

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.

Morocco

KAPACHIM

Chemical sector

Context

Number of employees: 37

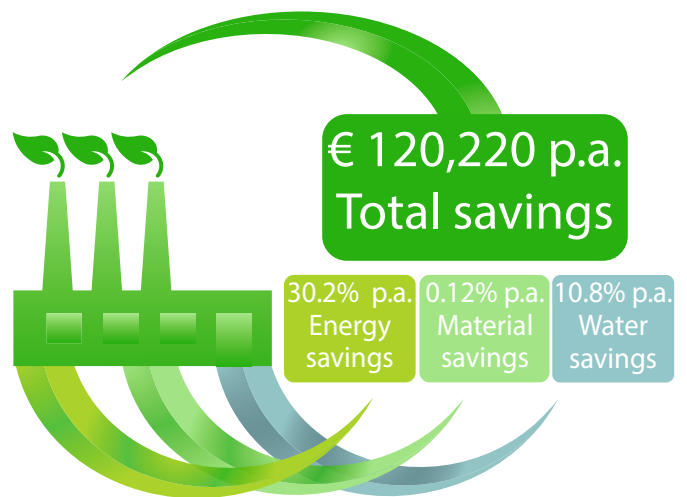
Key products: Sulfonic Acid, Sles, Sodium Silicate

Main markets: Local

Established in 1999, KAPACHIM specializes in the production of sulfonic acid for detergents and cosmetics for domestic, industrial and institutional use. It has a large fleet of production equipment to meet the needs of the market, it is able to produce products of excellent quality at a reasonable and competitive cost. The ISO 9001 Quality Assurance System: 2000 version is established and certified throughout the KAPACHIM organization. This also applies to respect for the environment within the standard ISO 14001.

Wishing to maintain its leading position in the national market, KAPACHIM, aware of the risks posed by its activities, facilities and products, is interested in the implementation of environmental monitoring, to control the impact of its activities on the environment.

Benefits



Graphic: UNIDO

The MED TEST II project has identified opportunities for total annual savings of € 120,220 in water, energy and raw material at a projected investment of € 564,200. The average return on investment period for the identified RECP measures is 4.7 years.

About 82 % of the steps identified and accepted by management are being implemented.

Through the improvement and optimization of production and installation of more efficient equipment, the measures implemented will reduce energy costs by 30.2 % and water consumption by 10.8 %. The environmental benefits achieved through several water and energy treatment and recovery measures will reduce annual expenses and reduce CO₂ emissions by 40 % (988 t).

Saving opportunities¹

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
Electric power and PV installation	370,640	62,920	5.9	-	823	Total: 998 t CO ₂ 3,913 m ³ waste water
Thermal energy and water conservation	93,650	34,240	2.7	2,713 m ³ water	359	
Reduced wastage of sulphur and labsa powder	13,370	5,070	2.6	12.4 t raw materials	-	
Optimization and control of the production system	84,780	14,745	5.8	1,200 m ³ water	185	
Environmental impact	1,760	3,245	0.5	10.9 t raw materials	13	
TOTAL	€ 564,200	€ 120,220	4.7	23.3 t raw materials 3,913 m³ water	1,381 MWh	

¹ Numbers based on production value from 2015

Electric power and photovoltaic installation

Energy consumption will be reduced through measures aimed at optimization of contract power, improving performance of indoor and outdoor lighting by installing LED appliances and the phased replacement of electric motors with more efficient models. The independent photovoltaic energy production (496 kWp) will cover almost one third of annual consumption of the company.

Thermal energy and water saving

The steam released by the air-drying circuit will be recovered by installing a condenser and automatic purgers and returned to the feed water tank as reverse osmosis water. The KAPACHIM process is exothermic, the installation of an absorption refrigeration unit will make it possible, by collecting from the sulphur boiler the excess heat released in the atmosphere, to produce the cooling capacity necessary for the process to replace the current refrigeration unit.

Reduced wastage of sulphur and labsa powder

The establishment of a level one maintenance of the sulphur circuit and the sulphonation reactor will prevent sulphur and labsa wastage due to leaks. These measures will be accompanied by the recovery and recycling of sulphur lost during storage and handling.

Optimization and control of the production system

The implementation of an electrical energy, thermal and water management system to fulfil standard ISO 50001 on energy management and implementation of continuous improvement approach (Kaizen) on durability of spare parts, preventive maintenance control, and organization of workstations will allow the optimization and control of continuous processes and significant improvement of the performance of the company.

Exhaust emissions treatment study and liquid waste

A detailed study will focus on periodic optimization of parameters to improve the efficiency of catalysis and the reduction of SO₂ content in gas emissions. The establishment of the wastewater treatment scheme will make it possible to identify the potential for reuse of process water at the producing unit.

For more information, contact:



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