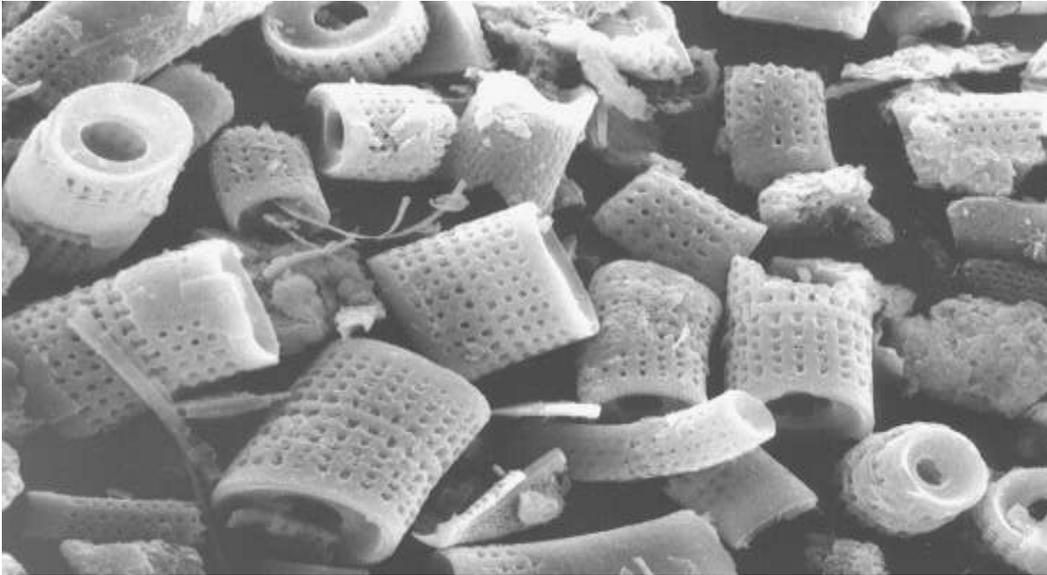


***100% Organic and natural farming,  
landscaping and gardening, with Diatoms  
Diatomite, for optimum plant vitality.***



## **1 General**

Diatomite is a naturally occurring siliceous sedimentary mineral compound from microscopic skeletal remains of unicellular algae-like plant called diatoms. These plants have been part of the earth's ecology since prehistoric times with diatoms inhabiting both fresh and salt waters for a very long period of time.

As living plants, diatoms from microscopic shells from silica they extract for water. Diatomite deposits are formed when diatoms die leaving their shells to sink to the bottom of water bodies.

These , shells from thick layers that are fossilized over very long period of time – in what become dried lake and ocean beds.

The major constituent of diatomite is amorphous silicon dioxide ( $\text{SiO}_2$ ) with minor amount of other minerals (aluminium, iron oxide, calcium hydroxide, magnesium and sodium). However, not all diatomite is the same as deposits that come from different geological periods and area can be very in composition, making it more or less suitable for different applications.

Diatoms constitute a thick chalky sedimentary deposit consisting of the inorganic non-toxic skeletal remains of fresh water algae and phytoplankton. Typical diatoms exhibit lacework patterns of great variety and complexity, creating a high porous internal structure.

## **2 Agri Silica's environment friendly products and fields of application**

### **Products**

- 1 **Silfos 170** phosphate fertilizer with 30, 4 % SiO<sub>2</sub>
- 2 **Magsilfos 45** phosphate fertilizer with 26 % SiO<sub>2</sub>
- 3 **Diatoms concentrate** in 10kg and 500kg bags
- 4 **Diatoms Soil** in 10kg and 500kg bags (price on request)
- 5 **Diatoms pebbles** 2-8mm (in 10 and 500kg bags) price on request
- 6 **Diatoms pebbles** 8-25mm (in 10 and 500kg bags) price on request

### **Fields of application**

- Top dressing mixes
- Rich source of Si for plants
- General insecticide
- General soil amendment
- Hi Silica Growing media for lawns, turf, seedlings
- Improving soil porosity
- General potting
- Potted plants requiring increase drainage
- Orchid mixes
- Hydroponics

Diatoms have a fresh water origin (as opposed to diatomite of marine origin with resulting high salinity levels) with minimal contaminants and salts that make most other sources unsuitable for horticulture.

