ATZWANGER

SOLID WASTE TREATMENT

OUR PRODUCT & TECHNOLOGY PORTFOLIO

ECOMASTER®

A PASSION FOR WASTE & ENERGY

Atzwanger AG

Luis Atzwanger established a small installation activity in Bozen/South Tyrol in 1932. With his highgrade heating and plumbing solutions, the business soon became a household name. His sons Peter and Paul Atzwanger contributed new perspectives and launched innovative ideas.

Since the 60ies, the firm extended its range of activities and geographical radius, and eventually registered as a joint stock company in 1968.

Today, we are a leading engineering&construction company in the fields of
- Solid waste treatment
- Water treatment
- Power generation and
- Heating, ventilation and airconditioning

with 250 employees in five offices in Italy, Germany, Austria and Switzerland. We are ISO 9001:2008, ISO 14001:2004 and BH OHSAS 18001:2007 certified.

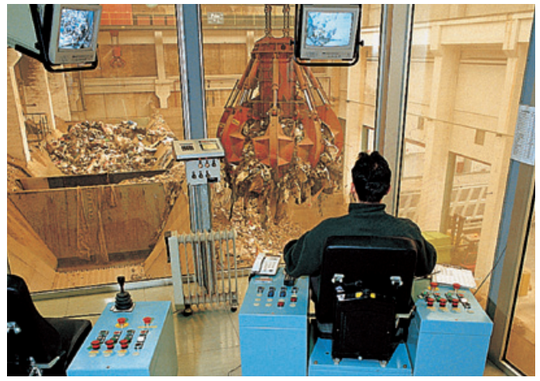
We try to be an open, involving and reliable partner – qualities which we'd like to be measured against. Our business is highly competitive, but nonetheless we want to be a fair competitor and will not denigrate others, although we reserve the right to occasionally laugh about ourselves and tease our best clients – while they shall always be able to count on the quality of our work, and the honesty of our dealings.

We are aware that our assets are our people, our capital and our reputation. If any of these is ever diminished, the last is the most difficult to restore.

Solid waste treatment: Mechanical, biological and thermal

There is no single technology which can fully solve the problem of disposing (municipal) solid waste in a safe, reliable and economic manner. This is why we have worked to become an expert in various solid waste disposal technologies, including mechanical, biological (anaerobic and aerobic) and thermal treatments.

We focus on how the various technologies available integrate and enhance each other. Having worked with a wide variety of systems in the waste treatment sector, our engineers are in the position to propose the best combination of technologies needed to build a successful project.



Experience and quality are included

Solid waste treatment started developing a few decades ago in countries having too little room for landfills.

Because the technologies used in this field have only been consolidated recently, specific experience is crucial. A sound know-how is necessary to integrate the mechanics, microbiology, thermodynamics, fluid dynamics and computer science involved, but our hands-on experience is also essential.

The value of waste treatment systems depends most of all on the quality that the contractor is able to achieve thanks to the organization and knowledge of his people.

We know the importance of flexibility in waste treatment and pay attention to customers' needs in designing a new facility, because every project is different and none can really be the same as a previously built plant.

Our outstanding reference list proves the capabilities in delivering reliable waste treatment facilities.

A passion for waste

Passion for our products is the main motivation for our engineers and management. This passion promotes the development of the technologies that the company uses successfully in its projects.

One of our priorities is to build systems with a flexible technology, open to the developments deriving from innovations and changes in operating conditions.

Solid waste is often a heterogeneous material, with composition varying throughout the seasons and the years. Furthermore, treatment needs to change along with laws and social or economic conditions. Therefore, even experts must remain open to learning and innovation.

Sorting plants for mixed solid waste

Mixed municipal solid waste includes many different components, which may be separated by means of various specific processes, chosen in each case according to the required results.

Primary shredders are used to open the bags containing waste and to reduce its original size. This equipment usually has a low rotation speed in order to avoid pulverizing glass.

In addition to separating metals, the process always includes a screening phase in order to separate the portion containing large components, such as cardboard and light plastic, from the portion having a high content of organic material and inerts.

Recyclable materials sorting plants

Systems for recovering recyclable materials, such as paper, plastic and metals from waste, include a combination of automatic and manual sorting operations. Manual sorting can be positive or negative, depending on whether the sorted materials are recyclables or rejects.

Sorting systems are often used to treat mixed waste coming from commercial, handicraft and industrial activities.

An automatic baler is always in use to bind the separated recyclable materials into bales. The baler can pack plastics, paper, etc.

Anaerobic digestion: dry plug-flow

The plug-flow system has a high biogas yield due to the continuous flow of the organic material through the digester. This design provides the process with optimal conditions (temperature, retention time and inoculation of incoming waste).

The digester consists of a parallelepiped-shaped reinforced concrete structure loaded by a gas-tight submersed auger conveyor, while the digested material is extracted at the opposite side by an intermittent pneumatic system. An internal heating system allows for operating under thermophilic conditions.

A set of transversal rotors agitates the mass to maintain a uniform retention time and prevents the accumulation of inert material at the digester bottom.

The system is suitable for processing small-sized organic material and is insensible to inert contaminants such as glass and plastic particles. Various digester sizes are available to meet the capacity requirements of each project.

Anaerobic digestion: dry batch

The dry-batch digestion system consists of a number of garage-shaped vessels, made by reinforced concrete, which are loaded by wheel loader. The inoculation is provided by recycling biologically-active percolate which is sprayed on the treated mass.

The batch system can process structured organic waste without limitation in particle size and is not impaired by the presence of inert contaminants.

The heating system is incorporated into the walls and floor of the digesters, which are provided with a sealed door at their front-ends. There are no moving parts inside the digesters, which are emptied and cleaned at the end of each cycle.

