

# DO YOU KNOW **GERMANIUM**, a metalloid

Shiny and silvery, yet very brittle, germanium is an important component in semiconductors and fiber optics. Some people think germanium supplements have health benefits, but research has not supported those claims.



Germanium is metalloid, which means it has properties of both metals and nonmetals.

Germanium is one of the few elements that expand when it freezes, like water does, according to Chemicool.

The name "germanium" comes from the Latin name for Germany, named for Winkler's home country.

The abundance of germanium in the Earth's crust is about 1.5 parts per million by weight, and the abundance in the solar system is about 200 parts per billion by weight.

Germanium was used in high-resolution radar receivers during World War II. The first germanium transistor was invented shortly afterward.

## USES OF GERMANIUM

30 percent for infrared (IR) optics, including detectors; 20 percent fiber optics used in communications; 20 percent polyethylene terephthalate used in a variety of products such as cloth fibers, food containers, and resins; 15 percent for electronics and solar cells for solar panels; and 5 percent for phosphors, metallurgy, and organics including medications.

## ATOMIC STRUCTURE

Atomic number (number of protons in the nucleus): 32

Atomic symbol (on the periodic table of elements): Ge

Atomic weight (average mass of the atom): 72.630

Density: 3.077 ounces per cubic inch (5.323 grams per cubic cm)

Phase at room temperature: solid

Melting point: 1,720.9 degrees Fahrenheit (938.3 degrees Celsius)

Boiling point: 5,131 F (2,833 C)

Number of natural isotopes (atoms of the same element with a different number of neutrons): 5. There are also 19 artificial isotopes created in a lab.

Most common isotopes: Ge-74 (36.28 percent of natural abundance), Ge-72 (27.54 percent of natural abundance), Ge-79 (20.84 percent of natural abundance), Ge-73 (7.73 percent of natural abundance), Ge-76 (7.61 percent of natural abundance)

