

Potassium nitrate is used in agriculture, industry, solar energy plants, food and pharma.

{slide=Agriculture}In agriculture, potassium nitrate is used as a water-soluble and virtually chloride-free source of nitrate-nitrogen and potassium nutrients. Due to the [product's specific characteristics and benefits](#)

, target markets are related to high-value crops such as vegetables, fruits and flowers. Furthermore, chloride-sensitive crops, such as potato, strawberry, beans, cabbage, lettuce, peanut, carrot, onion, blackberry tobacco, apricot, grapefruit and avocado, will depend for their quality on the use of chloride-free K sources, such as [potassium nitrate](#)

./slide} {slide=Industry}Potassium nitrate is used in a wide variety of applications including glass manufacturing, explosives for mining and civil works, metal treatment, fireworks, and recently, as a means to drastically increase the efficiency of Concentrating Solar Power (CSP) plants as described in the following paragraph. ./slide} {slide=Concentrating Solar Power (CSP) plants}Potassium nitrate, especially when mixed with sodium nitrate is a vital storage medium for storing thermal energy in CSP plants. Solar energy is a renewable, green energy source which is used more and more as an alternative, environmental friendly energy source to reduce the effects of global warming.

CSP plants are considerably more efficient than photo-voltaic plants and their efficiency can be boosted even more by using a “rechargeable battery” of nitrate salts to store the heat generated by the sun. CSP plants use large mirrors or reflectors to reflect the sunlight that heats, either directly or indirectly, a molten nitrate salt mixture composed of potassium and sodium nitrate. This mixture, due to its high latent heat capacity, is very effective in storing heat energy for up to several days. This energy can be released whenever needed, either immediately or for example, when the sun is not shining. This new process enables CSP plants to continue producing electricity during more hours each day, improving its efficiency.

The use of solar energy helps to reduce the greenhouse effect produced by CO<sub>2</sub> emissions from combustion engines into the atmosphere. Industrial nitrate use in this application has the potential to play a key role in future growth of demand.

### References:

SQM, 2009. SQM Annual Report 2008.

Haifa Chemicals publication on the use of potassium nitrate for heat storage.  
Potassium nitrate is a well-known ingredient in the food industry, as a means to cure and preserve meats against microbial agents (e.g. *Clostridium botulinum*) and to maintain the desirable colour of meats and hard cheeses.  
Potassium nitrate is a well-known product to desensitise sore teeth. It is therefore, a common ingredient in sophisticated toothpastes.