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Sustainable innovation for a changing world

Our mission

Bacvir Animal Safety is a Spanish company created with the aim of contributing to innovative, sustainable and safe solutions for current and future challenges in the agricultural, livestock and human health sectors.

Our products are designed to provide effective, environmentally-friendly solutions that have a positive impact on global well-being.

Our value proposition

• Sustainable innovation: We contribute to technologies and products that not only solve today's problems, but also anticipate the needs of the future.

• Adaptability: Our products are designed to be effective in different environments and scenarios, responding to the different challenges of a changing world.

• Safety and efficiency: We guarantee the highest standards quality and safety, protecting the health of animals, humans and the environment.

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Bacvir Animal Safety on the global market

• Primary sector: We support the sustainability of agriculture and livestock farming with products that optimize resources and improve productivity. - Healthcare
Human and animal health: we offer solutions that reduce risks, enhance quality of life and comply with international regulations. - Responsible innovation: each product is designed with its environmental impact and contribution to global well-being in mind.

Our commitment

Bacvir Animal safety offers not only products, but also a holistic approach to sustainability, integrating research, technology and business ethics to meet the challenges of the new world. Our products are designed to meet the major challenges of the primary sector and animal and human health, based on science and sustainability, they guarantee operational efficiency, protection against pathogens and contaminants, and a positive impact on the quality of life and profitability of our customers. .

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Bacvir Zeobase

Sustainable innovation agriculture

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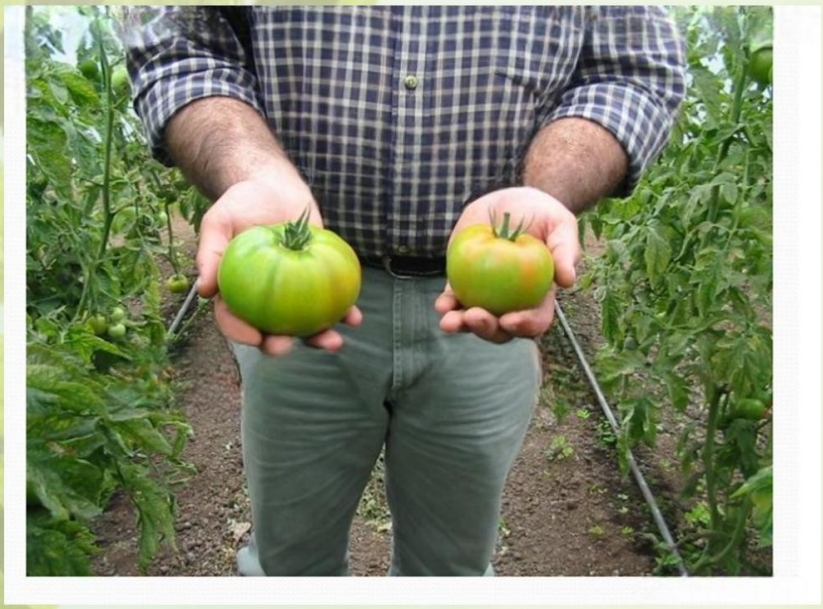
BacvirZeobase Sustainable innovation agriculture

What is BacvirZeoBase?

BacvirZeobase is an activated crystalline aluminum silicate, a molecular sieve that makes it an advanced solution that combines sustainability, efficiency and adaptability to transform agriculture in the face of the challenges of climate change and the growing demand for food. Its alkaline pH between 8.75 and 9.2 improves soil quality and maximizes crop yield, positioning it as a key ally for the future of the primary sector.



Variety	Hydroponic cultivation of siliceous rock (*)		BacvirZeoBase substrate	
	Days	% Germination	Days	% Germination
Tomato	8	70%	6	90%
Garlic	8	40%	6	70%
Lettuce	5	40%	5	70%
Col	5	90%	4	100%
cucumbers	4	50%	4	70%
Onion	9	60%	8	100%
Eggplant	10	70%	8	100%
Beetle	8	100%	4	60%
Pumpkin	11	20%	8	100%
Chinese cabbage	8	100%	4	100%

(*) A culture siliceous rock hydroponics combines advantages a stable substrate, sustainable and highly efficient for water and energy management. nutrients. It is particularly useful for demanding crops or that require optimal control of the root environment.

After 100 days of harvest :

- Leftover tomato, with 20% of BacvirZeoBase and 80%
- fertilizerTomatoes, it's true, only with fertilizers

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Its properties...

