

# INFORMATION FOR PROFESSIONAL LANDSCAPERS

## Soils suitable for a dry climate for the professional landscaper

To meet the growing demand for improved water efficiency Soil Solver Pty Ltd have developed a fully mineralised loam soil concentrate to convert sand into a mineralised loam soil. Simply mixing it into existing sand adds all the minerals, clays and silts needed to create an ideal soil for a garden for the long term future. Soil Solver's entirely natural products can be used in soil preparation for planting of natives and/or exotic plants, and will increase the success rate of planting young trees in sandy areas. It is a permanent improvement, and includes all the trace elements that plants need. It is the very best result you can have, while saving money on preparing the groundwork of a new garden..

Sandy ground treated with Soil Solver Clay Plus will continue to improve in the future as it holds onto increasing amounts of humus, and the beneficial soil organisms and fungi multiply. The investment will save money within a short period of time due to less ongoing need for wetting agents, organic matter, water and fertilisers.

Register for the professional landscapers discount by calling Joy Ross on 0427 351 473

## Advantages of adding Soil Solver Clay Plus:

- no need to remove existing sandy ground and replace with 'soil mix'.
- permanently increase cation exchange capacity, phosphate and water buffers of sandy ground
- permanently overcome and prevent water repellency and "run off"
- create a stable water retentive and fertile soil
- provide sufficient enhanced calcium for the healthy growth of beneficial soil organisms
- significantly extend the time that soil remains moist from hours to days
- increase the quantity of plant available water in the soil
- prevent soil nutrients from leaching
- slows degradation and breakdown of compost reduces wasting nutrients
- includes a full suite of trace elements and minerals needed for healthy plant growth
- improves the lateral spread of water - best for drip irrigation
- suitable for native and exotic plants

## Description:

Soil Solver Clay Plus is a blend of mineral fortified clays and silts that transform the structure and content of sandy ground into a mineral rich loam soil, to which organic or NPK fertilisers can be used to provide macro nutrients. Unlike a 'loam soil', Soil Solver is friable, contains no weeds or diseases, is guaranteed free of heavy metals, contains a broad spectrum of minerals and is very easy to blend with sand. Plants in a mineral balanced and fertile soil are sturdier and better able to survive hot summers with less water and there is less waste of costly nutrients. Water use can be slashed by up to 70% with the incorporation of Soil Solver clay plus combined with a thick mulch, and the use of a drip watering system.

## Contents:

Unique regional calcium enhanced clays and long lasting mineral silts covering all plant trace element mineral requirements. The resulting soil is correctly Ca/Mg balanced for optimum growth.

Mineral content: *Calcium, Magnesium, Potassium, Phosphorus, Sulphur, Manganese, iron, Zinc, Copper, Cobalt, Molybdenum and Boron*

## Scientific references:

Scientists at UWA and SA, have shown that Kaolin clay outperforms Montmorillonite clays in overcoming water repellency on the short and long term<sup>1</sup>, and results are enhanced by a further 20% when silts are also added. Kaolin clay has a great affinity to water<sup>2</sup>, and is readier to exchange nutrients with plants. Soil Solver Clay Plus continues to increase the plant available water content the more you add, without creating a water barrier. Montmorillonite clay content of over 3% in soils has been shown to depress growth.<sup>3</sup> The addition of Zeolite and Spongolite cause an insignificant increase in CEC capacity of soil (Gilkes UWA) and are not

Soil solver creating the best soil for the future

beneficial to the texture of soil.

## The Soil Science:

Loam soils contain clays, silts, sand and organic matter, and have a complex variety of textures which combine to create a fertile soil that is free draining. Clays and silts are essential ingredients to hold onto humus and carbon in the soil, the higher the clay content the more organic matter and carbon can be retained. Humus, which is the residue of organic matter that has fully decomposed has a CEC up to 5 times greater than clay and the clay bonding with humus is the secret to a long lasting fertile soil. Humus is safely held in the soil in aggregates of clays, sand and mineral rich silts. The treated sand is capable of holding enormous quantities of cations, and acts as a storehouse of nutrients for plant growth. The soil fertility will continue to improve as the humus naturally increases over time and beneficial organisms fungi multiply and thrive in the increased time the soil stays moist.

## The roles of clay and silts in soil

The primary role of the clay is to improve the water holding capacity and increase the moisture content of the soil. Water can be held in the soil for days rather than hours. The secondary role is to reduce the pore size distribution, which improves the hydraulic conductivity of the soil and water is more evenly spread laterally through topsoil. This means each plant is more likely to get adequate moisture. The role of silt, which is also a tiny size particle and composed of weatherable minerals, allows weathering at rapid enough rates to release significant amounts of plant nutrients and water and increases the textural variety within the soil profile. The improvement from adding clay, silts and organic matter, is immediate and ongoing.

## The role of manure, compost and organic matter

Organic matter provides food and habitats for beneficial soil organisms and fungi, as well as helping to boost the water holding capacity. The incorporation of Soil Solver Clay Plus slows the degradation of organic matter by soil organisms helping it last longer in the soil, and stable aggregates are created.

## Quantity to use:

10 kgs of Soil Solver per sqm in the top 10 cm of sand achieves a 5% clay content.

Soil Scientists have noted that while it can take only a small percentage of clay in a laboratory to overcome water repellency of sandy ground, in the field the percentage of clay needs to be over 5% to at least 10 cms depth. The clay and silt particles need to be close enough to plant roots to usefully release nutrients, and in sufficient quantity to create stable soil peds. Between 6 kgs to 30 kgs of clays per sqm are recommended by Dept of Agriculture. Increasing the percentage of organic matter will lead to an increased requirement for clay to avoid water repellency recurring.

For more detailed information visit the website [www.soilsolver.com.au](http://www.soilsolver.com.au)

Contact: Gavin Davis 0428 352 026

The changes in total ppm in sand when Soil Solver is added at 10 kgs per sqm

N	P	K	Ca	Mg	S	B	Cu	Zn	Mn	Fe	Co	Mo	Se	Ph	clay	silt
16	19	900	9881	5205	2090	85	14	63	192	2449	0.9	0.29	0.03	7.5	5%	3%

## References

- 1 Properties of soil kaolinities from south-western Australia B. SINGH, R. J. GILKES
- 2 Effect of kaolinite and Ca-montmorillonite on the alleviation of soil water repellency  
P. Dlapa<sup>1</sup>, S.H. Doerr<sup>2</sup>, . Lichner<sup>3</sup>, M. Šir<sup>4</sup>, M. Tesa<sup>4</sup>
- 3 The influence of clay type on reduction of water repellency by applied clays:  
I McKissock, E L Walker, R J Gilkes, D J Carter
- 4 <http://www.soilhealth.segs.uwa.edu.au/index>