

## Video Transcript

### Potash Mining Video

---

- Speaker 1: Every plant needs three basic elements to grow, nitrogen, phosphorus, and potassium, abbreviated as N, P, and K. Why K? Ask this guy, Sir Humphry Davy. He discovered potassium in 1807 and gave it the Latin sounding name Kalium. Kalium? But most people stuck with potassium, which is derived from the term everyone already knew, potash, a common name for salts that contain potassium. The great thing about the word potash is that it's also a useful set of instructions on how to make potash. You get a pot then soak wood ash in it. Piece of cake. Potash was originally used to make soap, bleach, and glass, but in the middle of the 19th century, it started to be used as a fertilizer.
- Speaker 1: Potassium is a pretty useful element. In humans, it's key to healthy circulation, which is why we're often encouraged to eat potassium rich foods like bananas. And just like potassium helps with circulation of fluid in the human body, it does the same thing for plants and much more. In fact, when potassium is lacking in plants, the result is stunted growth, disease, or worse, the plant just withers away. Potassium is a kind of regulator. It helps plants efficiently use water, transfer food, and helps protect against stress. Like nitrogen and phosphorus, potassium is found naturally in soil, but often, there's not enough for plants to thrive, especially after years of growing crops on the same land.
- Speaker 1: In a way, plants are like a vacuum. They take up nutrients that will need to be replaced. When soil is lacking potassium, plants simply can't grow as they should. But science has taught us how to reintroduce these important elements to the soil, which is really important because as the world population gets bigger, it also gets hungrier.
- Speaker 1: That's why farmers turn to fertilizers. Potassium or potash is one of the three main nutrients in fertilizer, along with nitrogen and phosphorus. These fertilizers increase the yield and quality of our nation's and the world's crops. In fact, fertilizers have increased our food supply by 50%. So you can see that potash is pretty important. But with the world's population at more than seven billion people, there's only so much tree ask you can soak.
- Speaker 1: Luckily, it's already been done for us. Reserves of potassium were deposited in prehistoric inland oceans. When they evaporated, the potassium salts crystallized into beds of potash ore. Most potash mines today are deep shaft mines, as much as 4,400 feet underground. That's roughly the height of three Empire State buildings stacked one on top of the other. So getting to this rich supply can be difficult.
- Speaker 1: From mine to manufacturing to farm and, ultimately, your dinner table, the process of creating usable potassium in fertilizer is complex. At some mines, specialized machines remove ore containing potash or potassium chloride from the mine. The ore is crushed, rinsed, and further processed to separate the potash from other materials that aren't needed such as clay. At other mines, water is injected into the potash sea. The potash dissolves in the water, creating potash brine, which is then pumped to the surface. When the potash soup is exposed to air, the water evaporates, and the potassium chloride crystallizes at the bottom of an evaporated pond. These specifically constructed evaporation ponds are filled with salt water. The pond's water eventually evaporates and leave salts of potassium, sodium, and magnesium behind. Compacting produces

**Video Transcript**  
**Potash Mining Video**

---

granular material by squashing tiny particles of hot potassium chloride in a roller press. The potassium chloride crystals are gathered and processed into granular fertilizer.

Speaker 1: The fertilizer then makes its way to distributors serving farms across the United States and the world where essential potassium does its job to allow crops to flourish. Working in unison with other nutrients, this incredible element is crucial to growing enough crops to feed the world's population of over seven billion people. From the periodic table to your dinner table, potassium is one of our planet's most important elements.