 18- and 9- carat gold alloys commonly used because they are more durable.
2) The metal is also used for coinage, and has been used as standard for monetary system in some countries.
3) Gold can be beaten into very thin sheets to be used in art for decoration and as architectural ornaments. Electroplating can be used to cover another metal with a very thin layer of gold. This is used in gears for watches, artificial limb joints, cheap jewellery and electrical connectors. It is ideal for protecting electrical copper components because it conducts electricity well and does not corrode. Thin gold wires are used inside computer chips to produce circuits.
4) Dentist sometimes use gold alloys in filling, and a gold compounds is used to treat some cases of arthritis.
5) Gold nanoparticles are increasingly being used as an industrial catalyst. Vinyl acetate, which is used to make PVA (for glue, paint and resin) is made using gold catalyst.

Source: *www.rsc.org*