

VCU COMPOSTING TECHNOLOGY



VERTICAL COMPOSTING UNIT (VCU)

(Vertical system tested)

The VCU (Vertical Composting Unit) composting system is a closed aerobic system ideal for processing organic waste in small and medium-sized municipal and industrial applications. Composting takes place in modular chambers with a capacity of 30m³. The process is continuous: the waste is deposited in the upper part of the chamber and the stabilized product is extracted from the lower part daily.

The unique vertical orientation of the processing chamber intensifies and accelerates a process that by itself would take place over the years in nature. Aeration is achieved by natural channeling from the bottom and is accelerated by a fan mounted on the top of each chamber. Odor control is carried out by means of biological self-filtration, and no leachate occurs (liquid filtration)

The result is a system that is elegant in its simplicity, offering very low operating costs due to low energy, maintenance and labor requirements. Modularity allows smaller systems to be progressively increased if extra capacity is needed, while allowing isolated processing of certain types of waste within the same facility.



The high temperature zone (70-75°C) easily meets EU regulatory requirements and other international requirements for the heat treatment of biological waste (including organic waste, mud and animal waste).

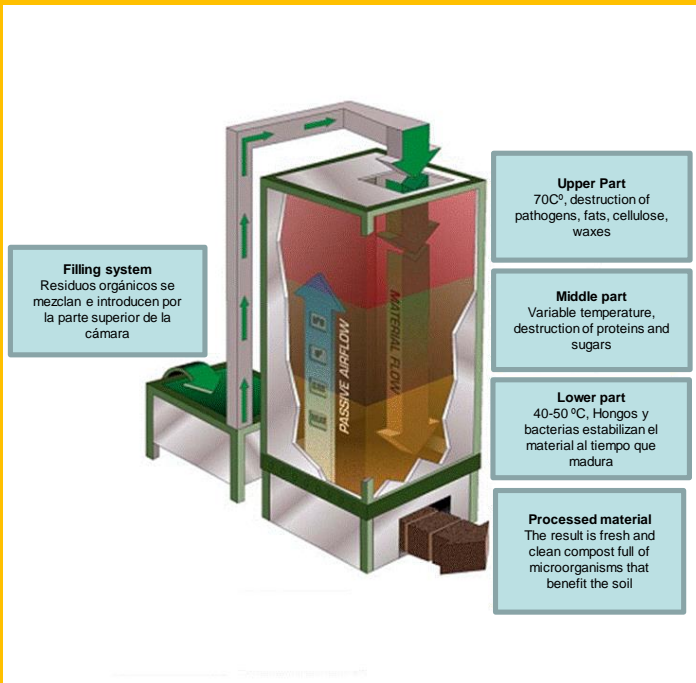
Vertical implantation and biological self-filtration imply that the mounting surface for a VCU system is very small compared to horizontal technologies of external biological filtration.

Rapid stabilization of organic waste using typical retention periods of 7 to 14 days

Solid construction of a simple design implies that the maintenance cost of this system is a fraction of the maintenance cost of other systems in closed containers. The estimated average life of the installation is 15 years, before replacing essential parts of the plant.



The VCU formula



Traco Iberia S.L is the manufacturer of the VCU system. Traco Iberia S.L designs, manufactures and installs composting plants and has experience to develop turnkey installations, or to supply only the VCU composting system as part of a project that encompasses various activities. Strategic alliances with technological partners allow Traco Iberia S.L to supply all auxiliary equipment for a more complex industrial reality if necessary.

All components are manufactured according to the highest quality standards and in accordance with sanitary regulations and safety standards according to EEC chapter. The VCU system is installed and put into service by a qualified VCU team.





Industrial applications: This system has been tested in industrial applications, composting poultry waste, slaughterhouses, manure, tannery waste, sludge. VCU facilities comply with regulation 1774/2002 for animal by-products

Municipal applications: The municipalities find in the VCU a flexible and cost-effective solution for small and medium-sized composting plants processing organic waste (urban waste), sewage sludge, vegetation waste





Technical Specifications

				
	VCU30	VCU120	VCU300	VCU1200
Total System Volume	30m ³	120m ³	300m ³	1200m ³
Total System Dimensions				
Space requirements [1 x a]	13m x 3m	16m x 7m	25m x 7m	34m x 19m
Height [total]	11m	11m	11m	11m
Height [processing chamber]	5m	5m	5m	5m
* excludes auxiliary equipment				
Total Load	20 tons	20 tons/chamber	20 tons/chamber	20 tons/chamber
Processability				
- cycle of 7 days	2,5t/day at b.d of 0,4 4t/day at b.d of 0,65	10t/day at b.d of 0,4 16t/day at b.d of 0,65	25t/ day at b.d of 0,4 40t/ day at b.d of 0,65	100t/ day at b.d of 0,4 160t/ day at b.d of 0,65
*bulk density = t/m ³				
- cycle of 14 días	1.4t/ day at b.d of 0,4 2,2t/ day at b.d of 0,65	5,5t/día a d. m. de 0,4 8,8t/día a d. m. de 0,65	13.8t/día a d. m. de 0,4 22t/día a d. m. de 0,65	55t/día a d. m. de 0,4 88t/día a d. m. de 0,65
Feed Speed	25m ³ /horas	25m ³ /horas	25m ³ /horas	70m ³ /horas
Harvest Speed	15m ³ /horas	15m ³ /horas	40m ³ /horas	80m ³ /horas
Energy use	48 kWh / day (for 2.5t / day operation)	115 kWh / day (for 10t / day operation)	236 kWh / day (for 25t / day operation)	444 kWh / day (for 100t / day operation)
* excludes auxiliary equipment				
Labor	1 person 2-3hs / day (for 2.5 t / day operation)	1 person 4-5 hs / day (for 10 t / day operation)	1 person 6-7hs / day (for 25t / day operation)	1 person 7-8hs / day (for 100t / day operation)
Noise Product	60dB at 10m	70dB at 10m	70dB at 10m	80dB at 10m

Escape / Emissions

Volume: 45m³ / minute / camera

Composition: CO₂ <3%, O₂> 15%, CH₄ 0%

Odor: 1-2 dilutions for threshold from 10m

Water Vapor: 10 l / m³ / chamber / day

Process Temperature 70°C+ (at the upper part of the chamber)
40°C+ (at the bottom part of the chamber)

Pathogen reduction Salmonella sp. not detected in 25g of product
E. Coli <100mpn per gram of product (dry weight)
Faecal coliforms <1000mpn per gram of product (dry weight)

Feed Objective

Moisture content: 50-60% (wet weight)

Carbon: Nitrogen 25 - 50: 1

Mass density: <0.65 t / m³

Size of wood particles / vegetation waste: <200mm food / other <35mm

Typical Departure

pH: 6.5-7.5

Moisture content: 40 - 50% (wet weight)

Coal: Nitrogen: 15 - 20: 1

Mass density: 0.5 - 0.6 t / m³

Salinity: 3deci-siemens / m

Healing / Maturing Time: 2-8 weeks Certifiable according to International Standards