Heliantis™

natural sludge drying

biosolids

the most sustainable sludge drying process

environment

ecological process using renewable energy: solar energy

performance

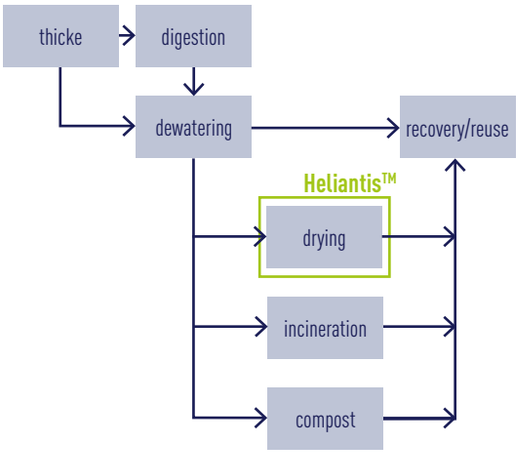
45 to 80% dryness
easy to handle and good recovery

energy efficiency

the least energy-consumption for a sludge drying process on the market

natural sludge drying in greenhouse using sun radiations and a sludge aeration and scarification machine

Heliantis™ treats all mechanically dehydrated sludges (belt filter, filter press, centrifuge or pump press discharge) with initial minimal dryness of 20%.



key figure

only **30** kWh/tonne of evaporated water to obtain **80%** of dryness at the end of drying

suez

Heliantis™ technology . . .

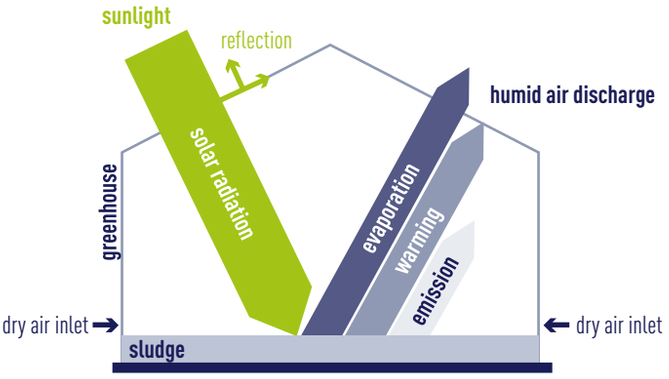
Heliantis™ uses sun radiance to heat the surface of the sludge bed and aeration to evaporate the water contained in the sludge.

The evaporated water is then evacuated through natural convection, assisted by the ventilation system.

applications

Heliantis™ can be applied:

- to a new or existing plant
- to sludge from the treatment of urban wastewater (possible application to industrial sludge to be studied on a case-by-case basis)
- on a site where the productions of several wastewater treatment plants are centralised. This type of application requires a good knowledge of the incoming sludge quality in order to control the drying.



a design tailored to each individual case

The surface area of the greenhouse used is adapted to the amount of sunlight received by the site. The sunnier the site is, the smaller the drying surface area.

natural drying Heliantis™

constituents required

A **greenhouse** for incoming sun radiance and accumulation of heat

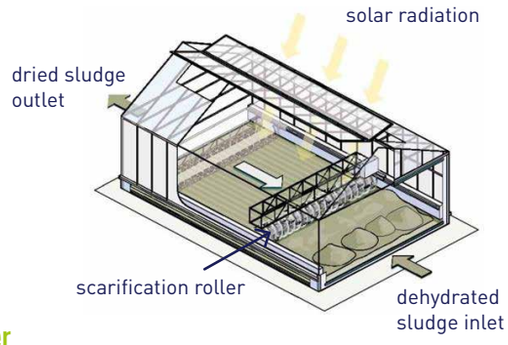
A **patented scarification roller** to scarify, aerate and transport the sludge throughout the greenhouse

A **programming** and **automation** system programmable for one week of operation

A **flat slab** for spreading out the dehydrated sludge bed

A **ventilation system** which combines natural ventilation and intermittent forced ventilation

solar energy:
effective, cheap and environmentally friendly



Heliantis™ operates in continuous mode with no need to stock the incoming product:

dehydrated sludge is brought mechanically to the greenhouse entrance, the roller scarifies the sludge bed ensuring that it is turned, aerated and moved in the greenhouse towards the exit, the sludge bed is heated by sun radiance, the water in the sludge evaporates. The humid air is evacuated to maintain a low moisture level in the greenhouse.

