

MED TEST III Lebanon

Transfer of Environmentally Sound Technologies

Food and beverage sector
Msallem Food Tech

Company overview

Number of employees: 106 Full-time employees

Key products: Pickles, potato fresh cuts, and olive oil.

Main markets: Local market (35%), International (65%)

Standards & certifications before MED TEST III:
ISO 22000 and HACCP

Msallem Food Tech is a family-owned business established in 2012. The company comprises one factory producing mainly pickles (cucumber, cornichons, okra, olives) and fresh potato cuts in addition to spices paste and rose water, and another factory producing fine quality olive oil. The first factory participated in the MED TEST III's resource efficiency assessment.

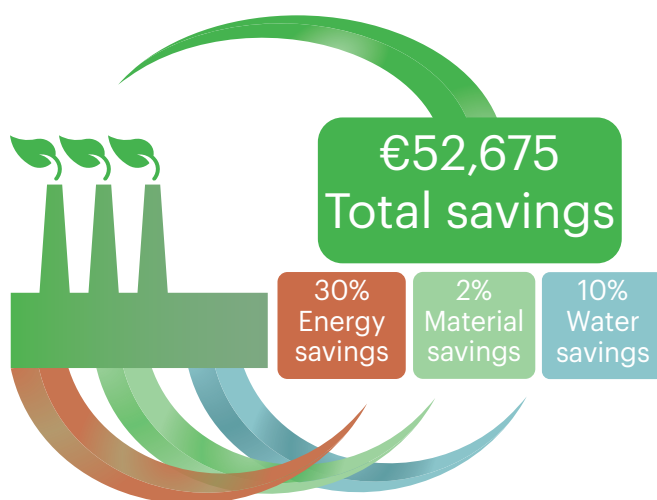
Msallem Food Tech is keen to provide its customers with the best quality products and to continuously improve its production technologies. It is an export-oriented company that looks at worldwide expansion while maintaining its local roots.

Benefits

The MED TEST III project in the Msallem Food Tech factory identified, total annual savings of €52,675* related to energy, water and materials with an estimated investment of €74,792. The average payback period is 1.4 years. Six measures were identified, out of which five were approved by the top management and two are already implemented..

The identified measures have the potential to reduce the factory's annual conventional electricity consumption by 16% and annual thermal energy consumption by 29%, for a combined rate of 30% of total energy consumption reduction. In addition, annual water consumption can be reduced by 10%, and 26% reduction of brine use that represent 2% of total raw material inputs. The energy savings represent Green House Gas emissions reduction by 161 tons of CO₂-eq per year.

Identified annual savings



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Our company is facing major challenges related to market upheaval, thus the urgent need to cut operational costs. This was the major reason for joining the MED TEST III project. However, we have realized that environmental impact reduction can be reported in our journey for an increased production efficiency.

Mr. Wissam Msallem

Owner and General Manager, Msallem Food Tech

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As part of the EU-funded SwitchMed programme, UNIDO demonstrates in the MED TEST III project pathways for industries in the Southern Mediterranean to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

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Saving opportunities**

Actions	Economic key figures			Resource savings & Environmental impacts		
	Investment Euro*	Savings Euro* per year	Payback period years	Water & Materials per year	Energy MWh per year	Environmental impact per year
Improve combustion efficiency for generators	4,664	6,715	0.7	-	41	Total: 161 tons CO ₂ -eq
Thermal insulation of the steam network	6,135	5,506	1.1	-	55	
In-process recycling of brine solution for pickling process	10,821	9,639	1.1	779 m ³ water 73 tons	-	
Upgrade the existing PV system	32,183	19,430	1.7	-	46	
Improve biomass boiler combustion	20,522	11,204	1.8	-	21	
Re-use of rinsing water	466	180	2.6	322 m ³ water	-	
TOTAL	74,792	52,675	1.4	1,101 m³ water 73 tons	163	

* Using average exchange rate October 2022-October 2023 1 USD=1.072 Euro
**Numbers based on the production value: 2021 – 2022

Improve combustion efficiency for generators

This measure includes improving the combustion efficiency of the on-site generators by properly tuning the engine in order to reduce excess air. This measure will reduce fuel consumption significantly enabling the company to achieve savings of €6,715 at a cost €4,664, resulting in a payback period of eight months.

Thermal insulation of the steam network

Undetected energy losses were identified during the energy assessment. The steam and biomass boilers, support, accessory piping, steam pipes, valves and condensate tanks all require insulation. This measure will enable the company to save €5,506 at an investment cost of €6,135, resulting in a payback period of 13 months.

In-process recycling of brine solution for pickling process

This intervention consists of recovering and reconstituting the brine solution used in the pickling process over one additional cycle. The recovered brine solution, mainly constituted of salt, acids and other materials in lower percentages, must be pasteurized and can be stored in regular covered barrels until next fermentation cycle. This intervention will save 73 tons of materials per year and 779 m³ of water per year, corresponding to a reduction of 26% in brine solution use per year, representing 2% of total material input.

Upgrade the existing Photo Voltaic (PV) system

The proposed measure consists of expanding the PV system from 87 kWp to 120 kWp and providing a new solar controller with fuel saver capability, in addition to 102 kWh battery storage. The new PV system will improve the rate of use of photovoltaic electricity by 26% to reach around 52% of the total electricity demand. This will enable the company to save €19,430 per year at an investment cost of €32,183 and a payback period of 20 months.

Improve biomass boiler combustion

This measure combines several optimization interventions for the existing biomass boiler that should be implemented as one package to maximize the potential benefits. The main suggested measure consists of converting the pomace into pellets with a moisture content not exceeding 12%. This will reduce the specific consumption of pomace and will also displace 80% of diesel consumption to supply the thermal applications. The proposed measure will enable the company to save €11,204 per year at an investment cost of €20,522, resulting in a payback period of 22 months.

Re-use of rinsing water

Currently, the water used for rinsing pickles is discharged into the drain while it can be partially recycled and used for rinsing of new pickles batches. It is therefore suggested to recycle and reuse 10% of fresh water used for rinsing the pickles. A simple water recycling system allowing the re-injection of rinsing water into the fresh water supply pipe (continuous and closed circuit) would be needed.

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Our experience with the MED TEST III project has been very positive thanks to the thorough evaluation of our resource efficiency opportunities provided by the project team. We intend to implement the recommended measures, not only for energy saving purposes, but also for cutting costs in terms of brine and water use and improve our overall resource usage.

Mr. Wissam Msallem

Owner and General Manager, Msallem Food Tech

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For more information contact:



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