

Material Safety Data Sheet

K.SIOFF

(POTASSIUM SOLUBLE SILICON)

26% K₂O 50% SiO₂ of the liquid

3% H₄SiO₄ of the solids

pH 10.9 ALKALINE LIQUID

WARNING

KEEP OUT REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING
DO NOT SWALLOW

CONTAINS : ALKALINE SALTS, monosilicic & silicic acid

Extracted mineral elements

SAFETY INSTRUCTIONS: The major component is of potassium Silicate is considered to be harmful by

Ingestion, severe irritant to skin and Particularly eyes. Contamination of eyes

Can result in permanent injury. No vapor Hazard. Use good industrial hygiene.

Avoid skin and eye contact, Protective gloves, full face shield, Rubber Boots and overalls

CONDITION OF SALE:

THESE GOODS ARE MANUFACTURED AND TESTED TO SPECIFIC STANDARDS AND ARE SOLD IN GOOD FAITH, HOWEVER, NO QUARANTEE IS GIVEN AS THE CONDITIONS AND METHODS UNDER WHICH THEY ARE USED ARE BEYOND THE CONTROL OF ORGRO NATURAL PRODUCTS .

BEFORE USING, USER SHOULD DETERMINE THE SUITABILITY OF THE PRODUCT FOR HIS INTENDED USE AND USER ASSUMES THE RISK AND LIABILITY IN CONNECTION THEREWITH.

Minimum Macro Analysis : 26% Potassium (K₂O) Soluble Silicon 50% (SiO₂) also mono & silicic acid from mineral extracts.

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MIXING RATES: CONCENTRATE DILUTED INTO 2LITRES/100LITRES OF WATER APPLY DURING MORNING DEW OR IN THE EVENING FOR MAXIMUM UTILISATION.

APPLICATION RATES: BROAD-ACRE = 1.5litres: 50 LITRES OF WATER PER HECTARE
HORTICULTURE= 1 LITRE PER HECTARE THROUGH T/TAPE
TREES & VINES= 2 LITRES/100LITRES WATER PER HECTARE THROUGH SPRAYER

EQUIPMENT USE: CAN BE USED THROUGH NORMAL SPRAY FERTIGATION SYSTEMS
SOME SEDIMENT MAY OCCUR IN CONCENTRATE .AGITATE BEFORE DECANTING INTO SPRAY TANK. **STORE CONCENTRATE: IN DRY COOL PLACE, AVOID DIRECT SUN LIGHT**

Soluble silicon uses: protection from natural stresses, pathogenic fungi, and sucking pests. Soluble silicon is a natural plant protector found lacking in some soils.

Plant deficiency symptoms: sluggish growth, drooping leaves, wilt, pest infestation, fungi formation, poor root growth & low glucose levels.

Spray to increase strength in leaf cell structure, for improved photosynthesis, resistance to heat and frosts.

Spray on: most plant species including vegetables, herbs, cereals and fruit trees

Application times: first signs of stress, fungi or infestation apply as directed heavy doses can burn, apply every 14 days during vulnerable period, 4 weeks before fruiting and during fruit set for extra protection, wash fruit before eating, reapply after heavy rain or overhead irrigation.

FIRE: no fire or explosion hazard

SPILLS or LEAKS: concentrate solutions are slippery, isolate, absorb with sand or soil. mop up and dilute with plenty of water, will be neutralised.

FIRST AID

SKIN: avoid direct skin contact if in contact flush with plenty of water and if irritation or rash occurs seek medical advice.

EYES: if concentrate solution is splashed into eyes, flush immediately with clean water for at least 15 minutes **SEEK MEDICAL ADVICE.**

INGESTION: in case of ingestion, large amounts of fluids should be given, vomiting should **NOT** be induced **SEEK MEDICAL ADVICE.**

INHALATION: move to an area of good ventilation, apply artificial respiration if not breathing **SEEK MEDICAL ADVICE.**



Potassium foliar spray & plant cell builder

26%K: 50%SiO₂: 3%H₄SiO₄

K.Sioff is a formulated soluble silicon to provide increased plant health, growth and protection from natural stresses, pathogenic fungi and sucking pests.

Soluble silicon is a natural plant protector which can be lacking in light soils also in high rainfall areas and irrigation regions where leaching occurs. K.Sioff is formulated with a combination of natural silicic acids and synthetic silicon which will deliver much needed protection to growing plants also provide stronger cell structure for maximum nutrient uptake.

1.The role of silicates in plant nutrition and plant protection

- (a) promotes plant growth
- (b) increased sugar (glucose) production
- (c) reduction in lodging and senescence
- (d) increased resistance to wilt
- (e) increased root development and health
- (f) increased tolerance to environmental stresses (frosts, cold, heat, drought, salinity & toxicants
- (g) increased resistance to pests and pathogenic fungi (powdery mildew, fusarium etc.)

