

RECP Best Practice Catalogue

*Recovery of latent heat from the steam of
the cooker*

Developed within the framework of MED TEST II



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



The SwitchMed Programme is
funded by the European Union

Best Practice - Recovery of latent heat from the steam of the cooker

SECTOR:	Food & Beverage
SUBSECTOR:	Bakery and farinaceous products
PRODUCTS	Semolina, Flour, Couscous, Pasta
CATEGORY	Process control or modification
APPLICABILITY	Process
COMPANY SIZE	400 employees



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Description of the problem (Base scenario):

The cooking steam is in an open system. It is produced from osmosis water using the steam boiler. It is then used for cooking couscous and then discharged to the atmosphere. This practice causes a loss of water and energy.

Description of the Solution

The idea is to recover the latent heat of the water vapour by means of a condensation exchanger while heating the process water. This requires the installation of a heat exchanger, pumps and accessories (pipes, valves, flanges).

This allows us to get clean water that can be used in the process. However, the quality of the condensed water must be ascertained to define its use or appropriate treatment before reuse.



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Economic Benefits

In one year, for an operation of 7,500 hours and a heat recovery of 80% efficiency, the amount of recoverable energy is 1,997 MWh/year means a financial savings of 4,590 €/year
Recoverable water is about 3,180 m³/year, which is a financial savings of 3,180 m³/year x 0.2 €/m³ = 645 €/year.
The overall savings is 5,235 €/year

Environmental Benefits

Electrical energy savings of 1,997 MWh/year
For an emission factor of 0.00021 tons of CO₂/KWh for natural gas, there will be GHG emissions of 419 tons of CO₂e/year
Water savings of 3,180 m³/year

Health and safety impact

Not relevant



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Capital investments & financial indicators	Cost: 21,000 € Return on investment: 4.0 years
Suppliers	Local providers
Other aspects	The quality of the steam condensates are to be verified by analysis in order to define use
Implementation	



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