- **Nutrient capture :**
  BacvirZeoBase has a negatively charged microporous structure that attracts positive ions (cations) such ammonium (NH), potassium (K), calcium (Ca^2) and magnesium.
  (Mg^2). These essential ions are "trapped" in BacvirZeoBase's chemical structure and are not easily washed away by irrigation or rainwater, making it easier for plants to retain essential nutrients.

- **Progressive release :**
  - As plants absorb nutrients from the soil, BacvirZeoBase releases these ions in a controlled manner, ensuring constant availability for crops. This improves the efficiency of fertilizer use, as nutrients are not lost quickly.

- **Water (up to 30% of its weight in water) :**
  - It also helps retain water molecules in its micropores, helping maintain soil moisture and reduce water stress for plants.

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BacvirZeobase Sustainable innovation for agriculture General benefits for the soil

- Maintaining humidity :
  - BacvirZeoBase acts like a natural sponge, retaining water in the soil and releasing it slowly. This particularly beneficial in arid climates and for crops requiring precise moisture control. In sandy soils, for example, BacvirZeoBase helps prevent rapid water evaporation.
- Soil acidity neutralization :
  - In acidic soils, BacvirZeoBase helps increase pH and balance the soil environment, improving nutrient availability for plants. This is crucial in soils of high rainfall areas, where acidity can reduce the effectiveness of fertilizers.
- Improves soil structure:
  - BacvirZeoBase improves soil porosity, enabling better aeration and increased water infiltration. This is essential to prevent soil compaction, particularly in areas of intensive cultivation.

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General benefits for the floor

- Increase in CEC (Cation Exchange Capacity) :
  - CEC refers to a soil's ability to retain and release cations. BacvirZeoBase enhances this capacity, improving nutrient retention and reducing leaching losses.
- soil aeration :
  - BacvirZeoBase improves soil permeability, facilitating air and water penetration and promoting greater biological activity and root development.

- Greater soil structural stability:
  - By reducing soil compaction, BacvirZeoBaseII enhances plant growth, particularly in heavy, clayey soils that have difficulty aerating properly.

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Long-term effects on soil

- **Improving soil texture and structure :**
  - Over time, the incorporation of **BacvirZeoBase** improves the **physical structure of the soil**, promoting better nutrient distribution and increasing irrigation water efficiency.
  - It also improves **nutrient retention** capacity**,** reducing fertilizer loss through leaching and increasing the efficiency of applied fertilizer.
  - After several growth cycles, soils treated with **BacvirZeoBase**

    They continue to show improvements in structure, **porosity and nutrient retention capacity**, reducing the need fertilizers and improving crop sustainability.

- **Evidence continuous production improvement:**
  - Studies have shown that soils treated with **BacvirZeoBase**

    They show improved agricultural performance year after year, with a notable increase in **crop production** and **soil health.**

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Agricultural uses

Root system stimulation :

BacvirZeoBase promotes root system development by improving soil structure and increasing nutrient availability. This helps plants adapt to adverse conditions such as drought or poor soil.

Partial substitution of fertilizers :

- **Function:** Improves bioavailability, as it acts as a nutrient transporter and controlled release of essential elements, thus acting as a nutrient reservoir, releasing them in a controlled manner according to plant needs.
- **Effect:** Reduces the need chemical fertilizers, environmental impact and improving agricultural sustainability.

Soil amendment :

- **Adsorption :** Captures ammonia and heavy metals such as lead, cadmium and mercury, preventing their absorption by plants and improving soil quality.
- **Water balance:** retains water in its structure, benefiting crops in arid areas or with limited irrigation.
- **Granulometry adapted to the terrain :**
  - **Sandy soils:** Finer granules (≤2 mm) to increase water and nutrient retention.
  - **Clay soils:** coarser granules (24 mm) to improve aeration and reduce compaction.

