

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.

Egypt

Pharmaplast Company

Chemical sector

Context

Number of employees:	15
Key products:	Different types of printed rolls (PP, PE, silicon, etc.) for the packaging process of wound care dressing products
Main markets:	International (100 % export)
Management standards:	ISO 9001:2008 OHSAS 18001:2007 ISO 13485:2003 BRC standards; all products CE and FDA registered

Pharmaplast is a large enterprise with four sites (located in Amria Free Zone, Alexandria & Borg Al Arab, Alexandria & Kafr Elzayat, El Gharbia and Bulgaria). The site located in the Amria Free Zone, Alexandria, Egypt, was established in 1998 and it is engaged only in export with currently five plants specialized in the production of all wound care and immobilization products. The printing department, based in the third plant, was agreed to be the focus for the MED TEST II project. Founded in 2010, the printing department produces different types of printed rolls as an intermediate product for the two other plants.

The main incentive for the company to participate in MEDTEST II project was to seek a solution for losses and inefficiencies in the solvents that were used in cleaning operations and to train their employees in Resource Efficient and Cleaner Production (RECP) methodology.

“The Printing Department in Pharmaplast Company uses large quantities of solvents during cleaning operations which cause problems in both wastewater and workplace emissions. Pharmaplast decided to join the MEDTEST II project as the top management believes completely in integrated environmental management, which will lead to further improvement in the environmental situation. Also, the management is keen on saving natural resources and committed to identify and focus on real improvements that eventually will be positively reflected in the reduction of losses and economic savings”.

Mamdouh Atteia-Business
Development Manager



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Benefits



Graphic: UNIDO

The MED TEST II project has identified annual total saving of 13,798 euros in raw and auxiliary materials, operating materials and electricity with an estimated investment of 33,295 Euros. The average payback period is 2.4 years. Seven resource efficiency measures have been identified, all of which were approved by the top management. Two of the resource efficiency measures were immediately applied, two other related to energy saving are under implementation, and the last two resource efficiency measures will take effect within one to two years. The total cost of raw, auxiliary and operating materials will be reduced by about 19% with no cost measures. In addition, energy cost will be reduced by about 10%. Environmental benefits will be achieved by a 5% reduction in CO₂ emissions and a significant reduction in VOCs emissions.

As recommended by the MED TEST II project's team at the start, the company implemented the no cost measures and realized good saving from TEST methodology in addition to improving the environmental performance of the facility. Using the material flow cost accounting (MFCA) tool of TEST approach, the company realized that its accounting system should be changed to achieve better tracking of materials, products and losses. Moreover, new environmental management accounting (EMA) protocols have also been introduced into the existing internal accounting system for tracking and monitoring the most important environmental costs including those related to NPO costs.

In parallel to the identification of saving opportunities, the company has updated its policy to integrate the resource efficient and cleaner production concept into it.

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Saving opportunities¹

Action	Economic key figures			Resource savings & environmental impacts per year		
	Investment euros	Savings euros / yr.	PBP years	Water and raw materials	Energy MWh	Pollution reduction
Good housekeeping measures	0	2,627	-	3.4 t* of materials	-	Total: 18.8 t of CO ₂ 29 kg hazardous waste 3.4 t of VOC
Improved management of cleaning solvent	30,670	8,203	3.7	13.7 t** of materials	-	
Optimization of compressed air network	500	591	0.8	-	0,015	
Light fixtures – replacement to LED	2,125	919	2.3	-	0,024	
Total	33,295 €	13,798 €	2.4	17.1 t of materials	0,077 MWh	

¹ Numbers based on production value from 2015
 *3.4 t/y of process solvent & 30 Kg of printing inks
 **13.7 t/y of cleaning solvent.

Good housekeeping measures

This measure concerns the covering of the open small ink containers, which deliver ink to the printing machines. The implementation of this no-cost measure will save about 11% of process solvent and printing ink. In addition, it will prevent the formation of a thickened ink layer on the surface which is disposed as hazardous waste and reduce about 3.4 t of VOCs emissions at the workplace.

Improved management of cleaning solvent

In order to reduce the amount of cleaning solvent used to clean the fixed and movable parts of the printing machines, several measures have been identified. Installing trays under the printing machines to collect the spilled solvent was suggested at the project's start and implemented by the company. This measure is a low cost option and saves about 31% from the total cleaning solvent consumption. Rehabilitation of the existing solvent washing machine to clean the movable parts of the printing machine will save 50% of the movable parts cleaning solvent consumption followed by installing a new solvent recovery unit, which will save about 46.55% of the remaining movable parts cleaning solvent consumption. The implementation of these measures will reduce greatly the cleaning solvent consumption by about 72% with a less than four year payback period as well as significant reduction of the total VOCs emissions.

Optimization of compressed air network

The compressed air consumption in the printing department of the Pharmaplast Company represents about 28.8% of the total compressed air consumption. The project analysis showed that detecting and eliminating the inappropriate use of compressed air, reducing the leaks, and decreasing the set pressure, would save about 20% on the total compressors energy demand.

Replacing light fixtures with LED lamps

Electricity consumption will be also reduced by about 3% through replacing light fixtures with LED lamps. This measure will need an investment of 2,125 euros with 2.3 year payback period. Additionally, this measure will result in a reduction in CO₂ emissions from the printing section of 11.46 t/yr.

“Pharmaplast feels proud over the achievements that were made in the MED TEST II project. A better, safer and cleaner work environment has been established, as well as cost savings, and the immense experience that our team could gain through this project. Pharmaplast top management is committed to continue with this approach and to expand it to all the other factory departments and other sites with the support of our experienced team. ”

Mamdouh Atteia-Business Development Manager

For more information, contact:



United Nations Industrial Development Organization
 Department of Environment
 Vienna International Centre, P.O. Box 300
 1400 Vienna, Austria
 Telephone: +43-1 26026-0, Fax: +43-1 26926-69
 E-mail: c.gonzalez-mueller@unido.org
 Web: www.unido.org



EWATEC Consultants
 55 Adham St., #5 Rassafa Tower,
 Moharam Bay district, Alexandria, Egypt
 Tel: +203 3954703 Fax: +203 3954468
 E-mail: ewatecteam@gmail.com
 Web: www.ewatec-eg.com