

*** Name Origin:**

Greek: Argos (inactive).

*** Realitive Abundance (by mass):**

Earth's Atmosphere: 1%

*** Sources:**

Argon makes up 1% of the air and is isolated by removing nitrogen, oxygen, carbon dioxide and water from air. Argon is constantly being formed from the radioactive decay of K-40 (an isotope of potassium). of radioactive potassium-40.

*** Uses:**

Argon is used for lighting. It may also be used to provide an inert atmosphere for certain projects when explosion or other forms of oxidation may pose a problem. Also used in "Geiger" counters, which measure radiation levels.

*** Additional Notes:**

The gas is prepared by fractionation of liquid air, the atmosphere containing 0.94% argon. The atmosphere of Mars contains 1.6% of ^{40}Ar and 5 p.p.m. of ^{36}Ar . Argon is two and one half times as soluble in water as nitrogen, having about the same solubility as oxygen. It is recognized by the characteristic lines in the red end of the spectrum. It is used in electric light bulbs and in fluorescent tubes at a pressure of about 400 Pa, and in filling photo tubes, glow tubes, etc. Argon is also used as an inert gas shield for arc welding and cutting, as a blanket for the production of titanium and other reactive elements, and as a protective atmosphere for growing silicon and germanium crystals. Argon is colorless and odorless, both as a gas and liquid. It is available in high-purity form. Commercial argon is available at a cost of about 3¢ per cubic foot. Argon is considered to be a very inert gas and is not known to form true chemical compounds, as do krypton, xenon, and radon. However, it does form a hydrate having a dissociation pressure of 105 atm at 0°C. Ion molecules such as $(\text{ArKr})^+$, $(\text{ArXe})^+$, $(\text{NeAr})^+$ have been observed spectroscopically. Argon also forms a clathrate with b-hydroquinone. This clathrate is stable and can be stored for a considerable time, but a true chemical bond does not exist. Van der Waals' forces act to hold the argon. Naturally occurring argon is a mixture of three isotopes. Seventeen other radioactive isotopes are now known to exist.