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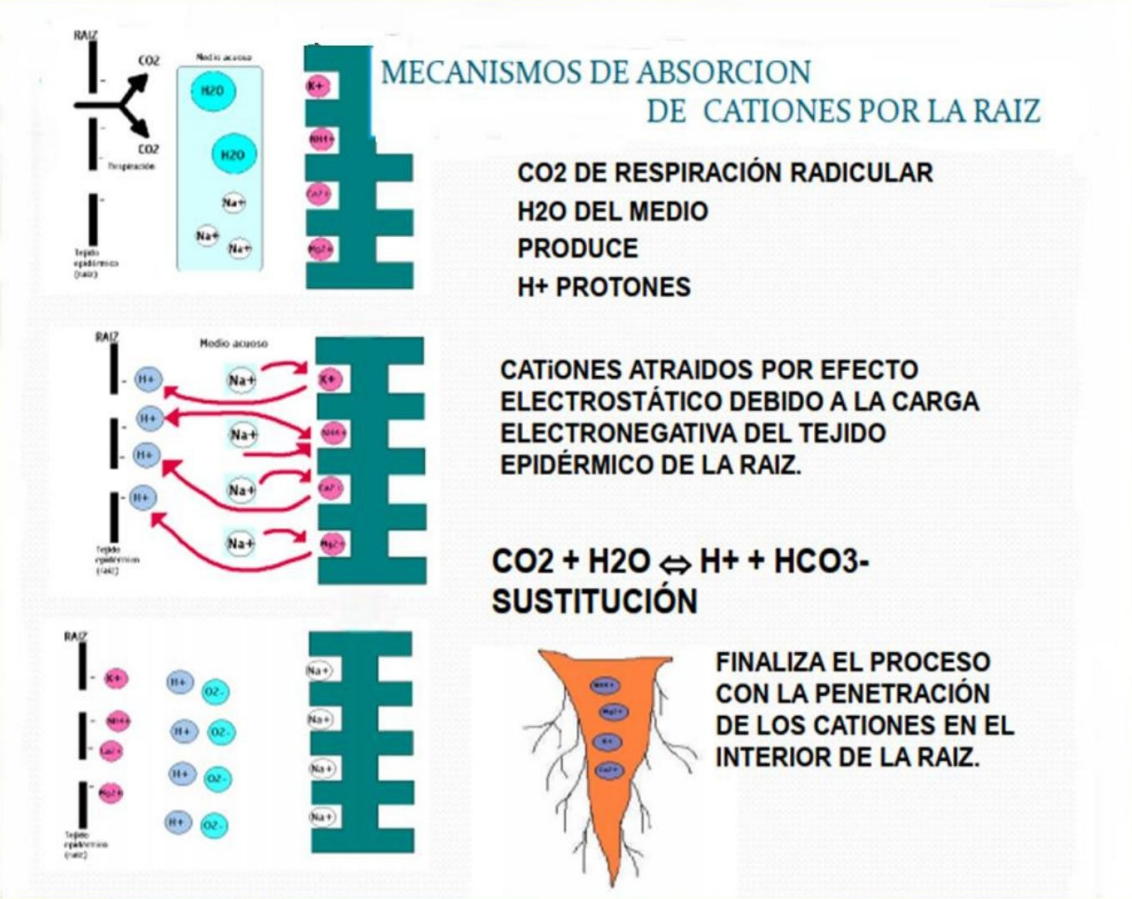

It has a nutrient retention capacity 4 to 5 times greater than the best soils (CIC 120 to 150 milliequivalents per 100 g).

Applications in different cultures

- Cereals (corn, wheat, rice) :
  - Provides constant release key nutrients for its development.
- Vegetables and fruit :
  - Improves soil quality, promoting more growth uniform.
- Vines and fruit trees :
  - Helps retain water and nutrients in sustainable crops.
- Pasture and forage :
  - Ensures sustained fertility to feed livestock.

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Agricultural benefits

1. **Optimizing fertilizer use**

- **Nutrient retention :**
  - Captures essential cations such as potassium (K), calcium (Ca^2), magnesium (Mg^2) and ammonium (NH).
  - Prevents nutrient loss through leaching in sandy soils or intensive irrigation.
- **Progressive release :**
  - Releases nutrients as the crop needs them, reducing the need for frequent fertilizer applications.
  - fertilization efficiency, generating savings for farmers.

2. **Improving soil structure**

- **Natural amendment :**
  - Increases soil's capacity to retain nutrients and water.
  - Reduces compaction and aeration of clay soils.
- **pH control :**
  - Continued use of the product helps stabilize soil pH, creating a more favorable environment for nutrient absorption.

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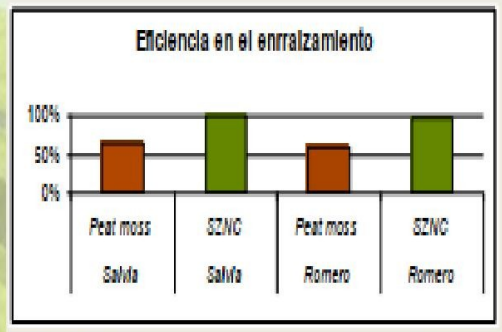
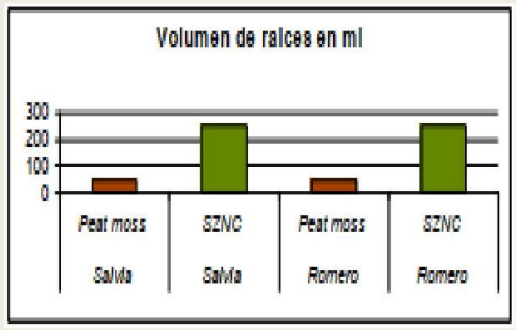
Benefits in agriculture

