FAQs and Information

What is AZOMITE®?

AZOMITE® is a naturally mined product containing a broad spectrum of minerals and trace elements excellent for re-mineralizing soils and used as an anti-caking agent in animal feeds. AZOMITE® is a registered trade mark and is an acronym for "A to Z of Minerals Including Trace Elements".

Where does AZOMITE® come from?

AZOMITE® is unique silica (hydrated sodium calcium aluminosilicate (HSCAS)) that is mined in Utah from deposits left by an ancient volcano eruption that was ejected out of the side of a mountain and filled a nearby lake bed. This combination of seawater, fed by hundreds of rivers rich in minerals, and the rare and abundant minerals present in volcanic ash created the AZOMITE® deposit which is found nowhere else on Earth. The deposit is very old, perhaps as much as 30 million years. Today the geologic characteristic is as an outcropping know locally as a hogback. For pictures of the AZOMITE® mine. Click here for more.

What is AZOMITE® composed of?

In a typical chemical assay, AZOMITE® contains more than 70 trace minerals which include many rare earth elements (lanthanides). Many of these elements have been depleted from soils worldwide. Here is a complete typical analysis of AZOMITE®

What is the "Law of the Minimum"?

The "father of fertilizer", Justus von Liebig, developed the "Law of the Minimum" which is important in understanding what AZOMITE® does. The Law states that plant growth is determined by the scarcest "limiting" nutrient; if even one of the many required nutrients is deficient, the plant will not grow and produce at its optimum. Conventional fertilizer programs focus on the macro-nutrients like Nitrogen (N), Phosphorus (P) and Potassium (K). However, if one of the many essential trace elements is deficient in the soil, the plant will not perform at its optimum, affecting yield and immune function.

Will AZOMITE® work on any soil?

If a soil has a very high or very low pH, many of the trace elements may become unavailable to the plant. Otherwise, AZOMITE® has worked in a variety of soils all over the world.

How is AZOMITE® applied to the soil?

AZOMITE® is available in several forms. Micronized AZOMITE® is processed into a fine powder that is around -200 mesh. Granulated AZOMITE® is available for easy soil application in a broadcast spreader. A coarser product, AZOMITE® Slow-Release, is also available for soil use. As long as AZOMITE® is in the root zone, the plant will benefit. Most farmers apply AZOMITE® directly to the soil at planting. Water will ensure that the roots are able to reach the trace elements.

Should I use micronized for soil/crop applications because it "breaks down" faster or is more available to plants?

All grades of AZOMITE® are largely insoluble in water. When only AZOMITE® and moisture are present in the soil, a static equilibrium is established, in which the majority of the AZOMITE® is present as a solid, and the minor amount is present as a solution of the AZOMITE® elements. As soon as a plant is introduced into the soil, the plant begins to take up some of the dissolved elements of AZOMITE®, thereby disturbing the original static equilibrium. In order to try to restore the static equilibrium, more AZOMITE® dissolves, but only at the rate, and to the extent, required by the plant itself. The equilibrium has now changed from static to dynamic and this situation continues for as long as the plant requires the dissolved AZOMITE® elements from the soil. Thus the situation is a true "Slow Release" mechanism, with the process being dictated entirely by the plant itself. By contrast, and as an example, the nitrogen in a typical NPK fertiliser is in a very soluble form, and is always totally available in the soil. However, a plant can only use so much fertiliser at any given time, and what the plant does not take up is washed away by irrigation or rain, or drainage by percolation, and is thereby lost as runoff. Please see graphic here.

What effect does AZOMITE® have on plants?

Generally, plants with AZOMITE® added have more and larger fruits and vegetables per plant, have more resistance to disease and have better tasting food products. AZOMITE® has shown results in a wide variety of plants in the field and in the laboratory.

What types of plants is AZOMITE® effective on?

AZOMITE® has proven results "scientific or anecdotal" in many species of plant including but not limited to: wine grapes, table grapes, sugarcane, potatoes, rice, watermelon, tomatoes, melons, cantaloupes, onion, garlic, papaya, lemons, oranges, cocoa, coffee, mango, oaks, pines, peaches, chilis, berries, eggplant, tobacco, ornamentals, wheat, corn, and many others. It is not surprising that AZOMITE® should work in many more types of plants because most require the same types of trace elements that the soil is often lacking.

Aren't all the minerals necessary for plant growth already in the soil?

In most cases, no. The world's cropland has been under cultivation for many decades and each crop cycle removes trace minerals from the soil or the elements are lost through erosion. Since most fertilizer programs only replace Nitrogen (N), Phosphorus (P) and Potassium (K), crops become deficient when the soil has been depleted of the trace elements. Of course, plants can complete their life cycle without the full range of minerals but they will not produce at their full potential or be healthy and adequately resistant to disease. See What is the "Law of the Minimum?" (#4).

