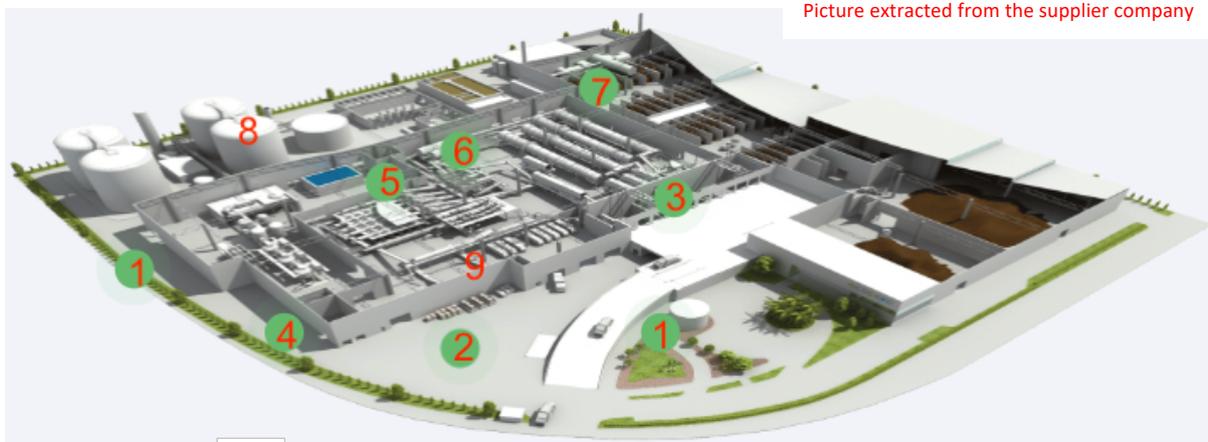


WASTE TREATMENT PLANT

Generalities:

In reference to environmental development, we offer you our ecological and technological system for a great solution to the problems of solid waste, environmental pollution and landfills.



- 1/ Area for receiving various wastes in a pit.
- 2/ Area for pretreatment of the organic fraction of the Remaining bag and the FORM bag. Includes the BRS that defiber the paper and cardboard fraction to incorporate it into the organic fraction of the Remaining bag, prior to passing through the composting tunnels.
- 3/ Area for composting the organic fraction of the Remaining bag.
- 4/ Area for wet pretreatment of the organic fraction from the FORM.
- 5/ Cogeneration plant, which transforms the biogas generated in the anaerobic treatment into electricity.
- 6/ Wastewater treatment plant.
- 7/ Treatment of the plant's air, through chemical and biological processes.
- 8/ Biomethanization line for the organic fraction of the FORM bag.
- 9/ Refuse classification and storage line.

TRARE is a Spanish waste treatment plant, and was developed under an intelligent patent with the aim of recovering most of the raw material from waste to convert it into electricity.

Advantages:

The municipality has and/or uses landfills where they deposit garbage for several years. This has been threatening the environment and health in general.

By eradicating landfills and garbage, we would end up eliminating this threat to pollution, purifying the climate, water and of course health, without discounting the successful task of

the mayor in having sanitized his district in a radical and technical way, thus polishing one of his tedious and long tasks.



Daily household waste will be treated 100% during the day and delivered directly to the waste treatment plant. Garbage storage is no longer necessary. In this way, people will be educated to recycle household waste, improve health and reduce municipal expenditures.



The municipality or an external entity will be responsible for collecting the garbage and transporting it daily and directly to the treatment plant. **NO LUMPS ARE USED ANYMORE!** The landfills will be converted into parks or buildings for the benefit of the city and the country.

Background: Need to treat waste.

The development of life in any habitat brings with it the appearance of waste. In natural habitats, this waste is reincorporated into the life cycle by itself. In urban habitats, waste

production is more intensive. Therefore, nature does not have the capacity to regenerate all this waste and it must be treated in some way.

The treatment of urban solid waste is one of the fundamental problems facing consumer society. And it is becoming increasingly worse, because the generation of waste per inhabitant increases with the improvement of the standard of living.

Adequate waste management is the key to maintaining human health and preserving the environment.

This implies, among many other actions, the periodic collection of waste and its treatment in facilities designed for this purpose.

Role of TRARE:

Methanization -> Electricity



Picture extracted from the supplier company

TRARE is a complex for the comprehensive treatment of municipal waste. It mainly processes the following types of waste:

- Selectively collected organic matter (FORM).
- Undifferentiated waste (residual fraction or RFORM).

These types of waste include a wide variety of materials, such as **paper, cardboard, glass, plastics, tetrabricks, bricks, metals, bulky materials and plant remains.**

From the waste it receives, TRARE produces the following **resources**:

- Compost, an organic fertilizer that can be used in agriculture and gardening.
- Biogas, a compound of methane and carbon dioxide useful for generating energy.