A set of dry digesters is generally combined with a single wet digester, which holds the percolate and often incorporates the biogas holder.

Anaerobic digestion: wet

Wet digestion of solid waste, a technology derived from the waste-water treatment industry, requires to pulp the solid organic waste and the addition of water in order to handle the digester feedstock with pumps.

To prevent fresh material from reaching the digester outlet after an excessively short retention time, an internal mixer is provided.

The digesters are insulated and provided with an internal heating system.

The high efficiency of the wet process is balanced by the more intensive pre-treatment necessary for pulping and cleaning the feedstock and by the need of dewatering the produced digestate prior to its composting.

Tunnel composting plants

One of the most advanced processes developed by us is tunnel composting. Tunnels consist of large enclosed reactors, made of reinforced concrete, with floors equipped with integrated aeration systems.

This technology allows better control of the biological process, which is monitored by sensors transmitting the various process variables to the control computer through a data acquisition and processing system.
Furthermore, a personal computer provides the operators with an immediate interface for supervising and controlling the plant.

The composting process takes place in a completely closed environment where the air flow can be recirculated. This reduces the waste air volume that needs to be treated to control odours and emissions.

Odour control systems and plants

Digestion and composting plants are mostly appreciated because they are based on a natural process, but they often raise concerns over noxious odours.

We design and build sophisticated systems for the control of process odour. The proper sizing of the ventilators and the use of efficient control techniques keep odour emissions within the required limits.

Biofilters are often used for odour control, as they absorb and digest malodourous gases through controlled biological processes.

RDF production plants

We design and build plants recovering fuel from mixed municipal solid waste. The sorting process depends on waste composition and specifications of the final product (RDF refuse derived fuel).

RDF production is in increasing demand, as this material is considered an alternative source of energy.

When the RDF must have low moisture, a system of biological drying is used, based on the heat developed by the biological process. This allows excess water to evaporate from the material.

RDF densification plants

The transportation, storage and use of RDF may require densification. This is performed by means of specialized equipment that produces pellets or flakes, in order to significantly increase its specific weight.

Densification can take place after heavy materials, such as metals or inerts, have been separated and light ones further reduced in size.

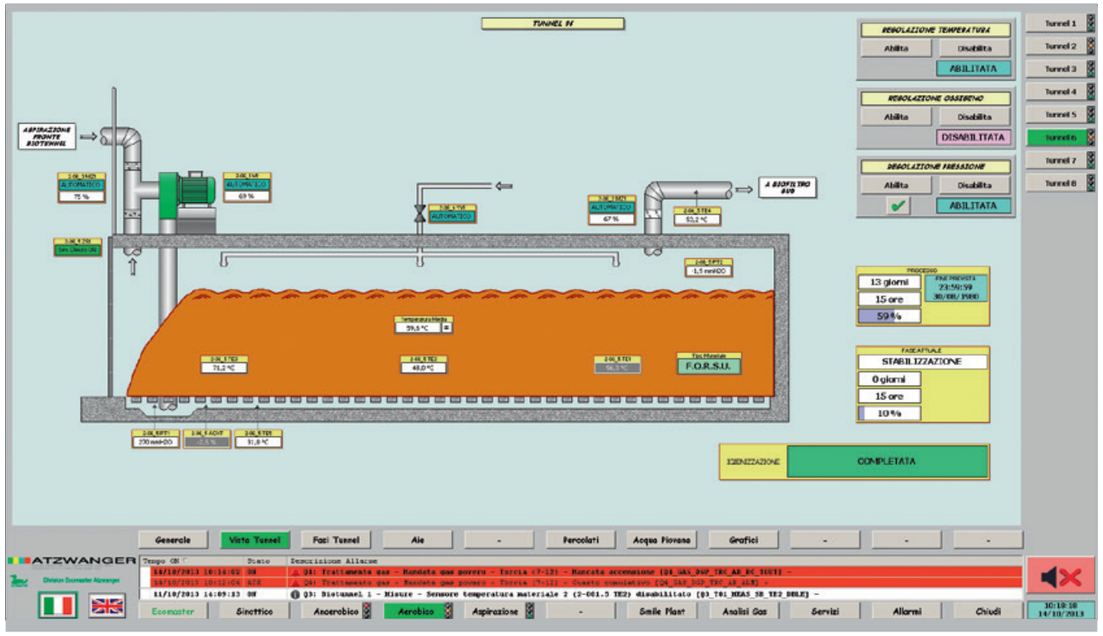
Special attention must be paid to finding solutions that limit energy consumption for RDF processing.

RDF bio-drying plants

In many projects, it is necessary or convenient to reduce the moisture content of RDF produced from mixed municipol waste to facilitate transportation, storage and use of this alternative fuel.

A short composting process, whose main purpose is to dry waste rather than convert the organic components, minimizes moisture content.

Moisture is reduced using the heat produced by microbiological activity, while forced ventilation of the mass not only maintains the aerobic conditions necessary for composting, but also removes the evaporated water.



Waste-to-energy plants

Combustion of mixed waste, screened refuse or RDF is often an important component of an integrated waste treatment system, because it makes it possible to reach a greater landfill diversion rate, which recycling and bioconversion alone cannot achieve.

Of course, energy recovery is a must for any waste combustion plant. The production of electric energy from waste helps in reducing substantially the consumption of fossil fuels.

Proven combustion technologies include an efficient fume treatment system that lowers air pollution below safe limits.

We built five waste-to-energy plants with a total capacity of 400.000 tons/year.

Atzwanger international

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Advanced Technology from A-Z:
Environment, Energy, Water, Building.

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