MED TEST Case Study

CHEMICAL sector — EGYPT

Chemical industry — Solvay Alexandria Sodium Carbonate (SASC)

Company overview

SASC is a large size, chemical company owned by the multinational Solvay Belgium. The company produces light and dense sodium carbonate, pure sodium bicarbonate and calcium oxide.

The company joined the MED TEST project to identify opportunities for increasing resource efficiency through solving the existing problems which mainly include: high water consumption, and materials & energy losses.

At project's start the company was already certified ISO 9001 and had plans to establish a management system for environment and safety according to ISO14001/ OSHAS 18001 standards.

Benefits

The MED TEST project identified annual total savings of $US 491,793 in water, raw materials, fuel and electricity with an estimated investment of $US 55,383. The average simple payback period is less than 2 months. There are some identified measures being implemented by the company in 2011 and the remaining measures are planned to be implemented in 2012.

The implementation of cleaner production measures identified by MED TEST assisted the company to improve its performance reducing consumptions by almost: 10% electricity, 15% steam and 10% raw materials.

Water costs decrease by almost 20% through segregation and recycling of compressors cooling water and CO_2 gas washer effluent, and implementation of water consumption monitoring and controlling system. The company has also launched a steam survey and insulation project aiming at reducing 10% of its thermal energy consumption.

All the identified actions contribute to improve the environmental performance of the site.

"Participating in the MED TEST project has allowed several departments of our company to look in a different way to the environmental aspects linked to our activity, generating important optimizations of several processes and impressive savings, finally decreasing the Non Product Output costs."

Eng. Laila El GHAZALY, Managing Director

In parallel to the identification of saving opportunities, the site has plans to design an EMS system according to ISO 14001 standard, fully integrating resource efficiency into company policy, action plans and internal procedures. This will ensure sustainability of all the identified actions at company level as well as the development of new projects. 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 non product output costs.

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, [m³]	Materials [t]
Recycling of CO_2 gas washer effluent	36 500	20 833	0.6	99 000	
Water conservation	82 120	34 550	0.4	231 990	
Good housekeeping	348 173	-	-	463 978	9 643
Limestone recycling	25 000	-			
TOTAL	**491 793**	**55 383**	**0.1**	**794 968**	**9 643**

Recycling CO_2 gas washer effluent: Segregation and recycling of CO_2 gas washing effluent from two lime kilns has been implemented during the project. Part of the gas washing water is now reused within the gas washing process, while the other part is used in the lime slaking unit and in the sludge mixing tanks replacing fresh water intake. The implementation of this option leads to 2% reduction in water consumption.

Good housekeeping: The project identified good housekeeping measures for improving work environment and reducing pollution load. These included: regular maintenance programs, applying brine recirculation process, eliminating excessive floor washing and all sources of spillage and water leakages, closing/sealing running water taps, and taking measures to avoid blockages of the wastewater channels by using screens to prevent brine impurities and solids from entering the drains. The implementation of good housekeeping measures would save 10% of water consumption.

Water conservation: There are several measures identified by the project that overall reduce water consumption by more than 5%: closing the compressors' cooling water circuits, installation of water meters with effective monitoring plan; and the use of pressurized water for washing processes.

Limestone recycling: Two main projects were identified for reducing solid waste generation. The first project consists in the collection and reuse of limestone fines at the lime preparation unit for use in civil engineering works as filler material for roads, highways and cement manufacturing. The second project under evaluation consists in the reuse of grits from lime milk preparation unit as soil conditioner for pH correction. These projects aim at valorizing solid waste as by-products avoiding their accumulation on the company ground and eliminating their disposal cost.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Environmental Management Branch
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026-0, Fax: (+43-1) 26926-69
E-mail: unido@unido.org, Internet: www.unido.org

EGYPT NATIONAL CLEANER PRODUCTION CENTER
26 A Sherif St., Downtown, Cairo, Egypt
Telephone: 02 23916154
02 23925984
Email: h_elhadary@link.net,
www.encpc.org

EWATEC CONSULTANTS
55 Adham St., # 5 Rassafa Tower,
Moharam Bay, Alexandria, Egypt
Telephone: (+203) 3930700
Fax: (+203) 3906191
E-mail: ewatecteam@gmail.com,
www.ewatec-eg.com