



PRODUCT INFO
& DATASHEET

Edition 12/2016

SICOCHEL (L) – Ca

Chelated Calcium (Ca) fertiliser in solution for foliar application

EC FERTILIZER

*** Type 1 (DTPA based)**

Specifications:

Calcium oxide (CaO) soluble in water: 9% w/w (11.25% w/v)

DTPA 7.2% w/w

Product low in chlorine (Cl) (max. 0.05%)

*** Type 2 with SICO's "AMIX" uptake system** (sales rationale on request)

Specifications:

Calcium oxide (CaO) soluble in water: 9% w/w (11.25% w/v)

Ligno/humic + humectant: 5%

Product low in chlorine (Cl) (max. 0.05%)

RECOMMENDATIONS

SICOCHEL (L) Ca is only suitable for foliar applications.

Use 2 to 6 L SICOCHEL (L) Ca per ha.

Maximum concentration is 1% (=1 L SICOCHEL (L) Ca per 100 L water).

Vegetables: 1 or 2 treatments of 1 to 2 L per ha.

Maximum concentration in greenhouses is 0.3% (=0.3% SICOCHEL (L) Ca per 100 L water).

Fruit trees (apple (except GOLDEN), pear, apricot, peach, cherry, etc...)

Varieties of apples with slight to moderate sensitivity to 'bitter pit'

2 treatments of 1-2 L per ha from the beginning of the fruit development*.

1 treatment of 1-2 L per ha 15 days before harvest.

Varieties of apples with high sensitivity to 'bitter pit'

2 treatments of 2-3 L per ha from the beginning of the fruit development*.

1 treatment of 1-2 L per ha 15 days before harvest.

* It is important to treat at least once before the fruit reaches a diameter of 2 cm.

For Golden, a variety very sensitive to falling of the leaves caused by Magnesium deficiency, we recommend analyzing the leaves. If a magnesium deficiency is detected, the application of SICOCHEL (L) Ca may aggravate the situation resulting in severe leaf drop. Consult your extension agent or crop consultant. For Golden do not exceed the maximum doses of 0.75 L per ha per treatment.

PRODUCT PROPERTIES

SICOCHEL (L) Ca is only suitable for foliar applications. SICOCHEL (L) Ca is a chelated and systemic product, especially developed for fruit trees and other crops sensitive to Calcium deficiencies. The leaves of the plants easily and efficiently absorb the product. Once absorbed, the chelated calcium is translocated to all parts of the plant, including the young developing fruits. Treatments with SICOCHEL (L) Ca can avoid and/or treat the specific diseases related to calcium deficiency in fruit trees ('bitter pit') and in horticultural crops (tomatoes, peppers 'blossom-end rot').

ROLE OF CALCIUM

Calcium is an element that assures the physiological and structural stability of the plants. It is essential for the stability and permeability of cell walls and cell membranes. A deficiency will disturb the structure of the cells completely. The flows of for example water and nutrients between cells and also within the cell itself are destabilized and uncontrollable. The influence of calcium on the stability of also the chromosomes of the plant assures a normal cell division. Calcium also intervenes on the production of plant hormones such as 'β-indolacetic acid' (IAA), which controls the cell diversification in the apical meristems of the plants.

COMPATIBILITY

SICOCHEL (L) Ca is compatible with most pesticides and herbicides. Avoid mixture with oil-based products.

If SICOCHEL (L) Ca is to be applied with other products, always add SICOCHEL (L) Ca to the water first, then add the other products. It is advisable to conduct a compatibility test before application. Consult your extension agent or crop consultant.

SYMPTOMS OF CALCIUM DEFICIENCY

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EVERY TIME THE RIGHT SOLUTION



Once the calcium is incorporated in the plants, the translocation of the element is almost unexisting. Therefore symptoms of a deficiency appear on the young and developing plant organs such as: fruits, shoots, young leaves, and flowers...

Symptoms of deficiency:

- Reduced growth: 'dwarf growth'
- The central vein of the leaf becomes dark green or brown.
- 'Black heart' on for example celery.
- The youngest leaves die.
- Temporary deficiency on a fast growing crop: the stem becomes very fragile and folds easily back at the top.
- Chlorosis and irregular spots that appear first on the edge and later at the inside of the leaf.
- Sometimes necrosis of the edge of the leaf appears at the simultaneously (e.g.: 'leaf tip-burn' on lettuce and cabbage).
- The youngest leaves stay small and deformed the edge and the top are folded back and have the shape of a spoon.
- 'Blossom-end rot' on tomatoes, peppers, melons, eggplant, and cucumbers... (the blossom end of the fruit develops glazy or brown (rotten) tissue or becomes necrotic)
- 'Bitter pit' on apples.
- 'Crinkle leaf'
- Deformed stems.
- Irregular edges on the leaves.

THE CAUSES OF CALCIUM DEFICIENCY

Calcium deficiency is rarely caused by low concentration of this element in the soil. Soils poor in calcium have such a low pH (acid) that this causes other more serious problems: toxicity of Al or other elements (Fe, Mn, Zn,...). The bad absorption and translocation of the element are the main reasons that deficiencies occur. Plants absorb calcium mainly passively (72%) together with a flow of water caused by transpiration.

The most important causes of deficiency are:

- Poor plant-transpiration caused by high humidity in the air (bad ventilation of greenhouses, important temperature drop at night time)
- Strong changes in air temperature and air humidity.
- Drought
- Low concentration of organic matter in the soil: few complexing agents.
- Some other actions have antagonistic effects in the absorption of calcium: $NH_4^+ > K^+ > Mg^{2+} > Na$
- Bad oxygen supply to the roots
- Fast growth of the plant
- Boron deficiency reduces the translocation from the roots to the leaves
- Acid soils, low concentration of Ca in the soil

RELATIVE SENSITIVITY TO CALCIUM DEFICIENCY

Monocotyledons (cereals, corn, onions, leeks) absorb generally small quantities of calcium. Deficiencies in this type of crops are thus not frequent. Of all other crops are above all the leguminous plants, vegetables (lettuce, pepper, cucumber, eggplant, cabbage, celery, tomato) and fruit trees (apple, pear, cherry) sensitive to deficiencies. It often happens that the different varieties of the same crop show important difference in sensitivity to the calcium deficiency. Below we listed the relative sensitivity of the most important apple varieties.

Relative sensitivity of the most important apple varieties

<u>Very sensitive</u>	<u>Average sensitive</u>	<u>Little sensitive</u>	<u>Very little sensitive</u>
Albrechtsappel	Alkmene	Bancroft	Berlepsch
Auralia	Apollo	Belgolden	Golden Delicious
Blenheim	Breuhahm	Champagner	Idared
Renette	Roba	Renette	Red McIntosh
Corola	Rogo	Gloster	Spartan
Clivia	Roter Boskoop	Helios	
Cox's Orange	Starkrimson	Jonagold	
Pippin		Jonathan	
Goldparmane		Juno	
Harbert Renette		Landsberger	
Herma		Laxton Superb	
Ingrid Marie		Macaun	
James Grieve		Ontario	
Maigold		Redspur	
		Schweizer	
		Orangen	
		Yellow Spur	

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