

Generating Energy through Waste Disposal

An ever-growing number of European municipalities integrate management systems for dealing with solid urban waste in order to dispose of residual waste in an efficient manner, whilst minimising the environmental impact. By implementing the innovative VM2000 extruder press by VMpress s.r.l., customers reduce the waste volumes and gain energy in the form of biogas and RDFs.



Dr. Carlo Gonella, General Manager (on the left) and Dr. Fulvio Hero, Export Manager, presented the VM2000 extruder press at the IFAT 2008 in Munich

VMpress s.r.l. is part of the Ovada-based Malaspina Group, which was set up in 1964. The Malaspina Group focuses on two activities: the production of plastic bags from recycled resin and the production of plastic bags from virgin materials. "The basis for the bags made from recycled resin is polyethylene. Targeting customers in Central European countries, these bags are used as refuse bags, or more specifically bags for recyclable materials," explains Dr. Fulvio Hero, Export Man-

ager. "Bags made of virgin materials are utilised for packaging purposes."

Fifteen years ago, the corporation restructured its

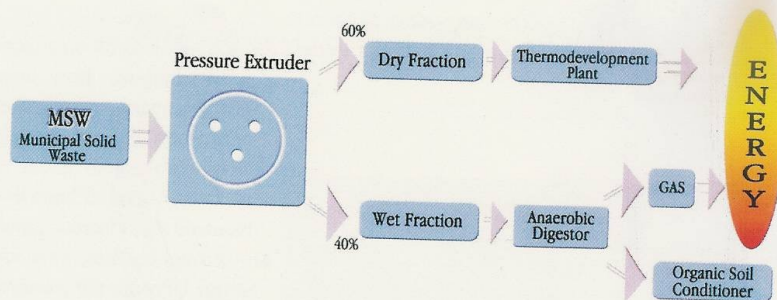
core competence and repositioned itself in the market with new business fields, which were added following the foundation of VMpress s.r.l. Dr. Carlo Gonella, General Manager, is our second interview partner: "Our objective was to open a competence centre specialised in the development of a process for treating municipal waste. Having started this business from scratch, we have acquired considerable expertise since then."

The new area of business was opened up with the objective of using waste for the production of energy, thus enhancing the group's existing recycling

competence. VMpress has designed an innovative process for the separation and treatment of municipal solid waste, the heart of which is the VM2000 extruder compactor. Boasting exceptional pressure and compaction values, high speed cycles, and equipped with replaceable compression matrix impact plates, the VM2000 extruder compactor performs the hyperbaric separation of waste. Based on refuse-disposal technology, VMpress's sys-



tem can be implemented in all common municipal waste management facilities. "The process designed by our in-house experts is a mechanical one," elaborates Dr. Hero. In the first stage of the process, the solid waste is magnetically separated, and is subsequently subject to a high-pressure pressing and ex-



An overview of the waste disposal and energy generation process

trusion process. "After the processed waste has been reduced in size, the biogenic elements are extracted under a pressure of 1000 bar/cm³. Biogenic materials may be utilised either in anaerobic biogas plants or in the form of compost. The output is comprised from a dry fraction and a wet fraction."

The dry fraction is made from materials that have a high mechanical resistance, such as plastic, wood, paper and cardboard, various inert materials, and non-ferrous metals. When

which can be burned either alone or in combination with other materials. "It is ideal for fuelling thermo-development plants such as cement kilns," adds Dr. Gonella. Used as Refuse Derived Fuel (RDF), the dry fraction can also be used with incinerators with energy recovery, gasification and pyrolytic systems, and cement factories.

The wet fraction is a sludge with a water content of some 40 to 50% and an upstream density of some 0.9 t/m³. In clean organic materials, the wet fraction



The Italian city of Alessandria deploys a VMpress system with a capacity of 100,000 tonnes per annum to treat municipal waste and produce RDF and soil conditioners



The state-of-the-art plants can be found in municipalities throughout Europe, including Kaiserslautern in Germany

the process is complete, the dry fraction has an upstream density of some 0.9 - 1 t/m³, a calorific level of some 13.200 k/joule and consists of low quantities of various fibres, plastic materials and inert bodies. These properties make it an ideal fuel material,

makes up 85 to 90% of the total end product. It is utilised in anaerobic digesters for the generation of either biogas or organic soil conditioners. Moreover, being subject to mechanical pressure and an extrusion process, the material forming the wet fraction is

fractionated. This ensures a rapid fermentation process.

Fully biologically inert, both the dry and the wet fractions do not generate any of the negative effects associated with landfills for municipal solid waste, such as pollution, the development of biogas and noxious odours, to name but a few. The company's solutions are utilised for co-digesting processes, wastewater treatment and the production of biogases. Moreover, the systems are very operator-friendly: each plant can be operated by two people, ensuring the utmost in safety and efficiency.

Presently, the enterprise has five plants in operation in Europe. "These plants are fixed installations, with a processing capacity ranging between 15,000 tonnes and 150,000 tonnes per annum," explains Mr. Gonella. Based on a modular system, each module is capable of producing a different output, offering the customer the possibility to define their desired output. Moreover, the plants can be customised to meet the client's individual processing demands.



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