

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.

Lebanon

B. Ghrawi for Chocolates & Sweets Co. S.A.L. Food and beverage sector

Context

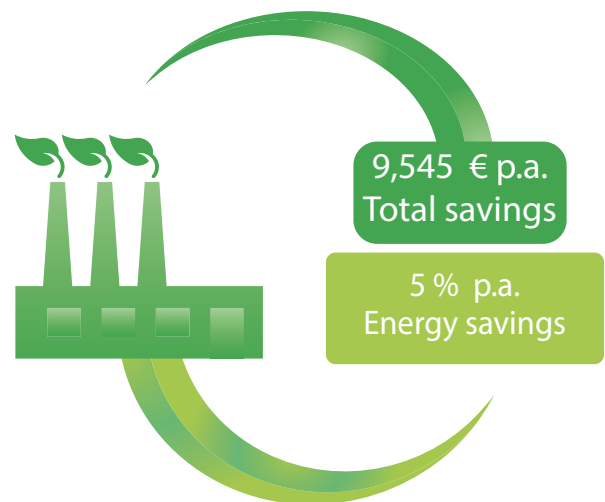
Number of full time employees:	118
Key products:	chocolates and delights candy products
Main markets:	local and international
Management standards at project beginning:	ISO 22000:2005

B. Ghrawi for Chocolates and Sweets Co. S.A.L. is an enterprise located in Mount Lebanon, specialized in the production of chocolate and delights (nougat, malban,...). Production totaled 1,407 t in 2015 and the products are sold locally and exported. The company joined the MED TEST II to identify opportunities for reducing energy and materials consumption. At the start of the Project, the company was already ISO 22000:2005 certified for chocolate production, warehousing, and distribution.

“We were interested in joining the Med TEST II project to receive guidance on conceivable sources of losses and on areas that can be improved. Cleaner production, resource conservation, particularly at the energy level, and profit optimization were key goals and aspirations behind our participation in the project.”

Lama Ghrawi,
General Manager

Benefits



Graphic: UNIDO

The MED TEST II project identified total annual savings of 9,547 euros in energy with an estimated investment of 2,200 euros. The average pay back period is 0.2 years. Eight measures have been identified, out of which 75% have been accepted by the top management for implementation.

Energy consumption will be reduced by 5% thanks to the improvements in the energy efficiency of the steam and air conditioning systems. This will lead to reductions in CO₂ emissions by 6%.

By the end of the project, the company agreed to start ISO 14001:2015 certification and is interested to acquire the ISO 50001 certification for energy management. As recommended by the Med TEST II project's team at the start of the project, the company invested 7,560 euro to install a monitoring system consisting of 47 meters to monitor energy and water consumption. The installation of a resource monitoring system and the formulation of a resource efficiency and cleaner production policy as part of the MED TEST II project will facilitate the company's adoption of environmental and energy management standards in the future.

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
Steam system efficiency	802	3,451	0.2	-	97	Total: 68 t CO ₂
Improving air conditioning (AC) units efficiencies	1,399	6,096	0.2	-	124	
Total	€2,201	€9,547	0.2	-	221 MWh	

¹ Numbers based on production value from 2015

Steam system efficiency

Steam system efficiency will be increased by adjusting the air fuel burning ratio and by introducing regular cleaning of the heat transfer surfaces of the piping of the boiler. These options will save 4% and 2% of annual diesel consumption respectively (equivalent to 3,000 liters/year). In addition, insulation of boiler and condensate return pipes will reduce primary energy consumption by a total of 65 MWh/year.

Improving the air conditioning (AC) unit

The pipes of the AC equipment will be insulated and this will save around 18 MWh/year of electrical energy consumption and reduce CO₂ emissions by around 18 t/year. On the other hand, by installing canopies over the AC external units found on the factory roof and by regular cleaning of condenser fins and filters as part of the factory overall housekeeping plan, an improvement in the coefficient of performance (COP) is expected to reach 7% and electricity saving would reach 21 MWh/year.

“Resource and energy savings are essential for a manufacturing company. The support we received broadened our comprehension of energy management. We will work hard in finding solutions to energy management and resource planning in our factories.”

Lama Ghrawi,
General 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



Industrial research Institute
IRI Premises.- Lebanese University Campus
Hadath (Baabda)-Lebanon P.O.Box: 11-2806 Beirut
Tel/Fax: +961 5 467831 ext 245
Mobile: +961 3286340
E-mail: m.haidar@iri.org.lb
Web: www.iri.org.