How is AZOMITE® different from fertilizer?

Most conventional fertilizers contain mainly Nitrogen (N), Phosphorus (P) and Potassium (K), which are called macronutrients. Plants require macronutrients in large amounts. NPK are only three of the essential nutrients required by plants; unfortunately, when choosing a fertility program, growers often neglect all of the trace minerals and only use NPK. For plants to complete their life cycle and produce at full potential, a wide range of minerals is necessary; AZOMITE® supplies that essential wide range, from A to Z. AZOMITE® is not created in a laboratory and its nontoxic composition does not harm the environment.

If a farmer uses AZOMITE ®, can other fertilizer be reduced?

AZOMITE® is a trace element supplier but does not provide Nitrogen (N) or Phosphorus (P) but does provide some Potassium (K). Therefore, farmers should not reduce any part of their fertility program that provides N or P. By using AZOMITE®, farmers can reduce other silicate-based fertilizers or micro-nutrient providers but it is difficult to say how much without a soil analysis. AZOMITE® has shown increased yields and improved disease resistance even in addition to a complete fertility program.

How fast can farmers see results with AZOMITE®?

This depends on a multitude of factors, such as soil quality, application rates, soil pH, etc. Most farmers report a more rapid rate of growth and increased yields within one harvest, but this may depend on the type of crop grown.

Is AZOMITE® organic?

AZOMITE® is listed by the Organic Materials Review Institute (OMRI) for use in organic production. AZOMITE® is simply mined, crushed, bagged and sold.

Is AZOMITE® a zeolite or bentonite or a CLAY of ANY KIND?

No. Geologists put AZOMITE® into a very broad class known as “Hydrated Sodium Calcium Alumino-Silicates” (HSCAS), but it is unique because of its chemical make-up. The physical structure, number and abundance of trace elements in AZOMITE® make it distinct from any other deposit. “HSCAS” is such a non-specific classification for a mineral deposit that it is akin to simply calling both a great white shark, as well as a sardine,“ fishes” – factually correct, but not precise. A bentonite is an adsorbent aluminum phyllosilicate which, at colloidal size, swells in the presence of water. AZOMITE® is a Hydrated Sodium Calcium Aluminosilicate (HSCAS), and, irrespective of its particle size, it does not swell in the presence of water.

Does AZOMITE® contain heavy metals?

Yes, but in lesser amounts than exist in a typical soil. AZOMITE® is Generally Recognized as Safe (GRAS) by the US Food and Drug Administration (US FDA).

Is the lead in AZOMITE® harmful?

The FDA and American Association of Feed Control Officials establish strict guidelines for the amount of various natural contaminates that show up in all types of feed ingredients. At 6.2ppm, AZOMITE® is well below the guidelines for allowed lead in natural feedstuffs.

What is the pH of AZOMITE®?

The pH of AZOMITE® in water is 8.0.

Do you sell AZOMITE® for human consumption?

We do not market AZOMITE® for human consumption. Because we do not market it, we do not provide testimonies or research on our website. However, we are aware of people using it as a mineral supplement at a rate of 1 to 2 teaspoons per day.

What are some of the elements in AZOMITE® and their major nutritional functions?

Boron (B) – It helps move sugars from cell to cell; control starch formation; stimulates cell division, flower formation and pollination. **Calcium (Ca)** – Raw material for holding cell walls; raises pH; aids genetic stability; promotes root hair formation and earth; stiffens straw. **Chlorine (Cl)** – Needed for photosynthesis; stimulates root growth and aids water movement in plants.**Cobalt (Co)** – Needed by Rhizobium for nitrogen fixation; helps form vitamin B12; improves growth, water movement and photosynthesis; improves growth, water movement and photosynthesis; improves boll production in cotton; activates certain enzymes. **Copper (Cu)** – Enzyme activator, particularly for certain protein forming enzymes and Vitamin A forming enzymes; it stimulated stem development and pigment formation. **Iron (Fe)** – Raw material for several enzymes including those that form chlorophyll and those that help oxidize (burn) sugar for energy; also necessary for legume nitrogen fixation. **Magnesium (Mg)** – Raw material for chlorophyll formation; activates enzymes particularly those involved with nitrogen reactions and energy metabolism; it increases oil production in flax and soybeans; helps regulate uptake of other elements. **Molybdenum (Mo)** – Needed for nitrogen fixation and nitrogen use in the plant; specifically it is needed to make amino acids; it stimulates plant growth and vigor very much like nitrogen. **Nitrogen (N)** – Raw material for proteins, chlorophyll, and genetic material (DNA and RNA); stimulates vegetative growth. **Phosphorous (P)** – Raw material of genetic material (DNA and RNA) and for energy carrying compounds (ATP and ADP); stimulates fruit, seed and root production and early season growth; increases winter hardiness.**Potassium (K)** – Necessary for sugar movement from leaves to developing fruits and seeds and for starch formation. It helps water movement; stimulates fruit, seed and root production and increases disease resistance; increases red pigment in fruits. **Silicon (Si)**– Increases the number of seeds (particularly in rice and other grains); increases sugar cane growth. **Sodium (Na)** Necessary for proper carbohydrate production and use; increases resistance to drought; increases sugar content in some crops (sugar beets).**Sulfur (S)** Raw material for certain amino acids and thus for proteins; necessary for legume nodule formation; raw material for certain oil compounds that give specific odors to some plants such as onions, garlic, mustard, etc; it is also a raw material for certain protein forming enzymes; it increases oil production in flax and soybeans. **Zinc (Zn)** Raw materials for several enzymes including those that form growth controlling substances; stimulates stem growth and flower bud formation.

