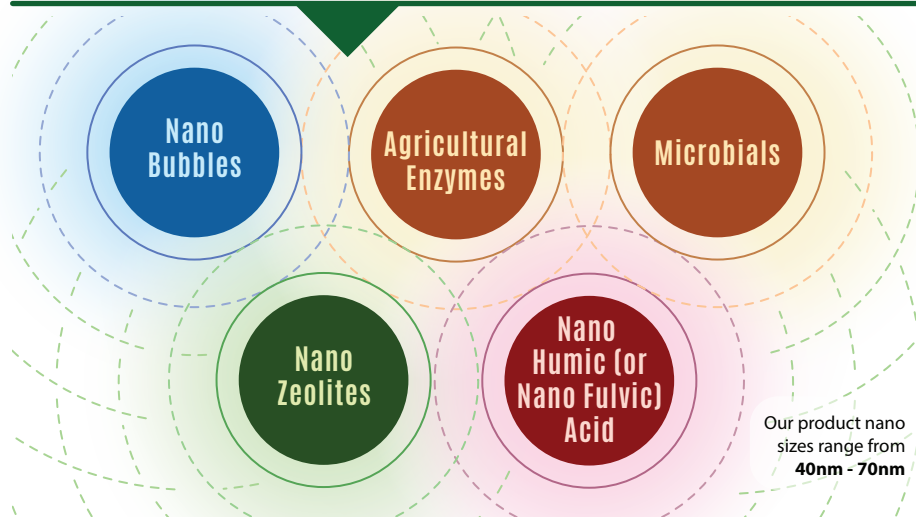


# ATOM8 SM10

# AGRICULTURE, WITH NANO BUBBLE AND SM10 MASTER TECHNOLOGIES

Using a combination of the latest and state of the art technologies, NanoTech-Agri designed SM10 - a revolutionary soil conditioner for agricultural use. The SM10 matrix includes a soluble concentration of the following:



Our **SM10** nano solution is based on only natural minerals, elements, nutrients, carbon, oxygen, and microbes.

When **SM10** is dissolved into water, soil conditioning occurs through nano bubble reaction, activation of enzymes, and dispersion of nano particles.

Our **SM10 NANO Technology** is applied in a three stage program:

1

Stage 1:  
Seed Dressing

2

Stage 2:  
Fertilizer Foliar Spray

3

Stage 3:  
Fertilizer Foliar Spray

## Why choose SM10 over conventional chemical fertilizers:



### Environmentally Friendly:

- SM10 is **100% natural** and has a positive effect on a plant's DNA & RNA.
- Enhances physical and chemical properties of soil and **increases carbon sequestration** (i.e. removing carbon dioxide from the atmosphere and storing it plants, soils, etc.) through microbial activity.
- Nano Zeolites enable decontamination and removal of toxins from soil, and is a great water-based inoculant.
- Improves ground water's retention capacity and temperature adjustments.



### Stronger, Healthier Plants:

- Increase in oxygen levels (Nano Bubbles).
- Can increase seed germination and respiration levels.
- Improved plant uptake.
- Stimulate plant growth and increase soil and enzyme activity.
- Increased biological activity and lateral spread of water, proteins, and nutrients.
- Increase in photosynthesis through Rubisco enzyme.
- Activation of plant immune system and self defense, by strengthening response to environmental stress and illness.



### Bio-Delivery Of Essential Nutrients:

- SM10 contains a high nutrient concentration.
- Nano particles bio-deliver essential nutrients directly to plants, increasing their overall efficiency.
- The micro size of nano particles increase their capacity to penetrate plants, allowing them to also affect a greater surface area.
- Nutrients are slowly released by nano particles, allowing them to provide a steady supply of nutrients to plants.



### Cost Effective, Maximum Results!

- Potential to maximize yield, quality and production of crops.
- Low application rates.

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**AGRI**  
SOIL HEALTH - PLANT GROWTH - SUSTAINABILITY

# A CLOSER LOOK AT THE COMPONENTS OF SM10:

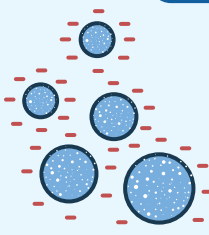
## Nano Bubbles

**Nano Bubbles** are incredibly small, stable cavities of gas in liquid. Invisible to the naked eye, they are about 2500 times smaller than a single grain of table salt, and 400 times smaller than the width of a human hair.

Nano Bubbles have a typical mean diameter of roughly 80nm. Bubbles this size do not have enough buoyancy to reach the surface and instead follow a Brownian motion. Nano bubbles also possess strong negative charges, causing them to repel each other and remain evenly distributed with **low coalescence**. Thus, they will remain suspended in water for months, traveling randomly, until they dissolve.

Our Nano Bubble Technology (NBT), allows us to infuse gases into liquid for targeted results. Our NBT method creates supersaturated levels of oxygen in irrigation water that delivers oxygen directly to the root system.

For comparison: Dissolved oxygen in rain water is 8ppm; our NBT agricultural solution can deliver up to 40ppm with every irrigation.



