

Companies connection to energy efficiency

The enterprise has been granted the following certifications:

- Quality Management System certificate ELOT EN (ISO 9001:2008)
- Food Safety Management System certificate ELOT EN (ISO 22000:2005)
- Food safety & Quality Management System certificate IFS (Food Version 6, April 2014)
- Environmental Management System certificate ELOT EN (ISO 14001:2004)

Steam system

The main activity of the enterprise is the production of different types of vegetable oil, the bottling and packaging of olive oil and the production of vegetable fats.

The plant mainly processes various brute vegetable oils in order to produce edible oils and vegetable fats. It also receives bulk olive oil and packages it either in bottles or special canisters. Brute vegetable oil has to go through a refinery process before reaching edible condition. This process involves deodorization and decolourization. Both require steam for heating but also for generation of vacuum. Refining process is the major steam consumer of MINERVA plant and typically takes places two weeks per month, working 3 shifts per day. The rest of the month steam generation is very low.

Steam boiler information

Size: Main steam boiler: 9.270 kW, Auxiliary steam boiler: 4.635 kW, GEKA 1 steam generator: 1.297 kW, GEKA 2 steam generator: 854 kW, Packaging steam boiler: 1.537 kW

Nominal steam capacity: Main steam boiler: 12.000 kg/h @ 10bar, Auxiliary steam boiler: 6.000 kg/h @ 10bar, GEKA 1 steam generator: 1.670 kg/h @ 45bar, GEKA 2 steam generator: 1.110 kg/h @ 45bar, Packaging steam generator: 2.000 kg/h @ 7bar

Boiler's operation: Main steam boiler: 2.040 hours/year, Auxiliary steam boiler: 1.920 hours/year, GEKA 1 steam generator: 2.040 hours/year, GEKA 2 steam generator: 1.920 hours/year

Kind of fuel: Natural Gas

Steam system problems identified

No steam systems problems are identified:

- The steam boilers, generators, piping and condensate tanks are all adequately insulated, including the fittings, junctions etc.
- The steam traps that were sample checked seem to be working efficiently.
- The boiler efficiency is satisfactory.
- The quantity of O₂ and CO₂ lies in permissible operating limits and indicates normal combustion conditions.

Proposed energy saving measure(s), investments, and expected results (in figures)

- Install a solar thermal heating system: Energy savings: 106.000 kWh/year=> Simple payback ≈ 6 years, Cost: 40.000€, Annual fuel savings: 6.831 €
- Install an energy management system: Improvement of operability for the whole steam production section



Greece

Olive oil and food market

Different types of vegetable oil, bottling and packaging of olive oil

Total (estimated) Investment

~€ 40.000

Total (Estimated) Savings

0,106 GWh/yr

Non Energy Benefits

Reduction of CO₂ emissions

Reduction of maintenance needs.

Prediction and repair of malfunction of the system

Implemented proposed energy saving measure(s), investments and results achieved (in figures)

The proposed measures are not yet implemented.

Achieved and/or expected Non Energy Benefits (NEBs) as result of implemented and/or proposed measures and investments involved

Expected NEBS as a result of proposed measures:

- ✓ Reduction of CO₂ emissions
- ✓ Reduction of maintenance needs.
- ✓ Prediction and repair of malfunction of the system