In certain cases, the greenhouse may be closed at both ends, forced additional ventilation is then set up and an odour control system may be added for the extracted air.

This is a fully automated process. The operator has no direct contact with the sludge during drying.

roller - scarifier
(a degrémont® patented system)
handles the scarification, homogenization, aeration and transportation of the sludge all along the greenhouse.

sustainable technology

- helps to reduce GHG emissions from the transport sector
- no GHG emissions
- cheaper energy bill
- reduce use of fossil energy

. . . what it can do for you

savings
- the sun, a free and sustainable energy source
- smaller sludge volumes (savings in transporting and evacuating the sludge)
- long-term storage of the dried sludge
- low operating, maintenance and personnel costs:
  - one operator working 2.5 to 5 hours a week
  - about 30 to 100 kWh/t of evaporated water

recovery / evacuation: a sustainable solution
- agriculture
- energy that can be reused in cement works, thermal plants, heating fuel (depending on the country's regulations)
- incineration
- land filling

performance
- final product dryness between 45 and 80% (depending on the final destination of the sludge)
- final product is dry, granulated and easy to handle
- sludge treatment the whole year, no storage of the dehydrated sludge required

simple to operate
- simple to start and use
- fully automated sludge moving in the greenhouse simple to start and use

environmentally friendly
- operates with renewable energy and helps to reduce greenhouse gas emissions

a few references . . .

more than **50 references** worlwide

and more than **10 years** of operation

France
Brumath plant
commissioned in: 2004

client: SIVU of the Brumath area
dehydration: filter press
capacity: 21,500 PE - 645 tDM/year
incoming dryness: 26% **- outgoing dryness:** 60%
sludge mass after drying: 1,110 t/year
no. of greenhouses: 2
greenhouse surface area: 2,000 sq m. for 2 greenhouses

France
Vesoul plant
commissioned in: 2008

client: Vesoul urban community authority
dehydration: filter press
capacity: 72,000 PE - 552 tDM/year (over 7 months)
incoming dryness: 28% **- outgoing dryness: 70%**
sludge mass after drying: 790 t/year
no. of greenhouses: 1
greenhouse surface area: 1,476 sq m.
operation: 7 months a year, except the drying period, direct evacuation after dehydration

France
Ensisheim plant
commissioned in: 2003

client: city of Ensisheim
dehydration: centrifuge
capacity: 12,500 PE - 250 tDM/year
incoming dryness: 20% **- outgoing dryness:** 70%
sludge mass after drying: 360 t/year
no. of greenhouses: 1
greenhouse surface area: 1,510 sq m.

Portugal (Madeira)
Porto Santo plant
commissioned in: 2012

client: IGA - Investimentos e Gestao da Água, S.A
dehydration: centrifuge
capacity: 148 tDM/year of sludge / 800 tonnes/year of dehydrated sludge
incoming dryness: 17 / 18% **- outgoing dryness:** 70%
sludge mass after drying: 211.5 t/year
no. of greenhouses: 1
greenhouse surface area: 736 sq m.

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other additional references (not exhaustive list)

plant	capacity	no. of greenhouse	annual production	production
Pont Sainte Maxence (France)	40,000 PE	1	345 t DM	2007
Digne-les-Bains (France)	35,000 PE	1	370 t DM	2010
Montbrison (France)	35,000 PE	2	710 t DM	2007
Reignier Bellecombe (France)	32,000 PE	2	550 t DM	2008
Folschviller (France)	30,000 PE	1	200 t DM	2013
Grado (Spain - Asturies)	25,000 PE	1	165 t DM	2008
Sierentz (France)	13,000 PE	2	350 t DM	2005
La Ferté Saint Aubin (France)	9,000 PE	1	157 t DM	2009
Montreux le Château (France)	4,000 PE	1	102 t DM	2006

Conception & Realisation: O.Barbier (SUEZ) - Photos credits: SUEZ