

COMPOSTING PLANT IN CATANIA

DESIGN DATA

Private client SICULA TRASPORTI s.r.l.
Typology aerobic stabilization (composting) into air-forced lanes
Tasks assigned and carried out Executive design, Environmental Impact Assessment, Integrated Environmental Authorization application and construction management
Cost € 10.934.166,45
Location Catania
UTM Coord. (Zone 33S) 505,850 E - 4,137,495 N
Site area 65.900 m²
Plant surface 36.000 m²
Construction period 2010 - 2012

TECHNICAL DATA

Operations according to Encl. B and C referring to Part IV of Law Decree No. 152/06 (D.Lgs. 152/06) and further amendments D8, R3, R10
Maximum capacity 350.000 t/year
Number of air-forced lanes 60 lanes (548 m³ each), among eight dedicated only to high-quality composting
Total surface for treatment 12.800 m²
Type of input material undersize resulting from undifferentiated MSW screening (producing off-specification compost) and organic fraction from separate collection of MSW (producing high quality compost)
Average process period 21±28 days for off-specification compost and 90 days for high quality compost
Rain water storage 150 m³
Leachate storage 150 m³
ACCESSORY EQUIPMENT
Air insufflation system No. 60 centrifugal fans, power 5.5 kW and flow 6.000 Nm³/h each

The plant operates a biological treatment for stabilizing the organic fraction (also called “undersize resulting from MSW undifferentiated screening”) from the existing MSW mechanical treatment plant. This is aimed at producing off-specification compost. The plant also operates a composting treatment of the organic fraction downstream of the separate collection of MSW. This is aimed at producing high-quality compost. The process of biostabilization occurs within 60 concrete lanes with mobile steel coverage and breathable fabric. The bottom of each lane is provided with a system for the insufflation of the air that is necessary for the process. The air is uniformly distributed through five parallel channels, which extend to the entire length of each composting lane. During the process, temperature, humidity and interstitial oxygen are monitored, and air insufflation is modulated on the basis of these measured parameters. A significant aspect is related to the reduction of emissions into the atmosphere: odorous substances are retained within the lanes by using breathable fabrics. During the oxidation process of the putrescible fraction, the temperature increases due to the degradation activity of the microorganisms, and the evaporation of interstitial water forms a thin film in contact with the cloth itself. Such thin film, together with the small weaving of the cloth (0.2 µm), constitutes a mechanical barrier against the odorous molecules. Smaller molecules (O₂, CO₂, water vapor), instead, are free to transpire. This prevents approximately 95% of the spores and pathogenic bacteria to be spread in the air.

The off-specification compost product can be treated as biomass, and thermally exploited, so as to produce energy that will receive financial incentives when released into the national network.

