

MED TEST III Jordan

Transfer of Environmentally Sound Technologies

Chemical sector

Layan for Chemicals Est.

Company overview

Number of employees:
300 Full-time employees

Key products:
Detergents, hand wash (liquid and foam), baby shampoo, shower & bath gel, fabric softener, air freshener, disinfectant & antiseptic, dishwashing, furniture polish, surface cleaners.

Main markets:
Local (40%), Regional and International (50% and 10% respectively)

Standards & certifications before MED TEST III:
ISO 9001

Layan for Chemicals Est. was founded in 2003 is active in producing cleaning and cosmetic products. Since its establishment, the company has aimed to supply its customers with reasonably priced quality products and has approached new markets in United Arab Emirates, Saudi Arabia, Bahrain, Iraq, Kuwait, Libya, Palestine, Yemen, Algeria, Egypt and Oman along with other international markets. Today, 60% of the company's products are for the regional and international markets. The company has maintained its ISO 9001, 14020-25 and ISO14001 management standards.

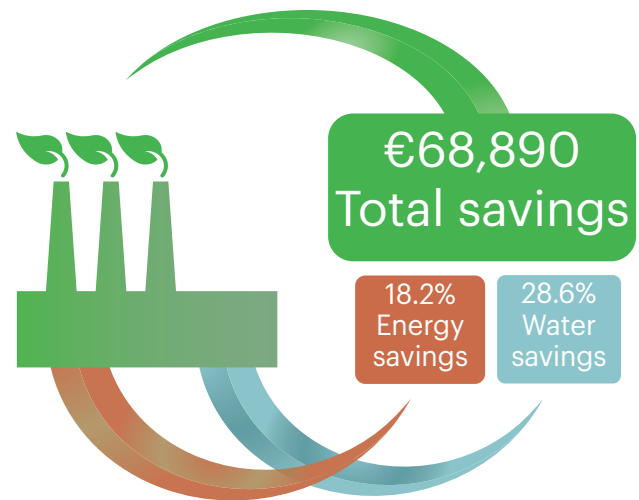
Benefits

The MED TEST III project identified total annual savings of 68,890 EURO (51,670 JOD), mainly in energy, water and packaging materials, with an estimated investment of 89,800 EURO (67,350 JOD) out of which 52,730 EURO (39,550 JOD) are the costs for revamping the heating system. The average pay back period is 1.3 years. The top management rejected none of the identified 20 measures. The identified water savings measures led to 28.6% reduction of water use, in particular the optimization of Reverse Osmosis (RO) system resulted in 19% of RO reject water saved. The company plans to continue with the identification of more resource efficiency measures.

The energy consumption will be reduced by 18.2% by implementing the identified options. Additionally, CO₂ emissions are expected to reduce with 45.5 CO₂/year from the implementation of the identified options.

In addition to the resource saving options, the company received specific recommendations from international sectoral experts on how to improve the procedures for product formulation and Occupational Health and Safety conditions.

Identified annual savings



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The company's vision and objectives have always been to reduce energy inefficiencies to reduce production costs and environmental pollution by directing and instructing its staff in some matters to reduce inefficiencies. Accordingly, we participated in MED TEST III to obtain better results and benefit from experiences.

Eng. Mohammad Khalil
Plant Manager

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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
Water conservation	5,866	25,997	0.2	11,952 m ³ water	-	Total 45.5 tons CO ₂
Savings of packaging materials	15,867	31,317	0.5	6.4 tons (Shrink)	-	
Energy conservation and monitoring	19,400	6,227	3.1	-	30.9	
Installing solar thermal system for water heating	48,667	5,347	9.1	-	63.3	
TOTAL	89,800	68,888	1.3	11,952 m³ 6.4 tons	94.2	

*Exchange rate 0.75 Jordanian Dinar (JOD) = 1 Euro ** Numbers based on production values from 2020 for water and 2019 for energy

Water conservation

Water use could be optimized and significantly reduced through a set of process control and good housekeeping measures, such as; optimization of the RO operation based on water quality needed and GMP; use of mechanical washing techniques like washing balls to clean mixing tanks; reuse of water from utilities as softener for washing and toilet flushing; use water saving devices at taps and monitor the water consumption per each area by installing water flow meters.

Savings of packaging materials

The consumption of packaging materials and labor cost could be reduced by applying the following measures:

- Reduce thickness of shrink from around 24mm to 17mm to reduce waste (thickness optimization).
- Organize storage space for the packaging storage area to save time and limit the number of damaged packaging material.
- Use of reusable pallet wrap to reduce waste of shrink.
- Training of workers at the packaging machines, measuring and controlling the quantity of rejects, modifying the production lines to increase efficiency and studying the root causes of non-conformity per shift related to labelling operations, machine design, human factor, raw materials supply and quality control.

Energy conservation and monitoring

Layan Company has two types of energy supply (electricity and thermal), several energy conservation options were recommended as follows:

- Steam Tunnel improvement; an electric steam generator is used to provide the bottles sleeve tunnel with the needed live steam for shrinking purposes. The following measures are recommended to reduce the energy consumption in this system:
 - a. Using fan instead of compressed air for removing moisture from the bottles that is generated in the steam tunnel.
 - b. Capture and re-use the escaped steam from the tunnel.
 - c. Work at full production capacity.

- Reduce Compressed Air Demand by:
 - a. Using fan instead of compressed air for removing moisture from the bottles that is generated in the steam tunnel.
 - b. Arresting 90% of compressed air leakages.
- Improving the existing heating system by:
 - a. Improving the efficiency of the hot water boiler (burner tuning-up, boiler cleaning and boiler insulating).
 - b. Well insulating and stop heat losses from the raw materials heating room.
 - c. Adding thermal insulation to the hot mixers.
- Installing power monitoring system; this measure enables the factory's staff to monitor the power consumptions on the main panels during the working days and weekends in order to check that there is no any continuous or un-controlled power consumption during OFF times, or weekends.

Installing solar thermal system for water heating

After implementation of the energy conservation measures, renewable energy system can be installed to reduce dependency from fossil fuels and associated costs. By installing a solar thermal system on the building roof's available areas, the factory can cover 77% of its the daily hot water demand.

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The MED TEST III is a positive project and uses a methodology that has raised our attention to some issues and details, and accordingly some tangible changes have been noticed.

Eng. Mohammad Khalil
Plant Manager

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