**Nano bubbles essentially act like a battery and a gas reserve, continuously delivering oxygen as needed. This additional gas reserve, which can reach up to 20% over saturation point, enables industries to utilize gases more cost-effectively than ever before.**

## Nano Zeolites

**Nano Zeolites** are natural, micro porous, alumina silicate solids. They bear a negatively charged honeycomb framework of nano pores into which molecules can be absorbed and/or released. The inner pore volume accounts for 40/50% of the total surface volume (600 - 1000m<sup>2</sup>/g), making Nano Zeolites the ideal candidate to partner with NBT, Agricultural enzymes, and microbes to remediate soil and provide nutrients to plants.



### REMEDIATION OF SOIL:

Liquid nano zeolites can be used on a cellular level like mini magnets to attract positively charged toxins such as:

Mercury, Lead, Cadmium, Bisphenol-A (BPA), Arsenic, Aluminium, Nitrosamines, Benzene, Pesticides, Herbicides, Radioactive materials, and other heavy metals.

### FUN FACT:

Zeolites are among the most common minerals present in sedimentary rocks and deposits that derived from volcanic parent materials.

Most well known zeolites are: clinoptilolite, erionite, chabazite, heulandite, mordenite, stilbite, and philipsite.

Zeolites have unique physical and chemical properties that make them useful in various agricultural applications. These include:

- **High absorption capacity** and a porous structure. This enables Zeolites to keep soil aerated, moist, and active over a long period.
- **Do not breakdown over time.** Zeolites have the ability to retain nutrients and moisture in topsoil, which are then gradually released into soil over the follow up years. This allows for smaller doses of fertilizer, reducing cost of crop production.
- Improve the lateral spread of water into the root zone during rainfall/irrigation. Thereafter **Zeolites act like a storage tank** - absorbing water during rainfall/irrigation and gradually releasing it as needed during drought and stress conditions. This limits the need for re-irrigation.
- **Usable as both carriers of nutrients and as a medium to free nutrients.** For example: Ammonia filled clinoptilolite is very good as a fertilizer as ammonia is released into the soils at a slower rate than it is absorbed.
- **Are not acidic, only mildly alkaline.** When amended with fertilizer, Zeolites can help buffer soil pH levels - reducing the need for lime.
- **Increase the Cation Exchange Capacity (CEC) of soil,** which is a major property influencing soil fertility. Better soil fertility leads to better soil production.
- **Reduce soil salinity** (which is caused by the formation, accumulation and concentration of mineral salts within agricultural soil) and improve nutrient balance in sandy soils. Acceptable levels of mineral saturation in soil are: **Calcium 300 mg/kg (50-75%), Magnesium 60 mg/kg (10 -35%).**
- **Positively influence micro-organisms found in soil.** Healthy and high soil-microbial populations lead to faster decomposition rates in organic matter.
- **Have good thermal and hydro thermal stability,** high temperature resistance, no flammability, and no secondary pollution or high temperature.

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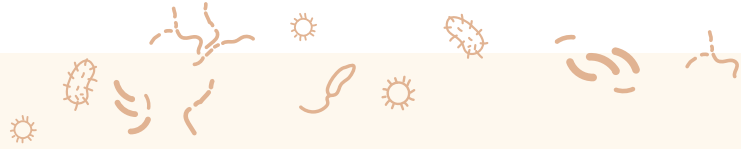
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# A CLOSER LOOK AT THE COMPONENTS OF SM10:

## Agricultural Enzymes

## Microbials



Microbial bio-fertilizers and bio-controls contain **living organisms**. When applied to the plant, seed, or soil, these living organisms colonize the interior of the plant and the surrounding rhizosphere (the region of soil that is directly influenced by root secretions and associated soil micro-organisms). A healthy microbiome promotes plant growth by increasing the supply and availability of primary nutrients.

**17**  
Microbes  
at work

## SM10 contains 17 micro-organisms!

Each with specific functions and effects on the soil and plant health, whilst together helping to enhance the plant's overall strength and resistance.

### Our microbial blend enable farmers to:

- Achieve sustainable agriculture.
- Increase yields by stimulating plant growth.
- Increase nutrient adsorption and thus crop quality.
- Optimize soil, plant health, and microbial balance.

**SM10 is a cost effective way to provide enzyme-producing bacteria necessary for agricultural use.**

### Enzymes in Agriculture:

Almost all bio-chemical reactions in living cells require the participation of enzymes to act as biological catalysts to speed up reactions. **Agricultural enzymes are bio-active proteins harvested from soils, which are then used instead of chemicals for:**

**Food production    Protection against pests and diseases**

**Crop fertility**

### Our microbes are:

- Highly complex micro-organisms that have all been confirmed by DNA identification as active ingredients within the **SM10** blend.
- **100% Organic.**
- Environmentally friendly soil ameliorants - they are harmless and safe to use in agriculture.
- Play a vital role in breaking down organic matter and nutrient cycling in soil.
- Enhances enzyme synthesis and production of hormones within plants.
- Acts as insect and fungal control.
- Can fix Nitrogen from the atmosphere into readily available Nitrogen within the soil and plant cells.



## Nano Humic (or Nano Fulvic) Acid

**By fixing anions and cations and eliminating them from the root region of plants, Humic acid provides a compensation for the deficit of organic substances.**

### HOW?

In soils with excess salination, Humic acid can isolate and remove salts from the clay particle, re-imparting a negative charge to the face of the particle. A carboxyl group (carbon) on the humic acid molecule is attracted to the positively charged edge of the clay particle, breaking the positive/negative ionic bond between multiple clay particles.

Humic acid also increases moisture-holding capacity in all soil types; especially heavy clay and sandy soils where water retention is an issue.



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