

# RECP Best Practice Catalogue

*Renovation of the de-aerator for the boiler  
water supply*

*Developed within the framework of MED TEST II*



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



The SwitchMed Programme is  
funded by the European Union

# Best Practice - Renovation of the de-aerator for the boiler water supply

SECTOR:	Food & Beverage
SUBSECTOR:	Manufacture of beverages
PRODUCTS	Carbonated and still mineral waters in 25 cl and 100 cl glass packaging, and in PET bottles, 50 cl, 100 cl, 200 cl and 500 cl. Flavoured mineral water and soda in 25 cl glass and 100 cl PET packaging.
CATEGORY	Process control or modification
APPLICABILITY	Utilities
COMPANY SIZE	400 employees



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## Description of the Problem (Base Scenario):

De-aeration is the operation of removing all air and all incondensable gases from the water at a temperature generally between 105 °C and 140 °C. The presence of air or other incondensable gases has the effect of limiting the exchange coefficients by forming an air film that prevents heat transfer, and to reduce the condensation temperature.

The de-aerator of the current unit is obsolete and not performing, which does not ensure good de-aeration efficiency and consequently leads to an overconsumption of thermal energy.

## Description of the Solution

The improvement measure consists of renovating or changing out the de-aerator for one with a better energy savings.

The renovation consists of: installation of a 2,000 litre steel supply reservoir with centrifugal pump, PE pipes with an average length of 10 meters and with valves and accessories.



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## Economic Benefits

Preheating supply water up to 85 °C saves natural gas consumption by 22,772 m<sup>3</sup>/year, which is a 4% reduction in natural gas consumption. For an average gas price of 0.0232 €/m<sup>3</sup>, the financial gain will be on the order of 530 €/year.

Financial savings related to the reduction of corrosion: not determined

## Environmental Benefits

The energy gain will be on the order of: 238 MWh/year.  
For an emission factor of 0.00021 tons of CO<sub>2</sub>/KWh for natural gas, the reduction of GHG emissions is 50 tons CO<sub>2</sub>e/year

Not relevant

## Health and safety impact



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<b>Capital investments &amp; financial indicators</b>	Cost: 1,500 € Return on investment: 2.8 years
<b>Suppliers</b>	Local providers
<b>Other aspects</b>	No technical barriers, no negative impact on product quality Better de-aeration reduces corrosion of the boiler and return pipelines by removing dissolved CO <sub>2</sub> and O <sub>2</sub> .
<b>Implementation</b>	



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