MAXSIL
Boosts Yield

Company Update

Major Increase in Plant Available Silicon (PAS) content of the "new" MaxSil™

MaxSil Pty Ltd is pleased to announce that the plant available silicon content (PAS) of its patented MaxSil™ silicon fertiliser has materially increased since it started to produce this soil supplement at their new facility in Brendale Qld, in April 2023.

MaxSil™ is manufactured from recycled glass bottles and is therefore part of the circular economy. Previous claims regarding the PAS content of MaxSil™ were based on product produced by a third party on a toll treatment basis and these provided a PAS content ranging from 1.5% (15,000ppm) to 2% (20,000ppm).

Analysis of six samples collected as part of our quality control system, from the MaxSil™ produced by our new plant in Brendale, Queensland, were submitted for particle size analysis as well as for the determination of the PAS content. The determination of the PAS content was conducted by Thornton Laboratories, an accredited laboratory based in the USA. The PAS analysis was carried out in accordance with the official US protocol endorsed by the Association of American Plant Food Control Officials (AAPFCO).

The results were frankly stunning. The PAS content of the six samples of MaxSil™ produced by our new plant ranged from 3.6% (36,000ppm) to 4% (40,000ppm), with an average of 3.8% (38,000ppm). This is nearly double the previous claims for MaxSil™, meaning the PAS potency of the "new" MaxSil™ product has substantially increased.

The explanation for this result lies in the particle size distribution, which shows that the "new" MaxSil™ has a finer average grain size (D50= 4 to 5 microns), as compared to the "old" MaxSil™.

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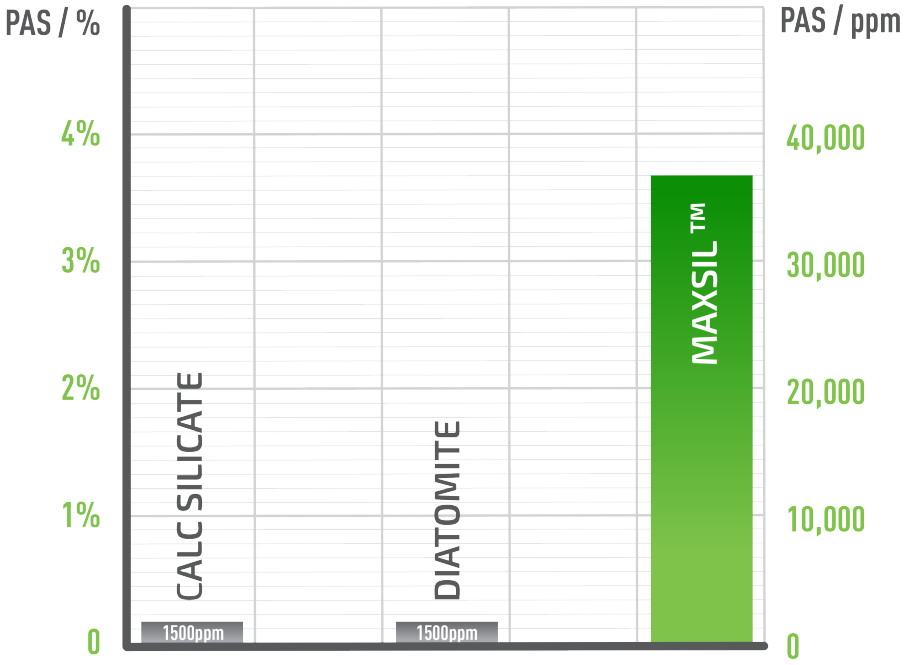
The new MaxSil™ is 24 times more potent in yielding PAS than Diatomite

01

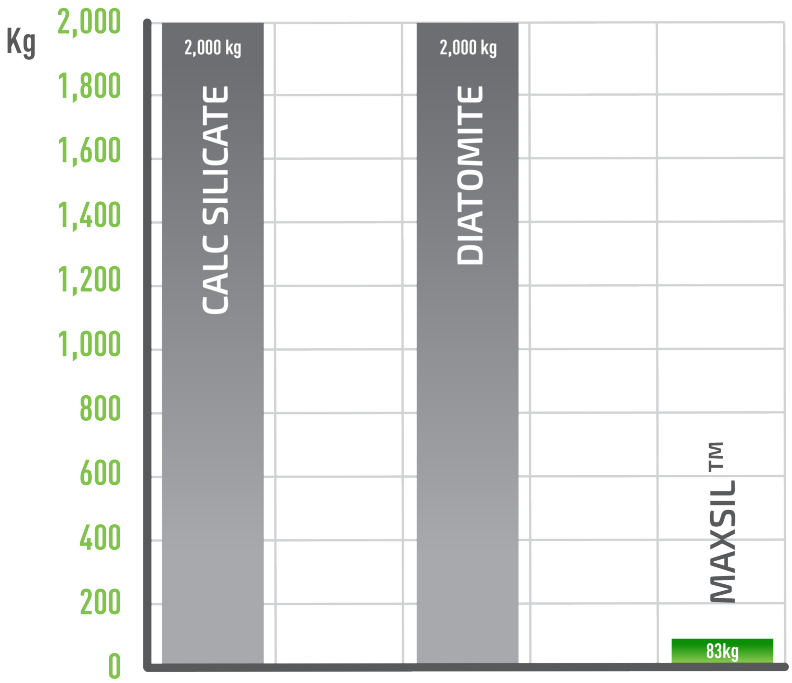
Comparison of the percentage and parts per million (ppm) of Plant Available Silicon (PAS*) contained in three different solid silicon fertilisers

*Note: PAS analyses were carried out according to the official US protocol endorsed by theAssociation of American Plant Food Control



02

Kilograms of solid silicon fertiliser required to supply 3kg of Plant Available Silicon (PAS) per hectare of land



Silicon Fertilisers & Plant Available Silicon (PAS)

Unlike any other fertilisers or soil supplements, silicon fertilisers are difficult to produce, despite the fact that the element silicon (Si) is ubiquitous in the earth's crust (rocks). This is because it only occurs in nature as strongly bound to oxygen as an oxide (silica, e.g. sand) or as a silicate bound to oxygen and other elements. Neither of these sources can yield free silicon, as in Plant available silicon (PAS).

