

THE PLANT

The M.S.W. mechanical treatment plant is composed of 4 independent lines each of one includes:

- a preliminary step for primary shredding, primary screening, ferrous and non-ferrous material separation and pressing of oversize materials;
- a step for refining organic fraction by secondary screening, which is biologically processed and the oversize is treated in ballistic and optical separators for plastic recovery.



TREATMENT CAPACITY

Number of lines	4
Max capacity lines 1, 2 e 3	40 ton/hour
Max capacity line "zero"	65 ton/hour
Average capacity of the plant	165 ton/hour
Shi /day	max 3
Daily amount treated	1,980 ton (2 shifts)
Working days/year	350
Annual amount treated	800,000 ton/year

THE COMPANY

OWAC Engineering Company is located in Palermo, Via Resuttana 360, Sicily, Italy; the company has been operating in the "waste to energy" for many years and has a long time experience in the field of management consultings for the development and diversification of industrial assets. In particular the company develops its activities in the designing and building of waste treatment plants and environmental remediation.

The more relevant characteristic of OWAC's activities is the development of an idea, the designing of the system and the management of the construction works all culminating with the start-up of the initiative. Therefore OWAC is the catalyst for all the phases which bring to the nal start-up of industrial plants.

The working team is very flexible, qualified and adaptable, able to develop all the required activities with care, high precision and "tailor made" solutions. Company references and activities, both in progress and already made, are available on our website.



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2018-REV:00

MUNICIPAL SOLID WASTE
MECHANICAL TREATMENT PLANT



INTRODUCTION

A part of our ongoing commitment to the environment protection and the need to improve the increasing demands of innovation, OWAC S.r.l. has built a polifunctional system, located in Codavolpe (Catania, Sicily), for Sicola Trasporti S.r.l., a company which has been engaged in waste disposal for the Municipality of Catania and surrounding cities for many years; the plant is composed of a mechanical treatment system and an aerobic stabilization section sorted for the organic fraction. The system will be soon completed with a gasification section which is in the designing phase. The entire plant represents the completion of an industrial area that has been providing municipal waste treatment for over twenty years, with high quality standards (ISO9001 certi cation) and a particular attention to environmental protection (ISO 14000 certification).



European Waste Codes:
020101, 020102, 020201, 020202, 020204, 020301, 020305, 020403, 020502, 020603, 020702, 020705, 030102, 030103, 030302, 040107, 100101, 100102, 100103 and also categories 19 e 20

THE PROCESS

The process has the purpose of maximizing the recovery of materials from the mass of undifferentiated waste; it takes place through some principal mechanical selections and some supplementary operations for the preparation of the material and the packaging of the output products. No staff is provided for any sorting operations because they are conducted only automatically by machinery. The process consists in the pre-selection of M.S.W. in order to obtain the following different fractions:

- Plastic material for recycling (PE, PET and other potentially recoverable plastics as a function of market demand);
- Iron and aluminum for recycling in foundry;
- Poor quality organic material which is direct biostabilized and then destined to landfills for the daily covering of waste or environmental remediation;
- Material with high calorific value, principally composed by the driest fractions of waste. The bales of this material may be landfilled or recovered as fuel into thermal plants to produce electrical and thermal energy.



SHREDDING

The collected waste is processed into a slow shredder with V cutting table of 4,000 x 2,400 mm, which provides a primary milling of the input materials and makes available a wide range of sizes for subsequent sorting steps.

PRIMARY SCREENING

It takes place within a rotating screen for a first separation; the hole diameter of 200 mm (which can be changed according to the real waste composition) and the length of the machinery of 12,000 mm allow to obtain a separation of greater size and lighter material (not recoverable and immediately pressed) and finer material (mainly organic and plastic) that constitutes the so called underscreen.

METAL SORTING

Ferrous materials are sorted through a "SR-Ferrite" magnet with high magnetic induction; also aluminum materials can be sorted through a permanent rotor with magnetic induction field. The metal fractions are so recovered in foundry plants according to their type.



according to the real waste composition) and it is 10,000 mm length. At the end of the process the underscreen, consisting mainly of organic mixed with finer fractions of non-organic materials (with variable rates depending on the composition of input materials) is addressed to the automatic loading area for the following biostabilization process. The oversize is instead directed to further separation.

BALLISTIC SEPARATION

The ballistic separator is aimed at the separation of material according to geometric shape and density; it is made with perforated plates with adjustable inclination, with alternating movement which allows to divide the input material as a function of its morphological and dimensional characteristics:

- heavy rolling fractions (bottles and other plastic and non-plastic fractions, addressed to the following optical separation);
- fine material (impurities, non-plastic materials etc., addressed to biostabilization process together with other underscreen);
- light and flat fractions (plastic films, textiles etc., directed to the press).

OPTICAL SEPARATION

It consists of a series of infrared separation sections. This machinery sorts the materials which can be recovered from the other conveyed materials through an air jet system. After, the residual is pressed in bales.

RECOVERABLE MATERIAL PRESSING

Afterwards the optical separation, all recoverable plastic materials are pressed with a machine intended to this.

RESIDUAL PRESSING

The principal press is horizontal type and has the function of compacting all the residual materials coming from all processing steps; with a power of 226 ton the machine makes bales of about 1.5 m³ each one.

EXHAUSTED AIR TREATMENT

The building is divided into two areas, one for the input waste storage and one for the treatment; it is constantly kept under light depression in order to ensure the health of the workplace. The air treatment system consists of n. 4 wet scrubbers and n. 3 biofilter sections, aimed at returning the air into the atmosphere within the law limits.

