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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

MED TEST III Palestine

Transfer of Environmentally Sound Technologies

Plastic sector

Al-Wafa Plastic Industries (WPI)

Company overview

Number of employees:
211 Full-time employees

Key products:
Polyethylene Gallons, Polyethylene Caps + Handels, Polyethylene Jerry Cans, Polypropylene IML Containers, Polypropylene IML Lids, Polyethylene-terephthalate Gallons, Polyethylene-terephthalate Bottles, Polyethylene-terephthalate Jars, Polyethylene-terephthalate Preforms

Main markets:
Local and international (20%)

Standards & certifications before MED TEST III:
ISO 9001 and ISO 22000.

Al-Wafa Plastic Industries (WPI) is the leading plastic packaging manufacturer in Palestine, specializing in supplying primary packaging material for various products for the food and cosmetics industries. The company is currently dealing with different plastic raw materials, including Polyethylene (PE), Polyethylene Terephthalate (PET), and Polypropylene (PP). WPI's products are produced in compliance with international standards.

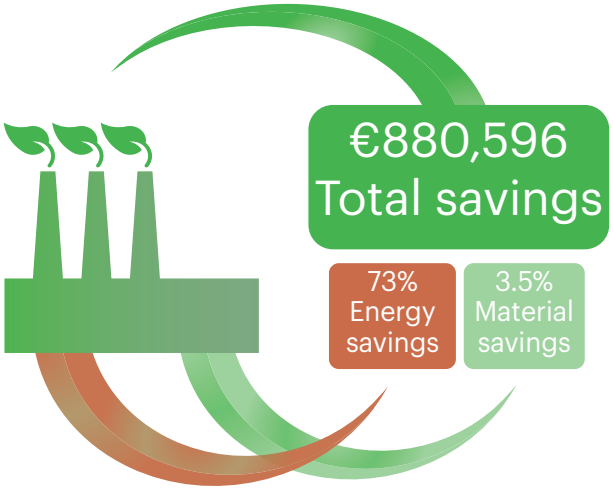
Benefits

The MED TEST III project identified total annual savings of 880,596 Euro* (3,249,398 NIS) in energy, raw and auxiliary materials, and labels with an estimated investment of 2,366,529 Euro* (8,732,400 NIS). The average payback p eriod is 2.7 years, 81% of the identified 16 measures were accepted by the top management for implementation and 50% of them are already implemented or under implementation.

Materials' consumption will be reduced by 3.5% and energy consumption by approximately 73% from implementing all the feasible measures. Additionally, there can be expected CO_2 reduction of 4,240 tons CO_2/year and a solid waste reduction of 83 tons/year from the implementation of identified measures.

Through the project cycle, basic elements of an information system for resource efficiency were designed and implemented. These elements allow to manage and control the most significant inefficiencies related to resource productivity and they are essential for continuously improving company operations using performance indicators introduced within the project. As a result, the company achieved, some months after introducing the TEST methodology, an ISO 14001 certification.

Identified annual savings



"Initially, we were hesitant to join, but after completing MED TEST III, we now see the benefits of using a scientific methodology that can help us identify losses and achieve savings. I advise all Palestinian industrial companies to cooperate with your project to achieve the benefit and encourage any company to engage in this important activity."

Mr. Tariq Abu Alfelat
Position: Public Relations 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
Savings in materials and reducing solid waste	13,414	10,813	1.2	21 tons	-	83 tons solid waste 4,240 tons CO_2
Reduce solid waste from labels	222,764	65,072	3.4	62 tons	-	
LPG conservation	2,710	14,850	0.2	-	141.5	
Electricity conservation	230,623	155,562	1.5	-	1,007	
Installing a photo-voltaic renewable energy system	1,897,018	634,299	3	-	4,106	
TOTAL	**2,366,529**	**880,596**	**2.7**	**83 tons**	**5,255**	

*Exchange rate 3.69 NIS = 1 Euro
** Numbers based on production value from 2020

Savings in materials and reducing solid waste

Material losses could be minimized by several low-cost measures, such as obtaining a PET resin moisture analyzer, which can control raw material quality and works at de-dusting the re-grinded material to reuse it in the production of non-food containers. In addition, replacing the individual manual feeding system of raw material for each production line with an automatic PET resin feeding system will decrease losses caused by the current operation of the manual method.

Reduce solid waste from labels

Labels generate a considerable amount of solid waste, which will be minimized by several low-cost measures such as storing the labels in appropriate conditions by building a labels storage room and reallocating shrink sleeves labelling machine, which affects optimal parameters of the production atmosphere.

LPG conservation

WPI uses Liquid Pressed Gas (LPG) for thermal energy supply; several LPG saving measures were recommended for the steam system as follows:

- Steam boiler relocation to be close to the sleeve shrinking machine to eliminate heat loss from the current steam network.
- Steam pipes insulation to eliminate thermal energy losses.
- Condensate pipes and feed tank insulation to utilize the heat loss from the condensate water.

Electricity conservation

Electricity is the primary energy source for the WPI production line, and several electricity-saving measures were recommended:

- Compressed Air System: optimize the control for the group of air compressors to match the compressed air supply with the demand to improve the performance of the system, minimize compressed air leakages, and install new air receivers to optimize the size of air receiver tanks of the air boosters to reduce the number of starts and optimize the pressure setting.
- Cooling System: improving the performance of the old chiller by good housekeeping, including optimization of setting, thermal insulation for non-insulated chilled water pipes, cleaning and maintenance, replacing the existing pumps with new ones equipped with inverter technology, retrofitting the existing pumps for the new cooling system avoiding unnecessary water circulation and achieving 6 bar network pressure at machines. Also, expanding the free cooling system to precool the machine hydraulics and reducing the dependency on the cooling from chillers.

Installing photo-voltaic renewable energy system

Installing an on-grid photo-voltaic (PV) renewable energy system with HEBCO can be a sustainable option to cover the demand for electricity. The capacity of the proposed PV system can be about 2.5 MW. The company still has to find a proper location for this solar power station and come to an agreement with the electric distribution company.

> “The TEST methodology helps us in measuring and monitoring energy consumption optimal states of machines and production and improving our quality control system to count the amount of waste in our system.”
>
> Mrs. Wafa’ Aljuneidi
> Position: General Manager

For more information contact:

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