



**PRODUCT INFO
& DATASHEET**

SICOSORB

Water retaining super absorbing, potassium based polymer for plant cultivation, forestry, general agriculture etc.

Made in China

06/2019

1. INTRODUCTION

Water is an essential part of the metabolism of every plant. Without it they die. Growers, with the aid of scientists and technologists, have gained a considerable degree of control over factors relating to plant growth, such as breeding, nutrition and disease. Now SICOSORB helps growers control water.



It can be expensive to carry water to plants, and in many areas water is a scarce resource. By controlling water in the soil SICOSORB increases the effectiveness of every drop of water carried to each plant.

SICOSORB is a potassium based water-imbibing super absorbing polymer designed to aid water management by improving the retentive properties of all types of growing media. It is valuable in horticulture, arboriculture and agriculture.

When mixed with a growing medium, SICOSORB can absorb large quantities of water.

The water forms discrete gel particles in and around which roots can grow, then extract water as required.

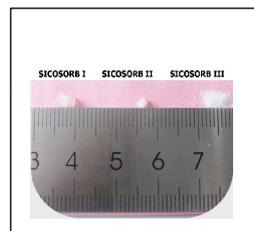
As a result of improved water retention drainage losses are reduced, less watering is required and optimum plant growth is achieved. There is also a benefit to soil structure produced by the repeated swelling and shrinking of SICOSORB. It maintains a good open structure, which improves aeration and promotes vigorous root growth.

2. PRODUCT DESCRIPTION

SICOSORB is a super water absorbing polymer, based on potassium polyacrylate (**can absorb pure water more than 800 times heavier than its own weight**)

*** SICOSORB is available in 3 sizes.**

- 2.5-5 mm, for planting, forest trees, fruit trees and so on
- 1.0-2.5 mm, for crops, vegetables, flowers, grass and so on
- 0.2-1.0 mm, for seed coating and root dipping



*** After absorbing water, it becomes gel.**



*** Superior water absorbing capacity.**

Water absorption Ratio (times)	SICOSORB-I (4-10 mesh)	SICOSORB-II (10-18 mesh)	SICOSORB-III (18-80 mesh)
Pure water	400	600	800
Rain	150	180	200
NaCl water	40	50	60

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3. INDICATIVE CERTIFICATE OF ANALYSIS

ITEM	SPECIFICATION
Appearance	uniform powder or granular
Granular size	SICOSORB-III 0.2-1 mm (mesh 18-80) SICOSORB-II 1.0-2.5 mm (mesh 10-18) SICOSORB-I 2.5-5 mm (mesh 4-10)
Free absorbancy (of deionized water), g/g	600-900
Free absorbancy (of tap water), g/g	≥150
Visualizing degree	transparent
Apparent density (ml/g)	0.58
Moisture content, % ≤	8
pH value	7
Gel strength	Strong
Content of K	11.7%
Available water for crops, plants	95%

4. APPLICATIONS

Composts and other growing media

SICOSORB is recommended for addition to all types of composts and other growing media used for seeds, plants, growbags, hanging baskets and shrub planting etc. Composts containing SICOSORB will retain water for longer periods and so the frequency of watering may be reduced. In addition, a good, well-aerated structure will be maintained.

Transplanting aid

SICOSORB may be used when transplanting all types of trees, shrubs, field crops and ornamentals. It will reduce transplant shock and resultant growth check by maintaining water supply while new roots are being established.

Field crops

Maintains water levels at critical stages of crop development.

Grass establishment

Maintains adequate water levels for seed imbibation and later development.

Plant propagation

A medium for seed germination and propagation of cuttings.

Plant transportation

Protects roots and maintains water supply to bare roots while in transit.

GENERAL INFORMATION

SICOSORB is essentially used in 2 distinct ways. Firstly, in dry form when mixed with growing media. Secondly, in the form of a swollen gel, as a root dip for transplanting for example.

* Dry form: The rate of use for dry addition is 1-3 kgs SICOSORB /m³ of substrate.

When used in this way it is essential to ensure even mixing and that the SICOSORB is fully activated with water before or immediately after planting.

* Swollen gel: To prepare a swollen gel, mix 1 kg of SICOSORB with 150-300 ltrs. of water and allow to stand for about 60 minutes. The resultant gel should be relatively stiff and adhesive.

