MOSTOSTAL WARSZAWA

Biala Podlaska | Poland

MBT BIOSTABILIZATION AND ANAEROBIC DIGESTION PLANT

THE PLANT APPLIES **THE MOST INNOVATIVE GREEN TECHNOLOGIES** ON THE MARKET **TO RECYCLE MATERIAL** AND PRODUCE **RENEWABLE ENERGY** FROM WASTE, PROCESSING ORGANIC WASTE WITH **AN INTEGRATED ANAEROBIC, BIOSTABILIZATION/BIODRYING AND MECHANICAL TREATMENT SYSTEM**.

ENTSORGA HAS AWARDED WITH AN AEROBIC PROCESSING LINE TO FURTHER STABILIZED DIGESTATE. THE LINE INCLUDES **A SYSTEM OF 3 SCARABEO™ BIOCELLS** AND A **BIOFILTER**. A SOLUTION PROVIDING OBVIOUS **ENVIRONMENTAL ADVANTAGES,** AND THAT ALLOWED THE TOWN OF BIAŁA PODLASKA **TO LOWER THE COSTS OF WASTE COLLECTION** AND DISPOSAL.

PLANTS DATA	
Company	Mostostal Warszawa SA
Capacity	20.000 t/y of MSW 10.000 t/y of Food Waste from separated collection
Products	Heat and Power (from CHP) Compost and/or CLO (Compost Like Output) Alternative Fuel (RDF or SRF)
Start up	May 2014
Type of plant	Mechanical Biological Treatment Biostabilization / Composting Anaerobic digestion
People	100.000 equivalent population c.a

ENTSORGA
GREEN TECHNOLOGY REVOLUTION

COMPANY

One of the largest construction companies in Poland, **Mostostal Warszawa SA** has been operating **for 70 years** investing in all key sectors of the construction market, **in Poland and abroad,** from the industrial sector to the environmental. Over time the company has acquired significant experience in the development of cutting-edge technological systems and is listed on the Warsaw stock exchange. The main shareholder of the company is **Acciona construcción SA**, a Spanish company of the Acciona group that operates in over 30 countries in infrastructure, renewable energy, green technologies and water management.

PROJECT

Created **to maximize the resources** that can be extracted from waste prior to their final landfill disposal, the Biala Podlaska plant uses an **integrated treatment system** based on **two lines**: **anaerobic digestion**, provided by **Zenviro Tech**, a world leader in environmental anaerobic fermentation technologies, and the **bio-stabilization line of the digestate**, carried out by Entsorga.
This section is also successfully applied as bio-drying unit for the alternative fuel produced by mechanical treatment of MSW. Not only has the plant significantly improved the entire regional waste management system, but today it is **one of the most innovative facilities in Poland.**

ENTSORGA AND ZENVIRO TECH SOLUTION

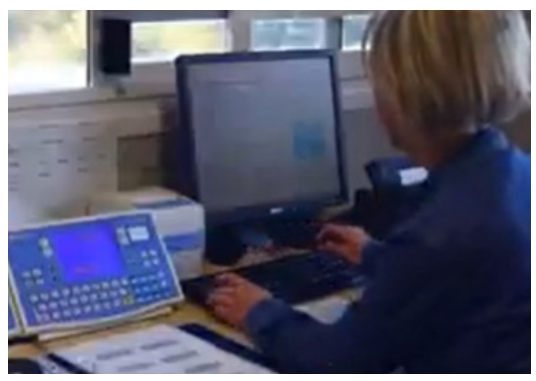
The biological treatment line provided by Entsorga is based on the proprietary Scarabeo™ technology, a **modular, reliable and highly convenient solution**. The system created consists of 3 **Scarabeo™ biocells** and a **Biofilter**, to guarantee **excellent odor control.**

The Zenviro Tech's Anaerobic Digestion Line is based on **"Plug-flow" Horizontal Digester** suitable for "Semi-dry" process. The system is composed by **2 medium-size Digesters** and produced Biogas is utilized by Cogenerative unit for Energy production (CHP).

Last but not the least, Entsorga supplied also a Biofilter that guarantee the process air treatment and an excellent odor abatement.

(1) **DIGESTERS**

(2) **CONTROL SYSTEM**



(3) **SCARABEO® BIOCELLS**

(4) **FORCED AERATION SYSTEM**

FINAL PRODUCT

Anaerobic Digestion produces Biogas, a Methane-rich gas with high energy content, that is used into CHP unit for Heat and Power production.

The result of **Biostabilization/Composting** is a **stable digestate**, with a very **low moisture content**, suitable for being sent to landfills in compliance with the latest European standards. The process in fact **drastically reduces the greenhouse gases emissions** and the production of leachate, benefiting of the environment.

The plant also produces Alternative Fuel from MSW's calorific fraction (such as Plastics) and the energy content is maximized by bio-drying process held into Biocells.

STRENGHTS

- **Reduced environmental impact:** odors and dust are kept inside the processing area. The biological treatment phase is carried out inside the biocells and the use of the biofilter guarantees the elimination of the odorous molecules emitted by the waste during the treatment phase. Anaerobic digestion is held into **enclosed digesters,** without any emission to the outside.

- **Reduced opex and labor costs** thanks to the complete automation of the plant

- **low energy consumption** thanks to the optimization performed automatically by the control system **and thanks to self-consumption of energy produced from Biogas**

PROCESS

The waste is subject to a **mechanical pretreatment.** The organic fraction is so continuously fed to **the concrete Digesters (1)** where the fermentation without oxygen is exploited for **Biogas** production (mainly composed by Methane and Carbon Dioxide). Inside the digester the natural biologic process is supported by a **special designed horizontal mixing system** - that enhance microorganisms activity by keeping the substrate well mixed – and by the **wall heating system** – that keep the optimal process temperature around 40 °C. Every main process parameters are monitored and controlled by the **automated control system** (2).

After about 20/30 days, the digestate is unloaded and placed in the **Scarabeo® biocells** (3), where it is biologically processed and stabilizecd/composted for about 15/21 days. The degradation of organic substances is accelerated by using a **forced aeration system** (4) which supplies oxygen through pipes distributed in the concrete floor of the biocells, and at the same time guarantees the **best temperature** to sanitize the mass (keeping it at 55 ° c for minimum 72 h). The process is managed by **the control system** (2), which tracks its evolution and detects the biomass temperatures with thermometric probes, optimizing the air flow.

When needed, the **Scarabeo® biocells are utilized for Alternative Fuel bio-drying.** The aeration process is adapted auytomatically by the control system without any component modification.

Before emission to the environment, process air is treated by means of the **Biofilter.**

TECHNOLOGIES USED

The plant uses the following Entsorga's proprietary solutions: **Scarabeo™ Biocells, Cow Anaerobic Digester (Zenviro Tech)** and **Biofilter.**

ENTSORGAFIN S.P.A I ENTSORGA ITALIA S.P.A.
Strada Provinciale per Castelnuovo Scrivia, 7/9 I 15057 Tortona (AL) I Italy I T. +39 0131 811383 I E-mail: info@entsorga.it