



PURASIL is crushed and unprocessed Diatomaceous Earth. It is a rich source of natural amorphous silica.

WHAT IS PURASIL?

Purasil is raw Diatomaceous Earth mined from sedimentary layers deposited millions of years ago in a fresh water lake. It is light in weight, chalk-like in appearance, very porous and comprises siliceous fossils of plant algae. It consists primarily of amorphous silica as distinct from crystalline silica or quartz. Amorphous silica is much more soluble than crystalline silica and is not a health hazard.

WHAT IS PURASIL USED FOR?

- It is used as a soil conditioner to provide plant available silica and improve cation exchange capacity. It is advised that a calcium source (hydrated lime, agricultural lime and or gypsum nitrate) be added at the same time so that the calcium and cations can occupy the sites left by aluminium which is bound by the soluble silica.
- Coarser grades are available as a growing medium for hydroponics and in orchards.
- It is used in its raw form on golf courses, sports fields and landscape projects. Landscape gardeners, green keepers and landscape architects use Purasil to improve porosity and drainage of soil and promote the health of the soil's root system.
- The addition of Purasil to soil helps to promote the healthy growth of living plants. The intricate pore structure of diatoms keeps the pores in the soil open and controls the water supply to the roots, holding and releasing moisture when required. The improved structure oxygenates the soil and helps break up heavy clay.

TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

- The plant available silica content in the range of 300-350ppm is determined from calcium chloride extraction techniques.
- Water Absorption – a minimum 100% of its own weight.
- Melting Point – approximately 1500 °C
- Colour – White to light grey
- Acidity/Alkalinity (pH) - 7.6. This rises to 8.75 upon calcining to 500 °C. For those applications requiring a pH of 8.75 we recommend the use of Kleensorb.
- Density – 250 to 450 kg/cubic metre depending on particle size.
- Cation Exchange Capacity — The measured capacity is 32cmol+/kg which is higher than most soils.
- Particle Distribution – The rock has been lightly crushed and fragments range from very fine to approximately 5mm.

PROPERTIES OF SILICA

Silica, like calcium, strengthens cell walls resulting in robust and efficient plants. Silica improves brix levels and therefore flavour. Plants produce more flowers and pollen is more viable resulting in better fruit set. The CSIRO in Townsville has demonstrated that big increases in yield can be achieved from sugar cane by adding plant available silica to the soil.



In the soil, soluble silica in the form of silicic acid plays a number of important roles: it binds aluminium, manganese and heavy metals thus reducing their toxicity. It also improves the plant availability of calcium and phosphorous; and increases the number of beneficial soil organisms, particularly beneficial fungi. It also improves the cation exchange capacity and conductivity.

Silica is deposited as opaline silica in plant tissue - this toughens the plant, making it more resistant to fungal attack. A high silica content also makes the plant less palatable to insects.

Silica is not a replacement for normal fertilizers, it makes them work more efficiently.

Australia has large areas of stable land surfaces where the soils have been leached for millions of years. All the soluble components of these soils including silica have been depleted. Similarly in east coastal areas of high rainfall, silica has been removed. Soils should contain more than 100ppm plant-available silica for optimal fertility.

Purasil, which contains about 90% amorphous silica, can provide the farmer with this necessary element.

PACKAGING

Purasil is packaged in 1.4m³ bulka bags or alternatively is packaged in poly woven bags and sold in minimum one pallet quantities of 50 bags per pallet.

APPLICATION RATE

Either apply to the surface and water in or plough into the soil. The broad acre rate is 1 tonne per Ha or 1-2 kg per 10m². For use on roses and other garden plants apply 50 g around the base of each plant every six months.

TYPICAL ANALYSIS

XRD analyses indicate a 2% crystalline silica or quartz content. The other minerals are Montmorillonite (5%) and Kaolin (9%). A typical analysis is as follows (there is some variation within the deposit):

SiO ₂	90.10%
P ₂ O ₅	0.03%
Al ₂ O ₃	4.62%
TiO ₂	0.37%
Fe ₂ O ₃	3.16%
V ₂ O ₅	0.03%
MnO	0.02%
Cr ₂ O ₃	0.005%
MgO	0.56%
CuO	0.004%
CaO	0.62%
ZnO	0.007%
Na ₂ O	0.11%
K ₂ O	0.06%
SO ₃	0.06%
Cl	0.05%

A separate Selenium analysis indicated 2.54ppm