* Water quality: The amount of water absorbed by SICOSORB will depend on its hardness. Typically, between 3 and 9 grams of SICOSORB will be required to absorb 1 litre of water. Further quantitative information is available on request.

* pH stability: SICOSORB is unaffected by pHs encountered in normal soils, composts and irrigation water. At pH levels of less than 5, the water absorbency of SICOSORB is reduced.



DIRECTIONS FOR USE

*** Soil application**

For small area to be treated, the quantity of SICOSORB (determined from the table below) should be carefully incorporated by hoeing or raking into the soil.

Depth of * incorporation (cm)	Rate of SICOSORB incorporation (g/m ²)		
	Free draining soils	Medium soils	Water retentive soils
5	100	50	10
10	200	100	20
15	300	150	30
20	400	200	40

* Depth of normal root growth of the crop to be grown.

This approach is not economical when large areas are to be treated. It is better to selectively apply SICOSORB to the root zone. For example SICOSORB may be applied directly into the furrow at drilling.

Using a suitably calibrated granule applicator apply SICOSORB at 10-100 grams per 100 metre row, depending on soil type. Following application, rainfall will activate the SICOSORB. In arid regions, the area should be irrigated.

*** Composts**

SICOSORB is recommended for addition to all types of compost used for seeds, plants, grow bags, hanging baskets, shrub planting etc. Carefully mix in 1-3 kilograms of SICOSORB per cubic meter (1-3 grams per litre). Use the higher rate for composts having a naturally low water holding capacity or where the water to be used has a high dissolved solid concentration. When using the compost, ensure that additional water is added to fully activate the SICOSORB.

Alternatively, the desired quantity of SICOSORB can be added to the compost pre-swollen.

Make up a gel as described under 'Swollen gel' above, and mix carefully with compost.

Remember to allow for the extra volume caused by gel action, (typically 15-20%).

When in use, composts containing SICOSORB will retain water for longer periods and so the frequency of watering may be reduced. Composts containing SICOSORB will also maintain a good, well-aerated structure.

*** Transplanting aid**

SICOSORB may be used when transplanting all types of trees, shrubs, field crops and ornamentals.

It will reduce transplant shock and resultant growth check by maintaining water supply while new roots are being established. SICOSORB may be used in three ways for the purpose:

1. As root dip (suitable for small seedlings)

Prepare a swollen SICOSORB gel as described under 'Swollen gel'. The bare rooted transplants should be dipped into the gel either singly or in bunches, depending on size, and then planted out into soil in the usual way.

To ensure adequate root penetration when dipping in bunches, the use of a loose gel (made by using double the amount of water) is recommended. If desired, a greater loading of SICOSORB may be obtained by dipping the transplants into dry SICOSORB immediately after the gel.

2. As a gel plus (for trees and shrubs)

Prepare a swollen SICOSORB gel as described under 'Swollen gel'. Dig a suitable sized hole to receive the transplant, add to the hole a quantity of SICOSORB gel equal in volume to about 10% of the removed soil. Transplant and backfill in the usual way.



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3. Dry addition (only suitable where adequate water is available)

Dig a suitably sized hole to receive the transplant then mix dry SICOSORB with the backfill at a rate of 1-3 kilograms per cubic metre. Plant and backfill in the usual way and water thoroughly.

* Grass establishment

Prepare a suitable seed bed in the usual way. SICOSORB should then be incorporated by raking etc. into the top 5-8 cm of soil at a rate of 10-20 grams per square metre. The actual rate will depend on the soil type, use a higher rate for free draining sandy soils. The area may then be seeded, fertilised and watered in the usual way.

* Plant transportation

SICOSORB will protect roots and maintain water supply while plants are in transit. Prepare a swollen gel as described under 'Swollen gel' and dip bare plant roots into the gel as soon as possible after removal from the soil.

* Plant propagation (for seed germination and for propagation of cuttings)

Prepare a swollen gel as described under 'Swollen gel' and use this as the medium for seed germination or for striking cuttings. Transplant into a suitable growing medium when roots are established.

SICOSORB remains under constant development. For up to date information and advice, please contact us.

USER SAFETY

SICOSORB is extremely safe to use. It is non-toxic with little risk of irritation and provided sensible precautions are observed during use, there are no health hazards for the operator.

PRECAUTIONS

When used as directed, SICOSORB presents no hazard. However, the following precautions should be observed, especially when the product is handled in bulk.