2. Plant deficiency symptoms

- (a) sluggish growth
- (b) drooping leaves
- (c) pest infestation
- (d) fungi formation
- (e) poor root growth
- (f) low glucose levels

THESE DEFICIENCIES CAN BE CAUSED BY POOR NUTRIENT UPTAKE, SOIL IMBALANCE OR HIGH MOISTURE LEVELS.

3. Crops sensitive to Silicon deficiency:

- (a) rice
- (b) sugar cane
- (c) cereal crops
- (d) grasses (Poaceae)
- (e) vegetables (cucumbers melons tomatoes etc.)
- (f) flowers
- (g) strawberries (various herbs)

K.Sioff WILL HELP DECREASE THESE DEFICIENCIES

***APPLICATION RATES: DEPENDING ON THE DEFICIENCY AND AGRONOMIC ADVICE
A GENERAL DILUTION RATE 2 LITRES TO 100 LITRES OF WATER***

AVAILABLE IN: 5 LITRE 20 LITRE 200 LITRE DRUMS

AVAILABLE THROUGH : **ORGRO NATURAL PRODUCTS AND A CREDITED DISTRIBUTORS.**

K.Sioff and Soluble silicon information

Its Role in Crop and Disease Management of Vegetable Crops

SILICON (Si) is one of the most abundant elements on the surface of the earth, but its essentiality in plant growth has not been clearly established. While its physiological and nutritional role in plants appears limited, there is accumulating evidence that increased Si absorption offers protection against fungal diseases.
REFERENCE R.R. BELANGER Universite Laval ,Quebec Canada.

PHYSIOLOGICAL ROLE: Effects on growth : There now appears to be good evidence for the promotive effects of Si on the growth of monocotyledonous plants. Much of this information has been carefully reviewed by Epstein. A direct role for Si in the growth of horticultural crops is much less clearly established, even though it has been demonstrated that dicots as diverse as cucumbers, *citrus* spp, black raspberry (*Rubus occidentalis*), and strawberry (*fragaria* spp) accumulate Si in root tissues. Silicon is well known to affect plant mineral nutrition, and at least in some cases, may promote plant growth through this interaction.

PROPHYLACTIC ROLE: History. Whether or not we acknowledge the prophylactic properties of Si in plants, it is interesting to look back into history and find that our ancestors may well have relied on Si, albeit unknowingly, to protect their crops against fungal attacks. While one may argue that ancient concoctions related to alchemy than science, our present knowledge of such concoctions reveals that they contain some of the same active ingredients currently used in plant protection. For instance, it has been known for centuries that extracts of horsetail (*Equisetum arvense* L.) when applied as a drench or as a spray, protect against diseases such as damping off and powdery mildew. Interestingly horsetail is a plant with one of the highest silicon contents in its tissues (over 15% dry weight) when ground in water the liquid extracts contain sodium silicate. Many recipes can be found in books dealing with organic and/ or biological agriculture.

CURRENT SITUATION : In Europe, potassium silicate or (metasilicate) is available commercially and is marketed for the greenhouse industry, The extent of the market appears to be large enough to justify competition among several companies. All products contain soluble silicon in the form of potassium silicate and in drums of 185 liters (300kgs). The retail price ranges from \$700- \$800 US per drum. The companies claim that potassium silicate attribute the effects to the presence of silicon in the opoplast of leaf cells, which makes the leaves harder and more erect, creating a physical barrier to pathogens and enhancing light interception.

There are many more claims of nutrient improvement in many countries around the world and on all different types of plants ranging from cereals, rice, sugar cane and fruit trees, the role of this forgotten nutrient will take years to unfold as research goes on and it seems Australia has been the last to pick up on this valuable research. The data expressed here are extracts from research papers on soluble silicon by: Richard R Belanger, Patricia A. Bowen, David L. Ehret and James G. Menzies. Pacific Agricultural Research Centre, Agricultural and Agri food Canada Canada

The products that are currently on the market in Australia are designed to promote plant protection and nutrient uptake these products are available in liquid form and also in colloidal form for maximum plant availability.

The soluble silicate (*K.Sioff*) that is available from **ORGRO NATURAL PRODUCTS** is a formulation of (potassium metasilicate) and colloidal mineral powders containing monosilicic and silicic acids.

K.Sioff is used as a potassium liquid nutrient feed and a fungal protector designed for maximum absorption through the leaf and root cells.

K.Sioff can be used as a sodium or chloride blocking agent and source of available potassium.

For further information contact: **ORGRO NATURAL PRODUCTS**