switchmed

Financé par l'Union européenne

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

MED TEST III Lebanon

Transfer of Environmentally Sound Technologies

Plastic sector

PETCO s.a.l. for food and beverage

Company overview

Number of employees: 72 Full-time employees

Key products: PET preforms with various weights and different colors.

Main markets: Local market (95%), International (5%)

Standards & certifications before MED TEST III:

ISO 9001:2020 and ISO 22000 certified, and global brands certification (PEPSI, NESTLE, COCA-COLA)

Founded in 1996, PETCO s.a.l. is a plastic preforms industry that provides a wide range of high-quality preforms and molds for individual clients who seek a specific design for their bottles and packaging needs. PECTO's clients come from the food and beverage sector more specifically companies requiring packaging for water, carbonated soft drinks, juice and detergents.

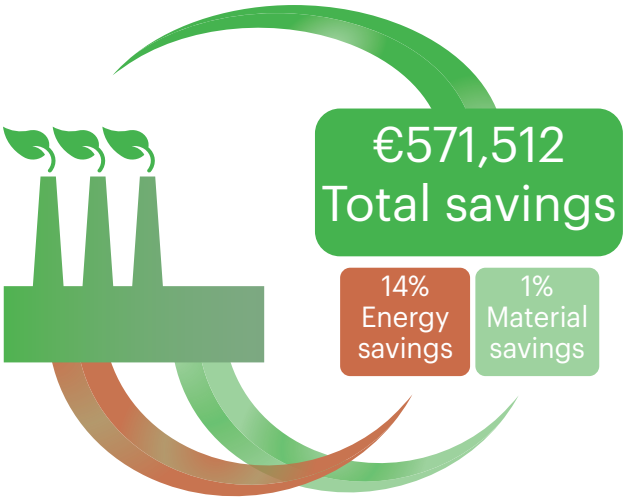
PETCO operates six production lines, with an annual production of around 16,000 tons. PET Bottles are 100% recyclable and can be also made from 100% recycled material. Most materials used for the production, like Polyethylene Terephthalate (PET) resin, colorant, additives are imported, while packaging, returnable carton boxes, and nylon shrinks are sourced locally.

Benefits

The MED TEST III project identified 12 RECP measures related to energy, and a set of process control measures that will result into increasing production efficiency and reducing material wastes. Total annual energy savings identified amount to 397,907 Euro* requiring an estimated investment of 542,712 Euro* with an average pay back period of 16 months. All the identified measures were accepted by top management for implementation, of which about 67% have already been implemented, while steps are being taken to implement the remaining accepted measures. The implementation of the approved measures will reduce electricity consumption by around 14% and consequently CO_2 emissions by the same percentage.

The company will implement a detailed Operational Production Indicators (OPI) control log sheet to improve tracking of the diverse sources causing stoppages and waste generation, and to define corrective actions. The potential for reducing the preform waste by 29% represents, in a conservative scenario, to an equivalent material-related cost saving estimated at 173,605 Euro* per year.

Identified annual savings



> "At PETCO, we use the latest technologies available for preform injection, constantly update our processes and evaluate our operations for improvement and for a better environment. We decided to join the MED TEST III project to optimize PETCO's resource efficiency, reduce our production costs and improve our environmental footprint."
>
> Salaheddin N. Osseiran
> Chairman of the Board of Directors

Visit SwitchMed.eu

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.

This publication has been produced with the financial assistance of the European Union (EU) and SwitchMed co-funding partners. The contents of this publication are the sole responsibility of UNIDO and can in no way be taken to reflect the views of the EU.

SwitchMed is co-funded by:

Generalitat de Catalunya
Departament d'Acció Climàtica, Alimentació i Agenda Rural

Agència de Residus de Catalunya

Italian Development Cooperation
Ministry of Foreign Affairs and International Cooperation

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
Good Housekeeping	27,371	91,961	0.3	-	862	1,264 tons of CO_2 131 tons of waste
Improved cooling system of PET injection machines	119,629	99,353	1.2	-	427	
Heat recovery application	300,000	179,213	1.7	-	770	
Improvement of the production control system (energy and materials)	95,703	200,985	0.5	-	114	
TOTAL	**542,712**	**571,512**	**0.9**	**-**	**2,173**	

* Using average exchange rate February 2022-February 2023 1 USD=0.957 Euro
**Numbers based on the production year: 2021

Good housekeeping and better parameters control of main utilities

Energy savings is achieved through good housekeeping measures such as, cleaning and combing of fins for condensing units and of heat exchangers of cooling equipment, cleaning air intake filters of air compressors, re-routing air compressors air intakes, insulating chilled water pipes, and minimizing compressed air leaks.

Improved cooling system of PET injection machines

The cooling of PET injection machines resin dryers and bearings is done using chilled water at 12°C while this circuit could be operated at much higher temperature (up to 24 °C). Consequently, the chillers used for this system could be replaced with a cooling tower, thus saving around 85% of the electricity consumed by the chillers. Such good results can be achieved because the area where the company is located is characterized by a dry continental climate.

Heat recovery application

Currently, electric heaters are used to heat the air entering the resin dryers. This measure consists of recovering heat from the generators exhaust using a thermal oil circuit and install heat exchangers up-stream of the electric heaters in the air circuit feeding the dryers. In this way, the air will be heated using the thermal fluid. In case the outlet temperature of the thermal fluid heat exchanger is below acceptable set value, the electric heater will operate. However, it is expected that the thermal heat exchangers will cover the heating load all year round.

Improvement of the production control system

The production quality control will be improved by an accurate daily data record about machine stoppage (unexpected or planned) and product rejects. Operational log sheets were prepared so that the recording of this data can be performed on a permanent basis.

The technical assistance revealed that causes of production stoppages can be classified by source type in market deficiencies, technical, and production classes. While the context of the Lebanese economy makes it difficult to control market deficiencies, technical and production related causes can be reduced and improved. Aspects such as cleaning of injection molds, venting to avoid deformation in preforms' finishing, control protocols of re-grinded preform scraps, and cleaning of resin bags are part of the recommended practices.

> “Thanks to the MED TEST III project, we have learned about the relevance of more accurate process controls for all resources, not only in the production process but also in our utilities. This allows us to achieve an important reduction of losses not identified before. We have been able to select a better PV solar solution for our company and we will be able to reduce our production costs and lower our environmental footprint by using our resources more efficiently.”
>
> Salaheddin N. Osseiran
> Chairman of the Board of Directors

For more information contact:

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

United Nations Industrial Development Organization
Ms. Ulvinur Müge Dolun
Division of Circular Economy and Environmental Protection
Circular Economy and Resource Efficiency Unit
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
E-mail: u.dolun@unido.org Web: www.unido.org