- **Do not breathe dust.** If necessary, for personal comfort, wear a dust mask.
- **Avoid all contact by mouth, with skin and eyes.**
- **Wash hands and exposed skin** before meals and after work.
- **Keep out of reach of children, pets, livestock and away from foodstuffs.**
- **Keep in original container**, tightly closed in a safe place.
- **Store in a dry place** and avoid excessive temperatures.

SPILLAGE

If spilt, **dry** SICOSORB can be swept up but **wet** SICOSORB may constitute a slip hazard.

In this case, sprinkle with sand or soil and sweep up. Afterwards, flush the area copiously with water.

5. STORAGE & SHELF LIFE.

SICOSORB requires no special storage conditions except protection, store dry, away from direct sunlight and protected from moisture and will store for at least 2 years.

6. PACKING

25 kg paper kraft bag, 1000 kg per pallet.

10 pallets = 10,000 kgs/20' container.

Min. order quantity = 1000 kgs.

To quote please indicate required quantity as prices differ according to quantities.

DISCLAIMER

IMPORTANT: The following supersedes buyer's documents. Seller makes no representation or warranty, express or implied, including of merchantability or fitness for a particular purpose. No statements herein are to be construed as inducements to infringe any relevant patent.

Under no circumstances shall seller be liable for incidental, consequential or indirect damages for alleged negligence, breach or warranty, strict liability, tort or contract arising in connection with the product(s).

Buyer's sole remedy and seller's sole liability for any claims shall be buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by buyer by testing for its intended conditions of use.

The product(s) has not been tested for, and therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin or blood is intended; or for uses for which implantation within the human body is intended.

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**SAP INTERNATIONAL CORPORATION bvba Krekelenberg 69, B-2980 Zoersel, Belgium
Tel. +32-3-309.06.51 Fax. +32-3-309.19.31 Email : info@sico.be Website : www.sico.be**

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Advantages & Benefits

*** FIELD CROPS**

Eg. In wheat, maize; can increase emergence rate & reduce emergence time making plants stronger, reduce irrigation needs and increase yields.

*** VEGETABLES**

Can regulate water, reduce soil water evaporation & transpiration. Can improve water use efficiency and drought resistance, and improve yields stability.

*** FRUIT PLANTS**

Use SICOSORB when the fruit plants are planted in dry soil or during the dry season. The effect of increased production can be very prominent.

Whether it is evergreen fruit trees or deciduous fruit trees, whether it is transplanting at seedling stage or adult fruit trees, the role of SICOSORB is as important as chemical fertilisers and pesticides.

This is because of the development of saplings and fruits, continuous water supply is important.

When planting bare root fruit saplings, the appropriate survival rate of saplings can be doubled by using appropriate amount of our water retention agent.

*** FRUIT TREES**

Can save irrigation water, increase production by 20% to 25%, increase sugar content.

With the growth of planted fruit trees and forests, the root layer soil will be aridized year by year, nutrients will decrease, soil permeability will decrease, and fruit yield and tree growth will be affected.

Evergreen and deciduous fruit trees often have fruit drop, fruit cracking, fruit deformation and trunk flow due to drought. Some economic forest tree species that are considered to be manageable extensively, such as apples, oranges, walnuts, chestnuts, peppers, camellia, apricots, hawthorns, etc., also suffer from insufficient supply of water and fertiliser in forest land, and fruit yield is reduced. Especially in arid regions or dry seasons, the water content of the basin is reduced below the wilting point of the plant, that is, a large area of trees with dead branches and even pieces die.

The main way of treating the planted trees with our water retaining agent is to apply the hole in the canopy drip line or the ditch, the radiation ditch and the ring ditch.

Combined with the application of our SICORGAN organic fertilisers in autumn fruit trees, the appropriate amount of SICOSORB can be mixed into the root zone to increase the supply of water and fertilizer in the fruiting period of 3-5 years, saving irrigation water to achieve stable yield and high yield, and improving fruit quality.

Experiments have shown that the use of SICOSORB for fruit trees can save 60m³ of irrigation water per mu per year, increase production by 20% to 25%, and increase the sugar content of fruits. More importantly, these good effects will last for 3 to 5 years.

*** SEEDLINGS & FLOWER NURSERIES**

Helps greatly to improve the survival of the seedlings and promotes plant growth.

