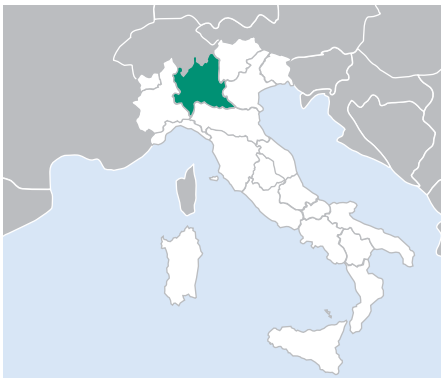
17 BAGNOLO MELLA (BS) ITALY

Year	2000
Client	SYSTEMA AMBIENTE Srl
Operator	SYSTEMA AMBIENTE Srl
System description	Tunnel composting
Waste processed	Source separated organic and garden waste
Plant capacity	26,000 t/year



Tunnel composting technology is used to process source-separated organics from municipal waste and to produce a quality compost which can be used in agriculture. The biological process takes place inside closed reactors, consisting of tunnels made of reinforced concrete with an aeration system integrated into the floor.

The plant uses tunnel composting technology for biological treatment of source-separated organic waste in order to hygienize and stabilize it, which, after the curing phase, produces quality compost. The process takes place in five closed reactors, consisting of reinforced concrete tunnels equipped with a ventilation system integrated in the floor.

The air blown into the material through the floor is in part re-circulated inside the tunnel and in part sent to the odour control system. Air coming from waste-sorting areas is used as fresh process air in the tunnels, so the total volume of waste air is reduced without negatively effecting on the buildings' ventilation.

A sophisticated collection and treatment system for leachates ensures correct tunnel drainage and enables the liquid to be re-used for moisturizing the processed material by means of nozzles set up under the ceiling of each tunnel.

The material to be biologically treated is prepared by mixing source-separated organic waste, shredded garden waste and recycled material deriving from the final screening of produced compost. Once the tunnel has been loaded with the wheel loader, its special door is closed, the process begins and lasts approximately two weeks. At the end of the treatment the tunnel is emptied and a new cycle begins.

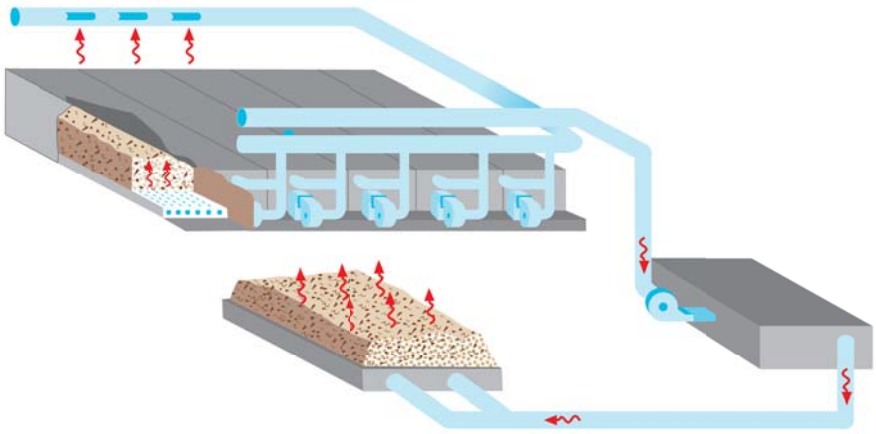
A computerized control system, including visualization on PC with colour graphics, monitors the process and keeps parameters in the preset ranges, which are different for every stage of the process.

Many process parameters are measured by sensors set up in various parts of the system. For instance, material temperature, air temperature, oxygen content in the air, air pressure and air flow are continuously monitored and recorded.

To control odours, the air exhausted from the tunnels, mixed with the air flow coming from the curing area and from areas where waste is mechanically processed, is treated in a large biofilter. Biofiltration controls odours very efficiently because malodorous gases, absorbed by the superficial moisture of the filter media, are quickly digested through a biological process.

The centralized control system also surveys the biofiltration process, which takes place after the air flow has gone through a scrubber.

After the treatment in the biotunnels, the material is moved to the curing area, which has an aerated floor.



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