Diatoms contain a high amount of water soluble silica (120ppm vs. 10ppm of normal soil) available to plants.

Silica controls root system development and increase plant resistance to abiotic (e.g. insects, fungi, disease) stresses.

### **Benefits of silica include:**

- Silica is widely documented to stimulate Self Acquired Resistance (SAR) in plants. It strengthens the cuticular cell wall and imparts physical resistance to disease, insect and fungi attacks.
- Silica increase drought and salt resistance of plants.
- Silica promotes restoration of degraded soils and increases soil fertility.
- Silica increases crop production / yield and quality.
- Silica helps restore heavy metal and hydrocarbon-polluted areas.

Diatoms pebbles and concentrate improve the physical structure of the soil (It helps to break up heavy clay based soils as well as retain moisture in light or sandy soils), helps retain moisture for longer periods (Diatoms can absorb up to 200% of it's weight in water), enhances movement of water to the root zone and provides a slow release of nutrients (it acts as a fertilizer carrier).

The porosity of diatomite contributes to its ability to draw water, while moving water and nutrients laterally throughout the medium, making Diatoms pebbles ideal for Hydroponics.

All plants, shrubs, vegetables and fruit will benefit from the application of Diatoms diatomite.

## **Other benefits of using Diatoms diatomite include:**

- Diatoms diatomite contains small amounts of trace elements which are beneficial to plant growth.
- Diatoms pebbles are a multifaceted and vary in size. Because each pebble is Unique in shape it does not compact while in the pot. This leaves pockets, allowing air to penetrate and circulate to the root zone.
- Diatomite is a fossil, making it natural, safe and an environmentally conscious alternative.
- Diatomite will not break down or decompose like other growing mediums.
- Because diatomite is chemically inert it will not interfere with soil chemistry.
- Harmless to humans and animals if digested.
- The microscopic porous structure of each pebble provides effective thermal insulation to plants root zones.
- When dry, diatomite is a natural insecticide. On contact with insects it absorbs the epicuticular lipid layers (which consist of hydrocarbons, wax esters and other organic chemical compounds) of the insect. This causes excessive water loss through the cuticle of the insect and ultimately death by desiccation (dehydration). Because it is a physical action (not chemical) that causes death, insects cannot build up resistance to diatomite.
- Diatomite is pH neutral and stable and will not contribute to changes in pH.
- Diatoms pebbles and Diatoms concentrate are heat sterilized in a rotary kiln at high temperatures.

### **3 Application rates and methods**

It is important to saturate Diatoms Diatomite with water and nutrient as soon as possible upon application. This will achieve maximum benefit and optimum results.

#### **1. Potting Mixes**

The application rate for Diatoms pebbles could be around 30% to 50% blended with normal potting medium and a standard fertilizing program.

For orchids the following mix is suggested as a starting point:

40% - Diatoms pebbles  
50% - Perlite  
10% Peat moss

We strongly encourage you to make up a few variations that you think will work for you and experiment with them to see what works best.

#### **2. Top Dressing Lawns:**

Mix Diatoms concentrate with sand or soil at a rate of 50% concentrate and 50% sand/soil. Spread /blend evenly on lawn at a rate of 2 liters per M2 and keep watered till grass grows through.

#### **3. Turf laying:**

Apply Diatoms pebbles at a rate of 5 litres (+-3.5kg) per m2 evenly beneath the surface, before laying turf.

#### **4. Vegetables:**

And a handful of Diatoms concentrate or pebbles to the hole for transplants or into seed rows.

## **5. Trees and large shrubs:**

Diatomite pebbles helps reduce the root damaging “bathtub” effect of trees planted in poor soil. Mix Diatoms pebbles into the backfill in a ratio of 25% to 33% by volume.

## **6. Roses:**

Apply Diatoms pebbles at the rate of 5 liters (+-3.5kg) per bush, dug into the soil and a futher 3 liters (+- 2kg) around each bush.

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