Technical principles:

1. Examples of a facility with a capacity of 240,000 tn./year



Surface:

- 6-8 Ha

Types of treatment:

- Mechanical and biological treatment of organic fractions and other municipal waste.
- Selection of light packaging fractions

2. Recovered effects/products:

- Paper, cardboard, glass, plastics (natural and coloured), brics, scrap metal, magnetic scrap, aluminium, batteries, compost, biogas

3. Production:



Biogas production (Nm³ /Kg) (nominal): 0.55

Electricity production: (MWh/year): 13,000

Compound production (tons/year) (nominal): 23,025

Biostabilizer production (tons/year) (nominal): 14,762

Recovered byproducts (tons/year) (nominal): 36,285

4. Process for waste treatment:

Pretreatment, methanation and cogeneration and composting

Pretreatment:

The function of pretreatment is to separate the organic matter contained in both fractions of recyclable materials and other unsuitable materials that cannot be used (rejected by the plant).

Methanation and cogeneration:

One of the objectives of our plants is to use organic matter from selective collection to produce biogas through the methanation process.

Before methanation, the organic matter separated during pre-treatment is subjected to wet treatment: it is introduced into three agitator tanks (pulpers), where it is mixed and broken down in water. In addition to diluting it, the movement of the tanks causes sand and pieces of glass (inert) to settle, and plastics (floating) to emerge, which were still mixed with the organic matter.

The resulting pulp is transported to the interior of the digesters, which are four 4 tanks with a capacity of 6,700 m³. The digesters act as anaerobic fermentation reactors: they keep the pulp closed without contact with oxygen and at a temperature of 37 °C for 20 days.

During this time, anaerobic fermentation releases biogas, a mixture of methane and carbon dioxide, which is used as a renewable fuel to generate electricity and heat.

The biogas is then directed to a gasometer, which stores it and regulates the output flow. The gas is kept at a pressure equivalent to atmospheric pressure (20 mb).

From the gasometer, the biogas is directed to the cogeneration plant, equipped with 5 Jenbacher 20-cylinder engines and a total power of 5.24 MW.

The combustion of the biogas generates electricity, which is exported to the grid, and heat, which is used to keep the temperature of the digesters stable at 37 °C.

Composting:

Composting is an intensive biological process of decomposition and stabilization under aerobic conditions. It is applied both to organic matter from the pre-treatment of the rest and to organic matter from selective collection after methanization. It allows these two materials to be used to obtain compost of different qualities.

History:

This ecological waste treatment plant was established in Spain in 1998.

The Environmental Authority decided to build and operate it to eradicate the threat to the environment and the population in general. In December of the same year, it approved the technical and administrative requirements, the operating regulations and the bases of the competition to select a private partner.

Facilities:

This plant is dedicated to treating two types of waste: organic waste from selective collection and undifferentiated waste, known as residue.

From undifferentiated waste, recyclable materials and organic matter that has not been correctly sorted at source are extracted. The latter is used to produce compost, through an aerobic process.

With organic waste from selective collection, biogas is generated (a mixture of methane and carbon dioxide), through an anaerobic fermentation known as biomethanization. This biogas is then used to obtain electricity.



Picture extracted from the supplier company

Targets:

- Minimize the environmental impact of the facility.
- Improve the health and safety conditions of the staff.
- Adapt to changes in the quality and quantity of the input waste.
- Optimize biogas production.
- Maximize compost production.
- Minimize plant rejects (waste that cannot be used).
- Minimize the percentage of organic matter contained in the plant rejects.
- Recover the maximum possible number of recyclable materials.

Conditions for the acquisition of the Plant:

Financing:

The approximate price of the complete plant for a 240,000 Tn/year facility is 150 million Euros. The price may vary depending on many technical factors and the size of the population. The price includes all administrative costs, assembly, travel, time, studies and others.

The district or city does not need to participate financially. IBF (International Business & Financial Solutions) or the company it designates, will be the Investor. IBF, with its relations and familiarity in international business, will be able to help the aspiration of the districts or cities to have an Ecological Plant of this prestigious category.

There are three imperative conditions:

- a) That the district or city cede a 6-8 ha plot of land.
- b) That they accept a concession for twenty-five (25) years,
- c) That the Mayor provide a Letter of Credit (SBLC via Swift Mt 760) for a period of three (3) years (renewable annually). The SBLC must be issued by a bank with European representation (HSBC, Deutsche Bank, Standard Chartered, Citibank, Paribas, etc.) for the amount of ONE HUNDRED FIFTY MILLION EUROS for each Urban Waste Plant to be installed in the district and/or city. The receiver of said SBLC will be IBF (International Business & Financial Solutions) or the company he designates as Investor.

Preliminary step to follow for the start of the project:

→ The district/city must issue a letter of intent addressed to IBF agreeing to undertake the project and mentioning the conditions mentioned above.



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