Pure silicon, known as silicon metal, can be produced using high amounts of energy to break the strong bonds between silicon & oxygen. However, silicon metal is not dissolvable by water, nor by the weak organic acids in soils. It is mainly used to manufacture integrated circuits for computer chips.

Silicon was discovered as a soil restorer and/or as a plant nutrient a hundred years ago. This happened in Hawaii where efforts to grow sugar cane on the red volcanic soils failed. The red volcanic soils of Hawaii suffer from "aluminium toxicity". It was only after the application of pulverised calc-silicate slag (a waste product from steel mills), that a successful crop of sugar cane was finally produced.

So, calc-silicate slag was the first silicon fertiliser. Its PAS content is low, 0.15% or 1500ppm, which means that 1 tonne (1000kg) only yields 1.5kg of PAS. Calc-silicate slag is still used as a silicon fertiliser, but not in Australia, as it has the disadvantage of possible contamination by other detrimental metals.

Because of the difficulty of producing silicon fertilisers with a high PAS content, these supplements are quite expensive to produce. Many claims of high PAS content are based on inappropriate analytic methods. With the exception of the US, protocols to determine the PAS content are totally unregulated and bogus claims are rife. Additionally, many customers are confused by the difference between silica and silicon. In other words, the silicon fertiliser market is without controls and this allows claims to be made, which often confuse the customer. This confusion was overcome in the US, where the fertiliser industry adopted the standard protocol noted previously for testing solid silicon fertilisers on their PAS content. From its very start, MaxSil™ 's PAS content has been tested by this method and it is also part of our quality control measures.

Silicon Fertilisers & Plant Available Silicon (PAS)

The main competition MaxSil™ faces in Australia is a silicon fertiliser made from diatomite, which is composed of microscopic amorphous silica shells of fossilised marine algae.

Based on the US analytical protocol as carried out by Thornton Laboratories, diatomite has a PAS content of only 0.15%, or 1.5kg PAS per tonne or 0.15kg per 100kg. The new MaxSil™ has a minimum PAS content of 36kg PAS per tonne, or 3.6kg per 100kg.

This makes MaxSil™ 24 times more potent in yielding PAS than diatomite.

- ***The cheapest source of Plant Available Silicon (PAS)***
- ***The lowest costs to transport and to spread***
  (based on kg PAS)
- ***Part of the circular economy***

If it is assumed that Diatomite is 40% cheaper than MaxSil™, the cost of 1kg of PAS contained in diatomite costs approximately $425/kg PAS, whilst that of MaxSil™ is $44/kg PAS, i.e. a magnitude cheaper.

If one then takes into account the cost of transport as well as the cost of spreading this fertiliser, it must become clear that MaxSil™ is a unique and potent silicon fertiliser.

MaxSil™ & the Restoration of Condemned Saline Soils

Condemned saline soils emerge over a long period of time after the native vegetation has been denuded to create arable land. By eliminating the deep root systems of the native vegetation, this leads in turn to a rise in water table levels, which over time brings salt in reach of the root systems of cereal crops. This then results in changing fertile soils into condemned land. Large areas in the cereal growing regions in WA and NSW now have been lost. However, these condemned areas can now be restored to productive land through the application of MaxSil™.

A field trial carried out in 2021 and 2022 in WA using MaxSil™ on condemned saline land, demonstrated that following this application, a healthy crop of barley was grown. The acreage tested was divided in half. The total acreage was treated the same, (tilling & fertiliser application), but only one half was also treated with MaxSil™. The latter produced a commercial crop whilst the former yielded no commercial crop and could not be harvested.

The location of the trial is Kellerberrin, Western Australia

Recently we have received early progress reports on MaxSil™ trials currently taking place on 6 farms in WA. On one such farm (the same farm on which we reported on before), barley was planted in April this year and the emerging shoots are showing healthy and vigorous growth, including strong root development. Other trials are taking place in NSW.

The above results should be of particular interest to the WA, NSW and Victorian Governments (politicians as well as bureaucrats) as these states all have large regions of saline soils, which could be restored to fertile land.

All the above should be regarded as revolutionary, as once the salt content exceeds 3000ppm, soils are classified as "condemned" and are written off, i.e. not capable of growing a commercial crop. This spectacular result is not dissimilar to what happened 100 years ago in Hawaii, when silicon fertilisers were first discovered. The new "high" in MaxSil™'s PAS content is likely to increase the "potency" of our product with respect to restoring condemned land.

Saline land in Australia covers up to 1.7 million hectares and much of this land could possibly be restored to productive Land use. This puts MaxSil™ in a special position, not only in Australia, but also internationally where statistics show over 830 million hectares is salt affected.

MaxSil™ is a product for our time. It is produced from recycled bottle glass, and it boosts crop yield & plant health, whilst reducing the need of NPK fertilisers and also that of pesticides and fungicides. It can also revert saline land to productive use.

The new MaxSil™ product is available now in Powder and Prill 1 tonne bags - shown here in the Brendale Warehouse

Corporate Directory

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Date of incorporation	24 February 2021 - Queensland