Taking advantage of BacvirZeoBase's wetting capacity (samples SZNC), it has been combined with coconut fiber to be used as a rooting gas pedal for plant species of commercial interest. Development was carried out with Salvia and Rosemary, which present a high degree of rooting difficulty at commercial level. Peat substrate was used as a reference.

Foam is the most widely used material today.

Especie	Sustrato	Tiempo de enraizado en dias	Volúmen de raices en ml	Eficiencia
Salvia	Peat moss	>35	50	65%
Salvia	SZNC	20	250	100%
Romero	Peat moss	>35	50	60%
Romero	SZNC	25	250	97%





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...more productivity per Ha

Crops grown in Chinobampo (Sinaloa - Mexico)

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AS A PLANTATION STARTER

- Helps plants strengthen and shape their root system.
- Maintains controlled humidity in the roots thanks to its capacity to absorb and desorb water.
- It captures water and the soluble fertilizers it provides gradually to the plant, precisely in its feeding zone.
- Prevents root rot and plant destruction.
- Increases soil cation exchange capacity.
- After a while, the leaven begins to decompose, providing the minerals (Si, Fe, Ca, Mg, Na, K, P, Cu, Zn) needed for the plant's metabolic processes.

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RECOMMENDED USES IN DIFFERENT CROPS

Fruit trees :

For fruit trees, we recommend applying between 5 and 10 kg per tree. This improves water retention, providing trees more water during dry periods, and helps balance soil pH, is beneficial for nutrient uptake, leading to significant improvements in fruit size and flavor.

Cereals :

For cereals and grain crops, we recommend applying between 500 and 1000 kg/ha.
GreenZeoBase improves the availability of essential nutrients such as phosphorus, crucial for root growth, thus improving crop quantity and quality.

Vegetables:

For vegetable crops, the recommended dose is 1000 kg/ha. This water and nutrient retention efficiency, leading to faster, healthier growth and higher production.

Industrial plants and vines :

For industrial crops (e.g. cotton), 500 to 1,000 kg/ha is recommended. For vines, the dose is 0.5 to 1 kg per plant, which helps vines to withstand drought and improves grape quality.

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Application of BacvirZeoBase problem soils

- **Acidic and sandy soils:** In acidic soils, BacvirZeoBase acts as a neutralizing base, raising pH and creating an environment more suited to plant growth. In sandy soils, it improves water retention.

- **Compacted soils:** In compacted soils, BacvirZeoBase helps aeration and permeability, facilitating root development and improving overall soil structure.

- **Improved soil fertility:** BacvirZeoBase increases soil fertility by retaining essential nutrients and leaching, leading to better agricultural performance in problem soils.

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Results BacvirZeoBase application in lawns and gardens

• Better turf quality: BacvirZeoBase improves water retention in turf, reducing the need irrigation and increasing heat resistance. Lawns treated with BacvirZeoBase have a greener, healthier color.

• Reduced environmental impactuse BacvirZeoBase on lawns and gardens
reduces the amount of water used irrigation and improves the soil's ability to withstand extreme weather conditions without the need for chemical pesticides.

• Application in urban gardens: In urban gardens and green roofs, BacvirZeoBase helps retain water, which is particularly useful in areas with limited water resources.

• For artificial/synthetic turf: BacvirZeoBase is a 100% natural and green alternative to rubber or silica sand and provides :

1. Very good permeability compared to other materials currently in use, which could cause drainage problems.

2. 3-4 Mohs hardness (mineral) perfect for artificial turf (neither too soft nor too hard)

3. Safe for children, pets and the environment.

4. Maintains a much more controlled temperature of the synthetic turf, especially in summer, as the water retained by BacvirZeoBase is released by a slow evaporation process.

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Application of BacvirZeoBase in organic farming

- ECOCERT certification:

  BacvirZeoBase products are ECOCERT certifiedmaking them ideal for use in organic farming. This guarantees that BacvirZeoBase contains no chemicals or additives that could harm the environment.

- Durability:

  The application of BacvirZeoBase is fully compatible with ecological farming practices, as it does not adversely affect soil biodiversity and contributes to greater agricultural sustainability.

