

As part of the SwitchMed programme, UNIDO supports industries in the Southern Mediterranean through the transfer of environmental sound technologies (MED TEST II) to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

Algeria

Laiterie Arib

Food and beverages sector

Context

Number of employees: 301

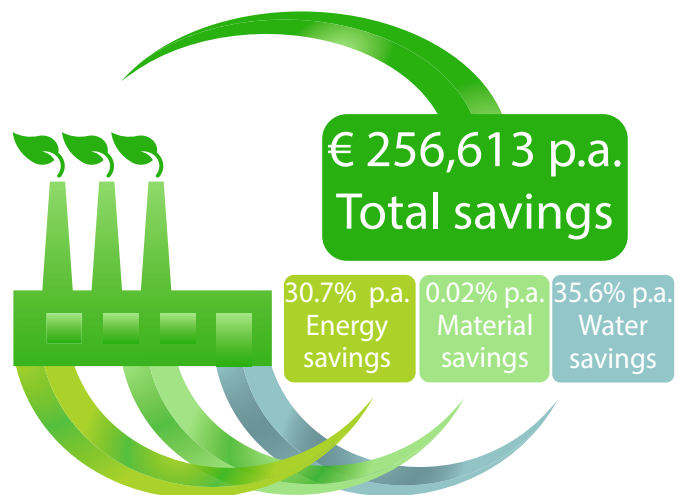
Key products: Yogurt and creamy dessert, Petit Swiss, Butter, Ben and Raib, crème fraîche

Main markets: Local

Management standards: In the process of setting up a food safety system in accordance with standard ISO 22000.

Laiterie Arib is very concerned about the improvement and development of the dairy industry in Algeria. It is committed to the mechanism initiated by the Ministry of Agriculture and Rural Development to support milk production, collection and integration. The protection and management of resources for a sustainable economy is enshrined in its environmental policy.

Benefits



Graphic: UNIDO

The implementation of the TEST approach within Laiterie Arib has identified annual savings worth 256,613 euros for a total investment of € 272,450. The return time on investment on the identified savings average one year.

The implementation rate of the 17 identified measures is currently 89 %, based on a 61 % retention rate. The resource savings is 0.02 % in raw material consumption of milk powder, 0.43 % on packaging, 35.6 % on water, and 30.7% on the annual energy consumption.

Saving opportunities¹

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
Optimization of operating parameters of LPC welding machine and training of staff	-	7,919	Immediate	38,287 m ³ water 5.3 t raw materials	-	Total: 1,504 t CO ₂ 166,742 m ³ waste water
Optimization of operating parameters on the ERKA machine	-	20,571	Immediate	0.2 t raw materials	-	
Water efficient operations	137,857	89,998	1.5	78.000 m ³ water	-	
Energy efficiency	67,573	25,987	2.6	-	2,224	
Installation of new plate heat exchangers	67,020	112,137	0.6	49,655 m ³ water	3,257	
TOTAL	€ 272, 450	€ 256, 612	1.1	5.5 t raw materials 166,742 m³ water	5,481 MWh	

¹ Numbers based on production value from 2015

Optimization of operating parameters of LPC welding machine and training of staff

With this measure the operating parameters such as temperature and speed of the 1 litre milk pouch packaging welding machine are optimized. Also, training all personnel working on this machine for its use will increase efficiency in the handling. These measures will save 3.3 t in polyethylene packaging, 1.8 t in milk powder, and 38,287 m³ of water annually.

Optimization of operating parameters on the ERKA machine.

This measure makes it possible to reduce downtime and breakdowns of the production machine for pots of cream and yogurt by optimizing the operating parameters such as the forming punch and packaging passage speed. The economic gain of this action is 20, 571 euros annually, reducing polystyrene packaging 0.21 t annually.

Water efficient operations

The implementation of water meters at the process plant and the automation of CIP pasteurizers, enables the optimization of water consumption, production and reduction of wastes between 5-10% of SNP. This will yield into an average saving of 28,350 m³ of liquid waste annually. In addition, the recovery of white water (after the cleaning phases in place or change of product) for reuse in the next batch, will allow a waste water saving of nearly 451 m³ annually, and a significant saving of

50,000 m³ water annually as a result of recirculation of cooling water products by 100% instead of the current 80% rate.

Energy efficiency

The main measures identified as a result of energy efficiency are:

- Installation of compensation batteries;
- Elimination of leaks in the air circuits;
- Improvement of the combustion efficiency of steam boilers and the steam distribution network and implementation of a heat saver.

The total energy savings from these measures are 2,224 MWh equivalent to an annual CO₂ reduction of 482.9 t.

Installation of new plate heat exchangers

The installation of new plate heat exchangers for heating and skimming of milk, pasteurization of milk and yogurt generates total energy savings of 3,257 MWh, water saving of 49,655 m³ and CO₂ reduction of 991 t annually.

“The TEST approach has resulted in significant water and energy savings. We want to adopt the method for our ongoing management and integrate it into the development of our environmental management system”

Achour Bahet
General Manager

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