Characteristics of lithium

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Lithium and its compounds have several industrial applications, including heat-resistant glass and ceramics, lithium grease lubricants, flux additives for iron, steel and aluminium production, lithium metal batteries, and lithium-ion batteries. These uses consume more than three-quarters of lithium production.[citation needed][when?]

Lithium is present in biological systems in trace amounts. It has no established metabolic function in humans. Lithium-based drugs are useful as a mood stabilizer and antidepressant in the treatment of mental illness such as bipolar disorder.

Lithium metal is soft enough to be cut with a knife. It is silvery-white. In air it oxidizes to lithium oxide.[10] Its melting point of 180.50 ?C (453.65 K; 356.90 ?F)[13] and its boiling point of 1,342 ?C (1,615 K; 2,448 ?F)[13] are each the highest of all the alkali metals while its density of 0.534 g/cm3 is the lowest.

Lithium has a mass specific heat capacity of 3.58 kilojoules per kilogram-kelvin, the highest of all solids.[21][22] Because of this, lithium metal is often used in coolants for heat transfer applications.[21]

Both stable isotopes of lithium can be laser cooled and were used to produce the first quantum degenerate Bose-Fermi mixture.[34]

Although it was synthesized in the Big Bang, lithium (together with beryllium and boron) is markedly less abundant in the universe than other elements. This is a result of the comparatively low stellar temperatures necessary to destroy lithium, along with a lack of common processes to produce it.[35]

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