

New nitric acid production unit

The task was to replace the nitric acid unit, built in the 1970s, by a new, larger facility, more energy-efficient and environmentally cleaner. The main motivation behind the project was the need to expand the nitric acid manufacturing capacity, in order to match the increase in the production volumes expected in the Estarreja chemical complex. A decrease in the steam production costs was the key factor for the choice of the technology to be adopted.

The planning, execution, testing and operation optimization phases took about four years. The new facility allows for a 35 percent reduction in the consumption of natural gas, as well as a significant decrease in greenhouse gas emissions.

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The utilization of the new nitric acid manufacturing unit for steam production, through greater use of the heat generated by ammonia oxidation reaction, allows the replacement of natural gas fired boilers. The system enables about 20% of the steam consumption in the plant to be produced without resorting to burning natural gas.

One of the lessons learned by CUF was that the decisions about changes in production technologies must always take into account the improvements in energy efficiency, be they directly achieved by the decrease in energy consumption, or through the potential impact on the efforts to reduce the facility consumptions as a whole.

The new nitric acid facility had a very positive impact, due to the fact that it superseded a production unit at the end of the life cycle, and technologically outdated. The new facility helps to reduce production costs, making the company more efficient, competitive and sustainable. The employees can now count on improved operation and maintenance conditions. The facility is expected to have a long lifespan; similar investments are not foreseen in the short term.