

Energy Saving Measures in Textiles Production

El Nasr Weaving, Spinning and Knitting (El SHORBAGY) EGYPT

IN BRIEF

The El Nasr Weaving, Spinning & Knitting company is considered to be one of the most famous and oldest companies in textile sector in Egypt. It has been carrying out a complete program for production lines modernization and developing the quality parameters to fulfil all requirements of the customers all over the world and to produce the finest quality of colour clothes and different types of cotton fabrics.

Due to high fuel costs and a desire to reduce the waste of energy in the enterprise, the company management decided to participate in a Good Housekeeping (GHK) programme in May 2003. Within this programme GHK measures were discussed and applied, using the checklist for energy measures mainly in the boiler house and the dyeing & finishing department.

THE PROBLEM AND ITS CAUSES



The major problem in the company is a huge amount of energy losses for various reasons. One of these problems is that the boilers for steam generation are in very bad operating conditions (see picture).

The reasons for these problems are the lack of awareness of managers and staff, the lack of involvement of the employees in overall plant improvement, insufficient communications between the energy management and responsible workers and the lack of a maintenance and training programme.

APPLICATION OF PREMA[®] (GOOD HOUSEKEEPING)

Having analysed the result of the company visit while using the systematic questions to explore the potential for GHK measures number of weak points and the objective to be achieved had already identified. Based on this, in the analysis and implementation phase the mind maps and the checklist of energy were the main tools used to reduce the energy consumption and avoid steam losses.



ACTIONS TAKEN IN THE ENTERPRISE

Problem / before

The boilers for steam generation were in bad working conditions and running on low efficiency.

Solution / after

Tune up of the boilers, using a gas analyser to adjust the air/ fuel ratio, to ensure greater efficiency and reliability of the boilers.

The action was implemented by the electrical engineer and executed immediately with no cost.

ECONOMIC BENEFITS

Additional operational costs per year	0 US\$	
Annual net savings	4'850US\$	Due to fuel saving
Investment costs	1'400US\$	For gas analyser
Payback period in months	3.5 months	

ENVIRONMENTAL BENEFITS

Adjusting the air /fuel ratio of the operating boilers reduces the fuel consumption by 151 tons which leads to a decrease of carbon dioxide emissions by XY tons and sulphur dioxide emissions by XY tons. Carbon dioxide is one of the main gases inducing the green house effect, while sulphur dioxide induces acid rain formation. In addition, the pollution due to smoke from the boilers for the steam production will decrease.

ORGANISATIONAL BENEFITS

After implementing the GHK measures, the workers were eager to preserve their materials and avoiding waste because they understood that things like energy waste or in general producing NPO will translate into money losses. They also recognized that the image of their company is very important.

An important issue was that the definition of clear responsibilities, linked with the implementation of improved communication processes, increased the commitment of the employees to their work and the quality of the products.

One interesting effect of the GHK application is that one member of the staff suggested to reinvest apart of energy saving sustained from application of GHK to purchase simple portable equipment to assist them in continuing improving the energy balance.

In addition the company representatives also organized training program for the rest of the responsible working team to maintain awareness regarding the GHK measures and to encourage the employee to suggest new ideas and creative ways for improving overall company performance.

IMPROVEMENTS IN THE FIELD OF HEALTH AND WORKPLACE SAFETY

The work environment is improved after applying the preventive maintenance program regularly for steam distribution system in the boiler house and dyeing unit. Risk of accidents due to leaking parts of the distribution system is reduced, and also the visibility in the production is increased due to less steam and smoke, which again reduces the risks of accidents.

INFORMATION ON THE ENTERPRISE

El Nasr Weaving, Spinning and Knitting Company been established in 1947 and is located in Imbaba – Giza. The capital of the company is 25 million Egyptian Pound. The company employs about 200 workers and uses white cloth, dyes and chemicals as main raw materials.

The process flow is as follows: the white cloth is mixed with dyes and chemicals. Washing, drying and printing are the next steps applied in different department followed by finishing, quality control process and packing.

The products are T shirts, fitted sheets and towels, baby blankets, and sports wear yarn.

The export markets are England, Germany, USA, Italy, France and Arabian countries.

FOR FURTHER INFORMATION

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