RECP Best Practice Catalogue

Improved combustion efficiency of the steam boiler Developed within the framework of MED TEST II







SECTOR:	Food & Beverage
SUBSECTOR:	Manufacture of dairy products
PRODUCTS	Pasteurised milk; Fermented milk; Custard; Fresh cream; Milk curd; Milk yoghurt; Butter
CATEGORY	Process control or modification
APPLICABILITY	Utilities









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Description of the Problem (Base scenario):	The boiler currently consumes on average 1,335,880 m ³ /year of natural gas. The flue gas analysis showed that the combustion efficiency of the burner is 81% while the it must be at least 90%. This low efficiency leads to an increased energy consumption of about 9%.
Description of the Solution	 The solution is to improve the combustion efficiency of the burner from 81% to 90% by these: First option: The acquisition of a portable combustion gas analyser; Periodically adjusting the burner to optimise the ratio of air/natural gas on the boiler, according to the value of the T° and the % O₂ of the combustion fumes, based on the results carried out with the aid of the combustion gas analyser; Training two operators in the use of the analyser and the burner settings. Second option: Perform analyses and adjustments, once a quarter, by a specialised external laboratory.







Economic Benefits	Improving the burner combustion efficiency by 9% results in a natural gas savings of 120,229 m ³ /year, or an annual energy gain of 1,255 MWh. Financial Gains: for the natural gas supply rate for this unit of 0.017 €/m ³ we will have a gross financial savings of 2,100 €/year
Environmental Benefits	Energy gain of 1,255 MWh/year For an emission factor of 0.00021 tons of CO_2/KWh for natural gas, there will be a reduction of GHG emissions of 264 tons of $CO_2e/year$
Health and safety impact	Not relevant







Capital investments & financial indicators	First option:Cost: 7,500 € (analyser + operator training)Return on investment: 3.5 yearsSecond option:No investment but service costs of $1,200 €/year$.The company will realise an annual financial savings of:2,100 €- 1,200 €= 900 €
Suppliers	Imported
Other aspects	No technical barriers, no negative impact on product quality
Implementation	







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