

THE SIMBIO PLANT

Celje | Slovenia

MBT BIODRYING PLANT WITH SRF PRODUCTION



THE INTRODUCTION OF THE ENTSORGA MECHANICAL AND BIOLOGICAL TREATMENT METHOD ALLOWED THE MUNICIPALITY OF CELJE (SL) TO **SUBSTANTIALLY DECREASE THE QUANTITY OF MUNICIPAL SOLID WASTE SENT IN LANDFILL** AND TO OBTAIN A **RENEWABLE FUEL** TO PRODUCE ELECTRICITY AND HEAT THAT SUPPORTS 60% OF THE ENERGY NEEDS OF THE CITY.

PLANT DATA

Company	Simbio doo
Capacity	62.000 tpa MSWr 15.000 tpa Organic waste
Treated waste	MSWr Selected Organic waste, recyclable matrices from separated collect
Final Output	31.460 tpa SRF Lower Heating Value (LHV) SRF: 17 MJ/kg Compost: approx. 8.900 tpa used in agriculture
Start up	September 2008
Plant	Biostabilization Mechanical Biological Treatment with SRF production + Compost production
Population Served	250.000 (including 24 municipalities of the "Savinjska" Region)
Employees	12

COMPANY

Founded on May 1996, **Simbio** provides waste management services as regional centre for Celje and other 24 municipalities of the Savinjska Region in the Central-Eastern Slovenia, serving a population of approximately 250.000 people.

PROJECT

The project was supported by EU funds and has helped to solve the problems of **Municipal Solid Waste** and **waste water disposal** for Celje. The plant includes a section of **Mechanical Biological Treatment (MBT)** for **unsorted Municipal Solid Waste**, a section for **Organic Waste** composting and a section for recyclables commodities (plastics, paper, cardboard).

ENTSORGA SOLUTION

The EntSORGA **mechanical biological treatment** plant has **drastically reduced the biodegradable waste sent to landfill**, helping to ensure compliance with the latest European environmental standards.

The renewable fuel produced is used in a Biomass cogeneration plant to produce power (which is directly sent to the distribution network) and thermal energy (used for the needs of the Celje heating system)

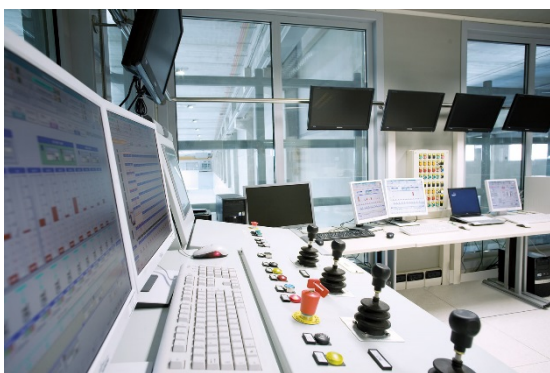
PROCESS

Municipal Solid Waste undergoes a **biodrying treatment** process for about 15 days during which **forced aeration** accelerates the natural degradation of the organic fraction allowing for substantial water evaporation and mass loss. The biodrying area is divided into **30 sections**, each managed independently. Each section is equipped with sensors transmitting live data to a **control system (1)**, which **automatically** processes and optimizes the process by determining direction, flow rate and mix ratio of the air used. Subsequently the bio dried mass is **mechanically refined** to retain the components with the highest energy content (plastic, paper, textile fibres, etc.) from which **the SRF** (Solid Recovery Fuel) is produced. The configuration and fine tuning of the refining equipment depends on the SRF quality required by the users. A **ventilation system (2)** extracts exhaust air from inside the bioreactor and conveys it to a **biofilter (3)** to purify it from unpleasant odours.

Produced fuel is sent to the nearby cogeneration plant, to generate **electricity and heat**. The thermal power of the cogeneration plant is 15 thermal MW and 2 electric MW.

(1) **CONTROL SYSTEM** AUTOMATIC
24/7

(2) **BIOFILTER** FOR THE PROCESS
ODOURS ABATEMENT



USED TECHNOLOGIES

The plant uses the EntSORGA proprietary technologies: **Bee™**, **Bridgecrane Spider™**, **Biofilter**, **Prometheus™**

FINAL PRODUCT

The final result is a **Solid Recovered Fuel (SRF)**. The quality of the product is ensured by the advanced **biodrying**, true strength of the EntSORGA solution, that differentiates it from other solutions where the SRF is produced only by mechanical sorting and waste shredding.



Scientific literature and experience have shown that waste moisture heavily compromises the final quality of the alternative fuel and keeps its calorific value low.

The SRF produced by the EntSORGA technology, on the other hand, is a renewable fuel with a **high calorific value**, suitable for replacing fossil fuels in the production of power and thermal energy. The use of SRF also guarantees the reduction of greenhouse gas (GHG) emissions and therefore substantial direct environmental benefits.

STRENGTHS

- **environmental compliance: no odours, dust, or leachate** are released in the surroundings. All operations take place in **closed areas** operated **under slight negative pressure** to prevent any odour emission
- **reduced operation and labour costs**, thanks to the **complete plant automation** that allows reducing manpower needs and need for operators in the waste processing areas
- **maximum safety and minimum health impact for operators**, which are not exposed to the harsh conditions and potential hazards of the processing areas
- **low energy consumption** thanks to the use of high efficiency and energy recovery equipment (**bridge crane**)