

Potassium

Like the sodium and chlorine of salt, potassium occurs in vast quantities in sea water, but its average concentration of about 1,300 parts per million (or 0.13 percent) is generally too low to permit direct economic extraction.

Potassium salts, however, occur in many thick evaporite sequences along with common salt and is mined from these beds at rates of tens of millions of metric tons per year. The potassium salts were deposited when sea water had been evaporated down to about one-twentieth of its original volume.

Potassium (K) is one of the major components in seawater. The concentration is 380mg/L K⁺ in typical seawater.

Potassium can be found in vegetables, fruit, potatoes, meat, bread, milk and nuts. It plays an important role in the physical fluid system of humans and it assists nerve functions. Potassium, as the ion K⁺, concentrate inside cells, and 95% of the body's potassium is so located.

The six most abundant ions of seawater are chloride (Cl), sodium (Na⁺), sulfate (SO₄²⁻), magnesium (Mg²⁺), calcium (Ca²⁺), and potassium (K⁺). By weight these ions make up about 99 percent of all sea salts.

Potassium is an essential mineral and electrolyte involved in heart function, muscle contraction, and water balance. A high intake may help reduce high blood pressure, salt sensitivity, and the risk of stroke. Additionally, it may protect against osteoporosis and kidney stones.

Seawater contains about 400 ppm potassium. It tends to settle, and consequently ends up in sediment mostly. Rivers generally contain about 2-3 ppm potassium. This difference is mainly caused by a large potassium concentration in oceanic basalts.

Contact with solid Potassium can cause severe burns. * Exposure to Potassium fumes can irritate the nose, throat and lungs with sneezing and coughing. * Prolonged exposure to Potassium fumes can cause sores of the inner nose. * Potassium is a FLAMMABLE and REACTIVE chemical and a FIRE and EXPLOSION HAZARD.

The total K content of soils frequently exceeds 20,000 ppm (parts per million). While the supply of total K in soils is quite large, relatively small amounts are available for plant growth at any one time. That's because nearly all of this K is in the structural component of soil minerals and isn't available for plant growth. The amount of K supplied by soils varies due to large differences in soil parent materials and the effect weathering has on these materials. Therefore, the need for K in a fertilizer program varies across the United States.

Three forms of K – unavailable, slowly available or fixed and readily available or exchangeable – exist in an equilibrium in the soil system. Below, we describe these forms and their relationship to one another. Figure 1 also illustrates the general relationship among these forms.

Potassium is associated with the movement of water, nutrients and carbohydrates in plant tissue. It's involved with enzyme activation within the plant, which affects protein, starch and adenosine triphosphate (ATP) production. The production of ATP can regulate the rate of photosynthesis.

Potassium also helps regulate the opening and closing of the stomata, which regulates the exchange of water vapor, oxygen and carbon dioxide. If K is deficient or not supplied in adequate amounts, it stunts plant growth and reduces yield.

For perennial crops such as alfalfa, potassium plays a role in stand persistence through the winter. Other roles of K include:

- Increases root growth and improves drought resistance.

- Maintains turgor; reduces water loss and wilting.

- Aids in photosynthesis and food formation.

- Reduces respiration, preventing energy losses.

- Enhances translocation of sugars and starch.

- Produces grain rich in starch. Increases plants protein content.

- Builds cellulose and reduces lodging. Helps retard crop diseases.

Potassium (K) is an essential nutrient for plant growth. It's classified as a macronutrient because plants take up large quantities of K during their life cycle.

Minnesota soils can supply some K for crop production, but when the supply from the soil isn't adequate, a fertilizer program must supply the K.

Here, we'll give you a basic understanding of K, including plants' K nutrition, how it reacts in soils, its function in plants and its role in efficient crop production. In addition, you'll find information about soil tests, K sources, predicting potash needs and effectively applying K to your fields. Potassium is widely available in many foods, especially fruits and vegetables. Leafy greens, beans, nuts, dairy foods, and starchy vegetables like winter squash are rich sources.

Complete extraction of potassium was achieved by roasting feldspar with eggshell powder and 1.5 times the stoichiometric amount of hydrochloric acid. The optimized conditions were feldspar to ESP in a ratio of 1:1.8 at 900 °C for 30 min followed by leaching with water.

Underground potash deposits come from evaporated sea beds. Boring machines dig out the ore, which is transported to the surface to the processing mill, where the raw ore is crushed and refined to extract the potassium salts.

The world will never run out of phosphorus or potassium; there's huge amounts out there in the oceans, and in fact that's where the runoff from our phosphate rock and potash-based fertilizers go.

Three of the most important electrolytes - calcium, potassium, and magnesium - are deep ocean minerals. Because of this, incorporating deep ocean minerals into your diet can ensure your body stays hydrated throughout the day.

Potassium - the main ingredient in production of soap, glass, fertilizer

According to Stanford University, in the US, seawater contains 47 minerals and metals

Your life depends on the ocean, even if you live nowhere near it. The world's largest ecosystem provides the majority of your oxygen, holds 97% of the Earth's water and is the top source of protein for more than a billion people. It helps regulate the climate, absorbs carbon dioxide, and shapes weather patterns.

When potassium reacts with water H_2O , potassium hydroxide and hydrogen gas are formed as the product

Can potassium be used as a bomb? Potassium Metal Is Explosive—Do Not Use It! Journal of Chemical Education. Potassium Metal Is Explosive—Do Not Use It!

Potassium hydroxide is a caustic chemical. If it contacts tissues, it can cause severe damage, such as burning or ulcers, on contact. This article discusses poisoning from swallowing or touching potassium hydroxide or products that contain this chemical.