- Reducing chemical inputs :

  Using BacvirZeoBase instead of synthetic fertilizers reduces dependence on chemicals in agriculture, which is crucial for maintaining long-term soil health .

F09(U)en

Approved by ECOCERT INPUTS

ATTESTATION

for inputs suitable for use in Organic Farming according to (EU) n° 2018/848 & 2021/1165 Regulations

Attestation reference: 181515RO2300n1e - 1
Number of products: 4

This attestation is issued to the operator below:

GreenSafe Technologies, S.L.
Pol.Ind El Vapor
08183-Castellterçol
Spain

Ecocert SA confirms after inspection that the following products:

PRODUCT NAME	CATEGORY	STATUS
GreenZeoBase	Plant growth stimulator	EU 2021/1165 allowed
GreenZeoBase	Fertilizer	EU 2021/1165 allowed
GreenZeoBase	Growing medium	EU 2021/1165 allowed
GreenZeoBase	Soil conditioner	EU 2021/1165 allowed

are suitable for use in Organic Farming according to (EU) n° 2018/848 & 2021/1165 Regulations

Inputs Service Manager
Philippe THOMAZO

Issue date, in L'Isle Jourdain: 18/12/2023
Expiry date: 31/03/2025

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Why use BacvirZeobase ?

Why use BacvirZeoBase?

ADVANTAGES OVER TRADITIONAL FERTILIZERS:

1. Environmental sustainability :

- Reduced environmental impact: Unlike chemical fertilizers BacvirZeoBase is a natural product that no negative impact on the environment. Chemical fertilizers can pollute soil and water.
  due to nitrate and phosphate leaching, while BacvirZeoBaserreduces nutrient leaching and improves soil quality over the long term.
- Longer life cycle: traditional fertilizers require continuous applications during each crop cycle, increasing the need for chemical inputs. GreenPestControl, being a natural mineral, improves soil structure more permanently and fewer repeated applications.

2. Improved nutrient retention:

- Cation exchange capacity (CEC) :
- BacvirZeoBase has a higher cation exchange capacity than many traditional fertilizers. This means that BacvirZeoBase retains more nutrients in the soil, such as potassium, magnesium, calcium and nitrogen, and releases them slowly for plants to absorb over time.
- Low nitrogen volatilization: synthetic nitrogen fertilizers are generally volatile, meaning that part of their content is lost to the air or dissolved water. BacvirZeoBase helps retain nitrogen in the soil.

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Why use BacvirZeoBase?

ADVANTAGES OVER TRADITIONAL FERTILIZERS:

3. **Optimizing water use :**

• Improved water retention: BacvirZeoBase is particularly useful in sandy soils with poor water . Thanks to its microporous structure, it acts like a sponge, retaining water and gradually releasing it. This reduces the need for excessive irrigation and water use, particularly in water-scarce regions.

• evaporation: by improving water retention capacity, BacvirZeoBase evaporation of water from the soil, meaning that plants have constant access water during dry periods.

4. **Benefits for soil health :**

• **Improves soil structure:**
BacvirZeoBase not only modifies the soil, but also improves its structure.
Increases soil porosity, aeration and root penetration.
What's more, it enhances the soil's biological activity by enabling beneficial micro-organisms to thrive, thus promoting better soil health.

• Preventing soil compaction :
In soils that compact easily, GreenZeoBase acts as a decompactant, improving air and water circulation. This is particularly beneficial high-yield crops such as cereals, which require loose soil for good root development.

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Why use GreenZeoBase?

COMPARISON WITH OTHER TRADITIONAL PRODUCTS

Disadvantages of chemical fertilizers :

Water pollution: Nitrate and phosphate leaching from chemical fertilizers can contaminate groundwater and surface water sources, thus affecting aquatic ecosystems.

Destruction of biodiversity: Excessive use of chemical fertilizers reduces soil microbial biodiversity, affecting the soil's ability to support a rich fauna of beneficial microorganisms.

Nutritional imbalance: Traditional fertilizers provide nutrients quickly and efficiently. in specific quantities, but they can create nutritional imbalances in the soil, altering pH and affecting long-term health.

Benefits of GreenZeoBase :

Controlled nutrient release: GreenZeoBase offers a slow, controlled release of nutrients, improving the efficiency and sustainability of nutrient use without overfeeding the soil or plants.

Long-term benefits: GreenZeoBase improves soil structure, helping to maintain long-term fertility, whereas chemical fertilizers require continuous applications.

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Sustainable efficiency for agriculture that respects the planet
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