

SMART RECOVERY OF MATERIALS AND UPGRADE OF ORGANIC COMPOST & RDF IN EXISTING MECHANICAL BIOLOGICAL TREATMENT PLANTS BY USING NIR TECHNOLOGY

Dimitrios-Sotirios Kourkoumpas¹, Georgios Kontopoulos², Ioannis Vournas², Dimitrios Koulocheris³, Panagiotis Grammelis¹, Emmanouel Kakaras¹

¹*Centre for Research & Technology Hellas /Chemical Process and Energy Resources Institute, 52, Egialias str., Maroussi, 15125, Athens, Greece. kourkoumpas@certh.gr, grammelis@certh.gr, kakaras@certh.gr*

²*HELECTOR S.A., 25, Ermou str., N. Kifissia, GR-14564, Attica, Greece, g.kontopoulos@helector.gr*

³*National Technical University of Athens, 9, Heroon Polytechniou 15780, Athens, Greece, dbkoulva@mail.ntua.gr*

Abstract

The scope of the project is to design, develop and integrate a Smart System for Recovery of materials and upgrade of the organic Compost & RDF quality in existing Mechanical Biological Treatment Plants by using NIR technology, state of the art technology systems for automation and measurement and algorithms for waste process and recycling optimization. The main goals for the SmartWasteTech project are:

- the development and integration of an online monitoring software for the MBT plant operation based on the continuous information obtained from the modern online sensor technology
- to increase the valuable plastic fraction (PET, PE/PP, LDPE film) sorted out from MSW, towards increasing recycling efficiency and overall environmental performance of the plant
- the process optimization based on the Greek MSW quality.
- to increase the compost quality through application of innovative technology for sorting out inert materials (glass, inert materials) and other unwanted materials such as heavy metals and the production of a high purity compost
- to perform continuous quality monitoring of the produced Refused Derived Fuel to investigate the economic, feasibility and environmental benefits of the proposed technology
- to disseminate the project results to all relevant stakeholders including among others manufacturers and operators of waste treatment facilities, local authorities, engineering and planning companies in the waste treatment sector, end users of recycled plastics and compost

The concept under development was implemented in the Athens Mechanical and Biological Waste Treatment plant located in the main Athens land fill site of AnoLiosia and operated by Helector S.A and to the MBT plant in Larnaca, Cyprus which was designed, constructed and operated by Helector S.A. since 2010. The daily input stream of the Athens MBT plant is about 1200 tn of mixed MSW. The production of RDF and compost rise to 450t/day and 180t/d respectively. The recyclable fraction of the input mixed MSW is about 1.5% PET, 1.5% PE/PP, 8% recyclable paper, 9% glass and 5% metals. The proposed work intends to provide a complete solution for the quality improvement of MBT plant's output streams and the increase of its recycling efficiency by the application of modern, innovative sensor and separation technology.

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