In nursery seedlings and planting, the simple method of applying water-retaining agent can greatly improve the survival rate of seedlings and promote the growth of plants.

In the nursery field where cuttings, grafting, tissue culture seedlings and seed breeding Joe and seedlings are applied, SICOSORB is applied, the seed germination and cutting rooting will be accelerated, the seedling growth



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will be faster and more robust. The impact is also small. Depending on the way the seedlings are grown, SICOSORB can be mixed into the topsoil by spreading, applying, and ditching.

Experiments show that if a proper amount of SICOSORB is used, the root growth of the seedlings will extend into the SICOSORB crystals, which can greatly reduce the adverse effects of drought on transplanting and growth during the transplanting process. For some plants that are difficult to transplant and survive, the survival rate of seedling transplanting can also be improved.

Use of our SICOFLOL Seedling & Young Plant Substrates is strongly recommended.

*** SEED COATING**

SICOSORB for seed coating. After the seeds are sown, the seedlings are quickly released, are ripe and strong and disease resistant. Can reduce dosage, save expenses, gives good & stable output.

Large-sized water-retaining agent for large-sized seed particles, small-sized water-retaining agent for small particles.

1. Seed coating:

Add water to the water-retaining agent, stir evenly to form a gel, then immerse a certain proportion of the seeds, mix thoroughly, let stand for a period of time, then remove and spread, and form a film coating on the surface of the seed to sow.

2. Seed dressing:

The water retaining agent is evenly mixed with an equal amount of filler (such as fine clay and talc), sprinkled on the surface of the seed moistened with water beforehand, and firmly adhered to the seed, which can be sown later.

3. Seed pill:

Mixing seeds with water retention agents and certain fertilizers, trace elements, pesticides and fillers into pellets.

*** ROOT DIPPING**

After the bare root seedlings are excavated, they are exposed to the problems of root dehydration and survival during packaging, transportation and temporary storage. The use of SICOSORB will effectively improve the survival rate of seedlings.

The mud mixture of seedling roots dipped in clay, water retaining agent and water can be much better than a moisturizer formulated with other materials such as wood chips.

Because SICOSORB has a larger water content, and even if a powdery water-retaining agent is used, the inherent multi-diamond shape is maintained after water absorption, and the roots can normally breathe while moisturizing.





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*** SEEDLING TRANSPLANTATION**

When planting bare root trees, shrubs and vine seedlings, apply 1 to 2 cups (250-500 grams) of SICOSORB hydrogel to the roots of the seedlings when backfilling the planting soil, and then fill the soil. The risk of death from seedlings can be reduced by more than 50%.

When transplanting bare-size trees with larger specifications, it is recommended to apply a gel-type water-retaining agent. However, if the irrigation is convenient, the dry-particle water-retaining agent may be mixed in the backfill and landed around the roots of the transplanted trees.

*** DROUGH AFFECTED FARMLAND**

When planting field crops in the dry soil and during the dry season, in order to save costs, SICOSORB is generally used in the planting ditch (hole) to ensure the normal growth of the crop seedlings. The widespread spreading of water retention agents is costly and can be used to grow perennial cash crops.

Adopting reasonable application methods and planting some crops, herbs and pastures with high economic value, especially perennial crops and fruit trees, the role of SICOSORB water retention agent in increasing production and income is also very prominent.

Crop sowing

In semi-arid agricultural areas and pastoral areas, it is worthwhile to combine the seeds of sowing crops, pasture and medicinal materials, and apply SICOSORB at a dosage of 1.4 to 2.8 kg per 1000 square meters, along with the seed hole or strip to the seeds. In the soil, it can effectively increase the seed germination rate and promote seedling growth.

This has been successful in planting corn in the Great Plains of the United States, pasture in the desertified areas of Inner Mongolia, planting tomatoes in greenhouses in Gansu, and planting potatoes in Cape Verde, Africa.

The potato has increased production by more than two times.

SICOSORB water-retaining agent is very useful for improving the yield and product quality of perennial economic crops, especially some medicinal plants.

Even in subtropical and tropical regions with abundant precipitation, water retaining agents regulate soil moisture and improve soil function for coffee, rubber, pepper, tea, star anise, grass fruit, lacquer tree, alfalfa, tung tree, cocoa and other cash crops. It is also very useful, and the growth rate and seedling growth effect in rubber seedlings are remarkable.