

32 MASSAFRA (TA) ITALY

Year	2002
Owner	MUNICIPALITY OF MASSAFRA
Operator	CISA SpA
System description	Tunnel bio-drying
Waste processed	Mixed municipal solid waste
Plant capacity	110,000 t/year



The drying of municipal waste is fuelled by the biological heat generated in the biotunnels through an intensive composting process.



Municipal solid waste is treated by a low-speed shredder fed by means of a chain conveyor with a rubber belt. The shredder is loaded directly by means of a wheel loader, after the separation of non-processible waste.

After ferrous separation, shredded waste is transferred to the biological stabilization system by means of a belt conveyor equipped, at the end, with a magnetic separator. Another wheel loader fills the bio-tunnels, consisting of reinforced concrete cells. Each cell has the shape of a blind tunnel and is equipped with a ventilation system built into the floor.

Once the tunnel has been filled, its sliding door closes tightly in order to ensure odour control.

Process air is blown in through the floor and partly re-circulated in the tunnel. Exhaust air is sent to the biological filter to control odours. The excess water present in waste is evaporated and discharged through the biofilter.

In order to ensure an optimal operation, the biofilter is equipped with an air scrubber on the inlet and a sprinkler system.

Once the computer-controlled process has been completed, the material is extracted from the tunnel and conveyed to the sorting area, where it goes through a screen with a rotary drum.

The undersized material is sent to the curing area where the stabilization process is completed in a static pile. The material is accumulated on a floor equipped with a forced ventilation system that is similar to that of the tunnels. Before the second biological phase begins, moisturizing of the material takes place for a better biological development.

It must be underlined that both stages of the biological treatment have different purposes: the first treatment (in biological cells) basically aims at drying the material, while during the second step (curing) it is important to prevent any drying of the material and allow for a better stabilization.

