



MED TEST Case Study

CERAMIC sector — MOROCCO

Ceramic manufacturing industry— Ceramica Dersa

Company overview

Ceramica Dersa is located in the industrial area of Martil in Tetouan. It has as its main activity the production of ceramic tiles of various designs and patterns. The company was established in 1988, employs 100 people and has an average turnover of \$US 5 million.

The company joined the MED TEST project in order to identify opportunities for effective use of resources (heat, water, electricity and chemicals), reduction of production costs, recovery of solid waste and minimization of waste water effluents.

The company is certified ISO 9001 and has medium term plans to obtain ISO 14001 certification.

Benefits

The actions identified through the MED TEST project will enable the company to save annually \$US 205,305 in the purchase of energy, raw materials and chemicals with an estimated investment of \$US 87,125, corresponding to a payback time of 5 months. Half of the actions were implemented in 2011; the rest are scheduled for 2012.

The potential savings on the optimization of electrical systems, furnaces and gas systems represent a cost reduction of 12% on the annual energy bill. The most significant part of these savings are due to the heat recovery projects for using the flue gas from the cooking furnace for preheating inlet air of the drying furnace and of the raw material grinder. There are expected savings also in terms of productivity and product quality.

All the effluents are recycled on site, as well as all residues of enamels and dyes are recovered and recycled within



“This project has been an enriching experience for our company, and it has enabled us to include environmental protection as a priority within the company’s development strategy.”

Mohamed ESGHIAR, Director General

the process. The company has implemented several measures of best practice to improve the management of the solid waste (cardboard, plastic and scrap metal) and their valorization in the recycling chain.

In addition to the savings opportunities identified, the company also benefited from technical assistance in the introduction of an environmental management system by integrating all aspects (environmental policy, operational procedures, etc.). The company is already certified ISO 9001, and plans to obtain ISO 14001 certification in medium term.

The company has also launched a consultation to obtain the label for Corporate Social Responsibility (CSR) of the General Confederation of Moroccan Enterprises (CGEM).

MED TEST is a UNIDO green industry initiative to promote sustainability and competitiveness in the private sector in Egypt, Morocco and Tunisia. TEST integrated approach includes tools like resource efficiency and cleaner production, environmental management system and accounting, cleaner technology transfer and CSR.

Learn more about TEST approach at www.unido.org

MED TEST is sponsored by the Global Environment Facility, the Italian Government and the MedPartnership.

Saving opportunities

Measure	Economic key figures			Resource savings per year	
	Savings [USD/yr]	Investment [USD]	PBP [yr]	Water, Chemicals	Energy [MWh]
Electrical system, compressed air	105 993	58 875	0.6		359
Furnace and gas system	19 875	2 250	0.1		852
Waste valorization, effluent recycling	3 188	1 000	0.3	Water: 3 000 m ³ Various waste	
Heat recovery	76 250	25 000	0.3		511
TOTAL	205 305	87 125	0.4		1 722

Electrical system, compressed air: The Company has established a set of actions to reduce power consumption, including: improving the power factor and the contracted power, installation of electricity sub meters, and installation of variable speed drivers at the grinder and on fans of drying furnace. The company plans to set up a system for online monitoring of electrical energy consumptions. On compressed air part, the actions performed are: detection and repair of air leaks, better management of compressors, and installation of isolation valves and air storage reservoir.

Furnace and gas system: The company has implemented the thermal insulation of enamelled and cooking furnaces by using ceramic fibre, and has planned the optimum adjustment of the burners of the cooking and drying furnaces. A management system for online gas consumption will also be put in place. All these actions will generate a potential energy saving of 852 MWh/year.

Waste valorization, effluent recycling:

- The grinding balls and the aluminium tubes of the furnaces are recovered and stored until being reused as raw material

by an interested customer (the company has signed up to the Industrial Waste Exchange platform).

- Cardboard waste, plastic and scrap is separated, baled and sold to the recycling industries
- Dyes and enamels residues are recovered, filtered and reused within the first treatment layer of the tiles
- All the effluents are collected in a decantation pit, filtered, and reused for cleaning and within the process (watering).

Heat recovery: Energy analysis has revealed that there is a significant amount of energy at high temperature which is lost in the atmosphere. Two projects are planned to recover 511 MWh of thermal energy, these are:

- The energy recovery from the flue gases of cooking furnace into the drying furnace. The gain represents 50% of current consumption of the dryer in addition to an increase in productivity
- Use of energy recovery from biscuit furnace at the raw material grinder, which will improve productivity and quality of the final product



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