

# BIRTH

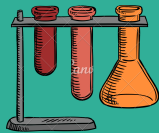
Gallium was discovered by French chemist Paul E. Lecoq de Boisbaudran through a spectroscope in 1875 in Paris.

# UNIQUENESS QUOTIENT

Gallium has some very unique qualities.

For example, although it is a solid at room temperature (about 77 F/ 22 C), it is still so soft that you could cut it with a knife. In addition, it has a low melting point of 85.57 F (29.76 C) — less than 10 degrees above room temperature — so if you were to pick up a lump of gallium, it would literally melt from the warmth of your hand. Then if you set it back down, it would solidify again.

# SPECIAL COMPOUNDS



With the Group 15 (Va) elements nitrogen, phosphorus, arsenic, and antimony and the Group 13 elements aluminum and indium, gallium forms compounds—e.g., gallium nitride, GaN, gallium arsenide, GaAs, and indium gallium arsenide phosphide, InGaAsP—that have valuable semiconductor and optoelectronic properties.

The sulfide (GaS), selenide (GaSe), and telluride (GaTe), made directly by combination of the elements at high temperature, are diamagnetic and contain gallium—gallium units with four positive charges (Ga—Ga)<sup>4+</sup>, in a layer lattice. The hydroxide, formula Ga(OH)<sub>3</sub>, is amphoteric; it is precipitated from solutions of gallium salts by alkali hydroxides.

# GALLIUM



# POSITION IN TABLE

Gallium is the chemical element with the atomic number 31 and symbol Ga on the periodic table. It is in the Boron family (group 13) and in period 4.

# PHYSICAL AND CHEMICAL PROPERTIES

Solid gallium is a blue-gray metal with orthorhombic crystalline structure; very pure gallium has a stunning silvery color. Gallium is solid at normal room temperatures, but as well as mercury, cesium, and rubidium it becomes liquid when heated slightly. Solid gallium is soft enough to be cut with a knife. It is stable in air and water; but it reacts with and dissolves in acids and alkalis.

# ISOTOPES

Natural gallium (<sup>31</sup>Ga) consists of a mixture of two stable isotopes: gallium-69 and gallium-71. The most commercially important radioisotopes are gallium-67 and gallium-68.