

POROUS ALPHA

Japanese technology for water saving and yield increase by soil amendment

3 features of Porous Alpha

Durable

- No degradation
- Performance for 10 years

POROUS ALPHA

Safe

- No negative impact on soil, plant and fruit
- Compliant to Japanese environmental regulation on soil

Simple

- Just mix with the soil
- No complicated calculation
- No change on the irrigation system

Structure of Porous Alpha

Porous Alpha is a foamed glass made from recycled bottles heated up to 1000 °C. It's a cellular solid with numerous pores with a high-surface area, which brings a good water retention and aeration



Glass

Water Retention

Porous Alpha can retain water and reduce the permeability of the soil, which realizes water saving agriculture for arid zone.

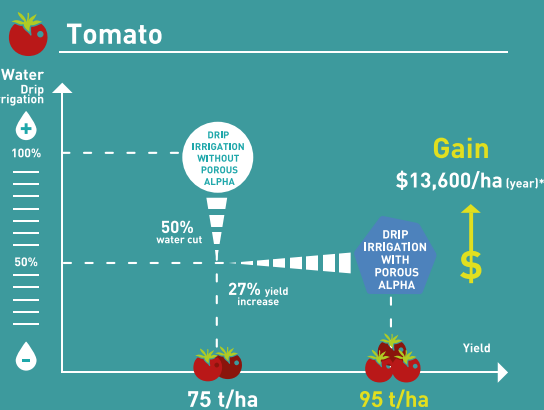
Aeration

Porous Alpha also improves the aeration for the soil especially clay by retaining the air in the pores, which provides good impact on roots.

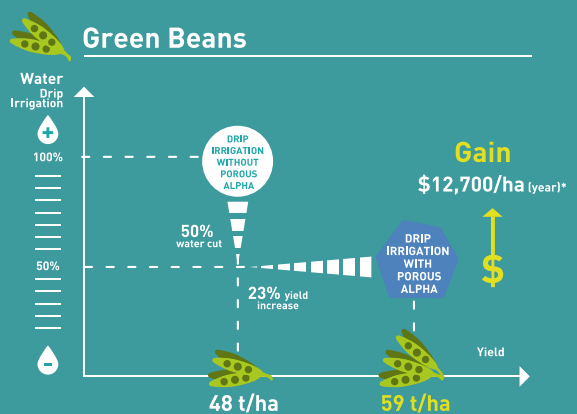
Porous Alpha is a soda-lime glass produced mainly with SiO₂ (over 60%) and CaO (over 20%).

OUR EXPERIENCE IN MOROCCO

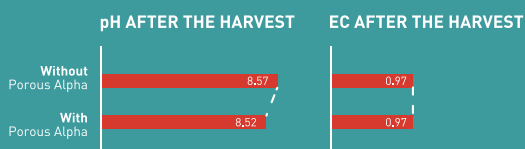
Porous Alpha realised 20+% yield increase alongside with 50% water saving



* Based on the assumptions in Morocco



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Installation of Porous Alpha doesn't impact on neither pH nor EC

HOW TO USE POROUS ALPHA?

One time installation for 10 years



Monitoring Item: The pH needs to be monitored. (If soil pH is very high, add the acid in irrigation water)
* For the case of tomato production based on the assumptions in Morocco.

APPLICABLE FOR VARIOUS VARIETIES OF CROPS, VEGETABLES AND FRUIT TREES

- | Vegetables | Crops | Fruit trees
(Under experimentation) |
|---------------------------|----------------|--|
| Tomatoes | Wheats | Date palm |
| Green beans
Flat beans | Sweet potatoes | Oil palm nursery |
| Watermelons | | Kiwi fruit
(for better aeration) |
| Hot peppers | | Pear |
| Spinachs | | |

Porous Alpha as rooting medium for Hydroponic/Soil-less farms



Coco-peat **Porous Alpha (P03)**

548 ± 55.5 (g)

562 ± 45.4 (g)

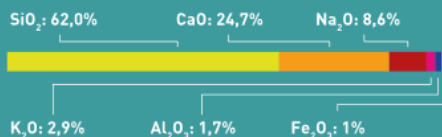
Harvest of tomato cherry up to 3rd branches

PHYSICAL PROPERTY OF POROUS ALPHA

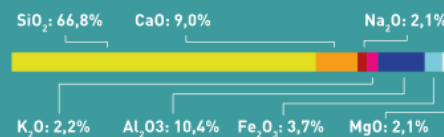
Water retention capacity	15% of the volume of Porous Alpha
Visual appearance	Achroma or light green etc
Odour	Odorless
Actual density	ca 2.5g/cm ³
Density of the size	0.9 - 1.2 g/cm ³
Grain size	50 - 2,000 µm (median 700 µm)
Grain shape	Abrasive infinite form
pH	Max. pH 10.3 or pH7 (after watering)
Solubility	Not identified
Temperature of ramolissement	720 - 730°C (unresolved)
Volatility	Not identified

The composition of Porous Alpha is similar to sands in desert.

The ingredient composition of Porous Alpha.



The ingredient composition of sand in Taklamakan desert (China).



WORLDWIDE PROJECTS AND COOPERATION



"Pilot Project in Somalia" with IOM (2016 - 2018)



"Verification Survey with the Private Sector for Disseminating Japanese Technologies for Water-Saving Agriculture in Arid Area" with JICA (in Morocco 2015 - 2017) (in Peru 2018 - Current)



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