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GRECO INITIATIVE GREEN COMPETITIVENESS

Regional Activity Centre for Cleaner Production

GOBIERNO DE ESPAÑA MINISTERIO DE MEDIO AMBIENTE Y MEDIO RURAL Y MARINO

Generalitat de Catalunya
Government of Catalonia
Department of the Environment and Housing

No. 104 Pollution prevention case studies

Global actions for cleaner production in pharmaceutical industry

Company background	Hikma Pharmaceuticals PLC. The company is focusing on the key segments of our markets that offer the best prospects for long term growth, particularly the branded generic market in the MENA region and the specialty vaccine business.
Industrial sector	Pharmaceutical
Environmental considerations	The company manufacture and operations are energy intensive, and they are investigating ways to reduce the energy use. One of the major accomplishments in 2007 has been the collection for the first time of consistent data on energy usage, water usage and waste production at main production sites. Gathering the data has helped to raise awareness of resource use and promote action. The sites have increased recycling or moved towards incineration as opposed to dumping waste to landfill. 2007 also saw two of our Jordanian facilities working towards ISO 14.001 certification. They manage waste responsibly and continue to look for further opportunities to reduce resource inputs as well as to reduce waste. Although hazardous waste and other production waste had always been measured and appropriately disposed of, the focus on gathering data has led to a greater level of awareness, which has in turn led to increased waste reduction and recycling of non hazardous waste.
Background	In 2007, the company began a thorough review of his social and environmental impact, in order to better align its desire to act responsibly with its strategic business objectives. Their continuing commitment to Corporate Social Responsibility (CSR) is their strategic response to this goal. Care and preservation of our environment is one of his core values. They also gain a business benefit through greater efficiency and control of resource input costs. In 2007 the company adopted a Group wide environmental policy, which will help them to embed environmental efficiency into their operations. The main environmental impacts are in the area of energy consumption, water usage, and waste production.
Summary of actions	Implementation of a quality management system, QMS. This case of study originates from a Cleaner Production assessment carried out at a water and steam system networks and plant. It shows what the company did and what the assessment achieved. Hikma implement the following actions to achieve the desired objective: 1. Water system rehabilitation. 2. Compressed air supply system. 3. Upgrade cooling, heating and steam generation system. 4. Improvement of power supply efficiency.

The company decided to work on the following environmental objective:

Objectives:	Targets:
• To increase yield and productivity.	• Increase yield by 3%;
• To decrease pollution load in effluent.	• Reduce water consumption and wastewater volumes by 50%;
• To reduce gas emission.	• Receive no complaints from neighbors
• To improve environmental work.	

Results of the actions

Water system rehabilitation

1. Decrease amount of diesel oil for heating.
2. Decrease emissions of the boiler.
3. Decrease the spare part of the system (some of the material of construction for the system thermal sensitive).
4. Savings in the water amount.
5. Savings in the electrical power.
6. Savings in the chemical material.
7. Savings of the amount water used after sanitization for backwash.

Direct saving of more than ≈ $ 20.000 per year
Investment: ≈ $ 25.000

Compressed air supply system

1. Installed oil free air compressors were equipped with Variable Speed Drive (VSD).
2. High value of starting current was eliminated.
3. The equipment was protected against multi on/off status.

Direct savings of more than ≈ $ 28.000
Investment: ≈ $ 39.000

Upgrading of cooling, heating and steam generation system

1. Net work repaired, redesigned and insulated.
2. Steam traps were tested and evaluated.
3. Replacing very old, low efficient steam boilers with high efficiency, Dry 3 pass, dual function (LPG + Diesel), with steam de-aeration system and modulating burner steam boilers.
4. As a result of savings we reached more than 1.4 ton steam/hour.
5. Direct savings of more than ≈ $ 96,000 per year.

Investment: ≈ $ 119.000

Improvement of power supply efficiency

1. Modifying power factor system to be more than 0.95 instead of 0.67.
2. Redistribution of electrical nodes.
3. Installing kilowatt meters.
4. As a result electrical noise & related sensitive instruments malfunctions were eliminated.
5. Stability in equipments input voltage.
6. Cables were protected against heat which was generated by ineffective power (current).
7. Increase the margin of safety.
8. Direct savings of more than ≈ $ 66,000 per year

Investment: ≈ $ 73.000

Total investments	≈ $ 254.000
Total savings	≈ $ 210.000
Payback period	1,21 years

Conclusions

By applying the QMS, the company has now a more clear view about the priority and the main aspects that need improvement to reach stabilization.

Regional Activity Centre for Cleaner Production
Dr. Roux, 80
08017 Barcelona (Spain)
Tel. (+34) 93 553 87 90
Fax (+34) 93 553 87 95
e-mail: cleanpro@cprac.org
http://www.cprac.org