Is AZOMITE® radioactive?

AZOMITE® is neither radioactive nor does it have the capacity to emit alpha particles, which can harm humans or animals. The findings of a gross alpha/beta test report prepared by ALS Environmental.(http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental) reveal that the alpha radiation values present in AZOMITE® are lower than the dirt in ALS' parking lot, which sits on a granite formation and the beta emission from this dirt is consistent with the potassium in AZOMITE ®. AZOMITE®'s alpha number, averaged from 6 samples, gave a value of 5.8 pCi/g and, typically, in order for ALS to even log the sample in their inventory, it would need to be above 20 pCi/g. Every food contains some small amount of radioactivity.

http://www.physics.isu.edu/radinf/natural.htm. The common radionuclides in food are potassium 40 (40K), radium 226 (226Ra) and uranium 238 (238U) and the associated progeny. Here is a table of some of the common foods and their levels of 40K and 226Ra.**For more information, please view this Gross Alpha/Beta Study.**

Natural Radioactivity in Food

Food	40K pCi/kg 226Ra	pCikg
Banana	3,520	1
Brazil Nuts	5,600	1,000-7,000
Carrot	3,400	0.6-2
White Potatoes	3,400	1-2.5
Beer	390	—
Red Meat	3,000	0.5
Lima Bean, raw	4,640	2-5
Drinking water	—	0-0.17

Ref: Handbook of Radiation Measurement and Protection, Brodsky, A. CRC Press 1978 and Environmental Radioactivity from Natural, Industrial and Military Sources, Eisenbud, M and Gesell T. Academic Press, Inc. 1997.

What are the particle sizes for the grades of AZOMITE®?

AZOMITE® comes in three presentations, Micronized, Slow Release/Feed Grit, and Granulated. See document. **1. Micronized (-200 mesh)** Used for coating seeds to encourage germination and initial growth. OMRI certified for use as an amendment for crops, compost and potting soil. Its specification is > 90% is < 200 mesh. **2. Slow Release/Feed Grit** Particle sizes range from 1/8″ to powder for a combination of rapid and longer-term results. Designed for composting and blending with other products for soil application and also used for adding to feeds. This product produces substantial dust when applied with a broadcast spreader. Approximately 30% of Slow Release is -200 mesh. **3. Granulated** Slow Release particles agglomerated into easy to handle and apply granules which produce only a modest amount of dust. Moisture immediately breaks down granules and can be applied with a broadcast spreader.

Is AZOMITE® the same as rock dust?

In contrast to straightforward volcanic basalt or other “rock dusts”, AZOMITE® also contains a wide variety of those trace elements that are sedimentary in nature, i.e. which come from sea water. This means that AZOMITE® can be thought of as a “rock dust plus.” The volcanic activity in Utah, some 30,000,000 years ago, when Utah was under the sea, caused the molten lava to flow into the sea and with the passage of time, and the retreat of the sea, the end result was the AZOMITE®deposit, a unique mixture of both volcanic and sedimentary elements, and not just those elements that are derived from a volcanic source. This is why AZOMITE®contains so many elements, from trace to macro, and why it can achieve so much, at such low doses, and still be highly cost effective.

What is the Cation Exchange Capacity (CEC) of AZOMITE®?

The Cation Exchange Capacity (CEC) refers to the capacity of exchange between a cation (a positively charged ion) in solution, in the soil, and another cation on the surface of any negatively charged material such as AZOMITE®. CEC is a measure of soil fertility and nutrient retention capacity. AZOMITE®’s typical CEC range is 25 – 30 meq/100 g.