MED TEST II Case Study

switchmed

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.

Israel

Cargal Flexible Packaging Ltd.

Plastic sector

Context

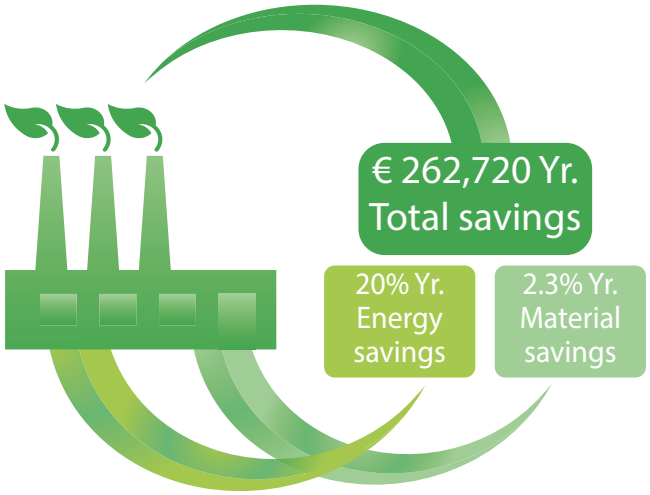
Number of employees:	100
Key products:	Flexible packaging
Main markets:	Domestic and export
Management standards:	ISO 90001\22000

Cargal, founded in 1965, is located on a site adjacent to the Mishmar Hasharon Kibbutz, where it employs 100 people manufacturing 4,605 t of flexible plastic packaging annually mainly for the food industries in Israel and abroad.
Cargal has joined the MED TEST II project in order to find inefficiencies along its production processes and to implement re-organization and efficiency measures at the plant in line with these findings. This will help the company to save on various environmental costs and help it to meet environmental standards. Cargal currently has ISO 90001\22000 certification.

"The external advisor was able to show us that simple measures of ongoing preventive maintenance would bring immediate reduction in raw material losses both quantitatively and qualitatively. We have already implemented several measures and the change and upgrade is visually apparent at the production line. The MED TEST II project has made a real impact on management willingness to invest in preventative maintenance."

Chaim Weiss,
Plant manager,

Benefits



Graphic: UNIDO

The actions identified thanks to MED TEST II project will enable the company to achieve 262,720 euro annual savings in energy and material, against an estimated investment of 322,815 euro, resulting in an average payback period of 15 months. Approximately 47% of the suggested actions were accepted by the plants top management, and will be implemented during 2017.

The energy saving potential corresponds to 20% of the annual energy bill, and the raw materials savings to 2.3%. Environmental savings will be generated by reducing waste and CO_2 overall plant's emissions by 23%.

An important output of the project is the enhancement of the existing management and information system for RECP consisting of: updating of the maintenance procedures & working instructions, the implementation of a training plan for the workers, and the installation of metering system for monitoring energy consumption.

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Saving opportunities[1]

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
Preventive maintenance for improved use of films	€135,815	€32,532	4.2	62 t raw material	-	Total CO_2 848 t Total waste 28.5 t
Paints and solvents efficiency	€5,625	€30,137	0.2	68.5 t raw material	-	
Energy monitoring, lighting and compressed air	€116,375	€136,071	0.8	-	879	
Thermal oil system improvement	€65,000	€63,980	1	-	1,102	
TOTAL	**€322,815**	**€262,720**	**1.2**	**130.5 t raw material**	**1,981 MWh**	

1 Numbers based on production value from 2014

Preventive maintenance for improved use of films

The plant has identified several problems with the operation and maintenance of the printing press machine. Manual shifting of the industrial tubs, defective rubber latches, that cause displacement of the cylinder and losses due to a non-hermetic closure and mishandling of printing press rubber impression rollers. Effective preventive maintenance and improved working procedure could save up to 62 t of raw materials per year.

Paints and solvents efficiency

Paint barrels in use as well as paint barrels that are not in use are left open which causes VOC diffused emissions. Making sure the lids of the barrels stay close when not used should save up to 68.5 t of paint per year. Furthermore, the lack of skills of the workers in operating printing press and graphic printing processes was identified as primary cause of losses. Training for the workers could increase productivity and reduce the film loss by 14.5 t, and paint loss by 500kg per year.

Energy monitoring, lighting and compressed air

The compressed air system uses a lot of unnecessary energy due to the fact that the air compressors are old. Purchasing new compressors, and in addition performing a leakage survey to the system and move it to a place where the residual heat could be used will reduce the electrical consumption. Furthermore, upgrading and automating the lighting system could increase the system's efficiency by 60%. Introducing an advanced monitoring system for the key consumers is a high priority and the company decided to invest in additional energy meters.

Thermal oil system improvement

This measure consists in the improvement of the insulation of the taps and valves in the thermal oil system in order to reduce heat losses. In addition, the plant will maintain the radiators and hot-air passages in order to avoid blockages which lead to overheating.

"We knew we had problems with paints and films losses. The MED TEST II project provided us the necessary technical and methodological support to focus on where exactly in the processes these losses occur. "

Chaim Weiss,
Plant manager

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