



PROGETTO NEW LAW

CONTENTO TRADE SRL

Technological innovation for the environment

Running

This process aims to the treatment and utilization of industrial waste and to the production of expanded and sintered ceramic aggregates and electric energy.



BRIEF DESCRIPTION

Partners:

Vomm srl, Milano, Italia
Contento Trade srl, Italia
Politecnico di Torino, Ditag, Italia

OBJECTIVES

This project's main goals are:

- ✓ To develop the firing system new design that fully uses Vomm turbo technology's potential to guarantee the lightweight aggregates and energy production from the special waste mixes;
- ✓ To produce a complete prototype that is able to produce 100kg/h of the expanded granulates furnished with the heat exchanger to simulate in an optimal manner the aeriform emissions flash cooling process and the oven heat energy recovery and reuse processes;
- ✓ Test various waste typologies with the process while combining silicate and heavy metals containing wastes with the high organic matter content;
- ✓ Test biomass employment in the fossil fuels substitution that was only used in rotating ovens, while monitoring closely the aeriform emissions and in the end to evaluate this new process potential combined with the organic pollutants incineration that are generated in the granules firing and calcinations;
- ✓ Study the metals inerting by the means of ceramization process and evaluating the risks of prolonged exposure to the exacting functional terms;
- ✓ Study in depth the fumes cutting down process to be combined with the granulates oven to the organic matter molecules complete destruction and the polluting fractions present in the emissions recovery without significant price augmentation.
- ✓ With the software assistance calculate the dedicated and quantitative models of the recoverable electric energy from the exchangers systems with the CHP plants of the standard and advanced types.
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- ✓ Perform an evaluation of the new aggregates potential life cycle (LCA) comparing it with those of the traditional light aggregates and with the quarry aggregates to evaluate prices and environmental benefits;
- ✓ Optimise the working process of at least tree wastes mixtures and to perform various aggregates homogeneous masses production with its detailed evaluation;
- ✓ Confirm technical properties of the produces aggregates by testing and functional monitoring. The new developed technology in this project will allow to:
 - Obtain the secure, cost-effective and reliable inerting system for the industrial and public wastes (hazardous even) that is financially competitive;
 - Obtain the secure and reliable system for the organic wastes incineration;
 - Obtain good quality low cost light aggregates that could be quite attractive for the market;
 - Recover significant amounts of energy as directly, thanks to cogeneration (CHP) of the electric energy, as indirectly, thanks to energy saving as a result of light aggregates used for thermo insulation;
 - Obtain the recycling process and the plant typology of the very flexible and versatile elementary treatment that is capable to guarantee fast investments reenter times and secure high profitability level and environmental guaranties to the operators.