

## **SHRIRAM FERTILISERS & CHEMICALS**

**Shriram Nagar, Distt. Kota (Rajasthan)**

### **Unit Profile**

Shriram Fertilisers and Chemicals (SFC) is a division of DCM Shriram Consolidated Ltd., a conglomerate of diverse business interests making and trading products critical to the country's growth. SFC is engaged in the, manufacture of Urea, PVC, Caustic Soda, Liquid Chlorine, Hydrochloric Acid, and Cement.

SFC's complex is located at Kota, Rajasthan. The Fertiliser Unit was commissioned in February 1969 by Chiyoda Chemical Engineering and Construction Co. of Japan. Installed plant capacities were 450 TPD of Ammonia and 700 TPD of Urea. Capacities were expanded to 600 TPD Ammonia and 1000 TPD Urea in 1974.

### **Ammonia/Urea Plant**

The plant was originally based on naphtha as feedstock. The various technology licensors for the Ammonia Plant are Shell of USA, for Naphtha desulphurisation section, HaldorTopsoe of Denmark for the reforming and synthesis sections and Benfield Corporation of USA for the carbon dioxide removal system. Stamicarbon's Total Recycle Process has been utilised in the Urea process scheme.

The plant had been modified to use both naphtha and gas in any proportion in Aug.-Sep.'06. Plant has started using gas since 22nd Sep.'07 with the commissioning of gas pipeline by M/s GAIL. Plant has been running on full gas since May'09 and use of naphtha has been discontinued.

Immediately after expansion in 1974 the energy performance of the plant remained below par. Many initiatives were identified and undertaken to improve the performance of the plant since then. This has resulted in remarkable improvements in energy consumption over the years.

### **Energy Consumption**

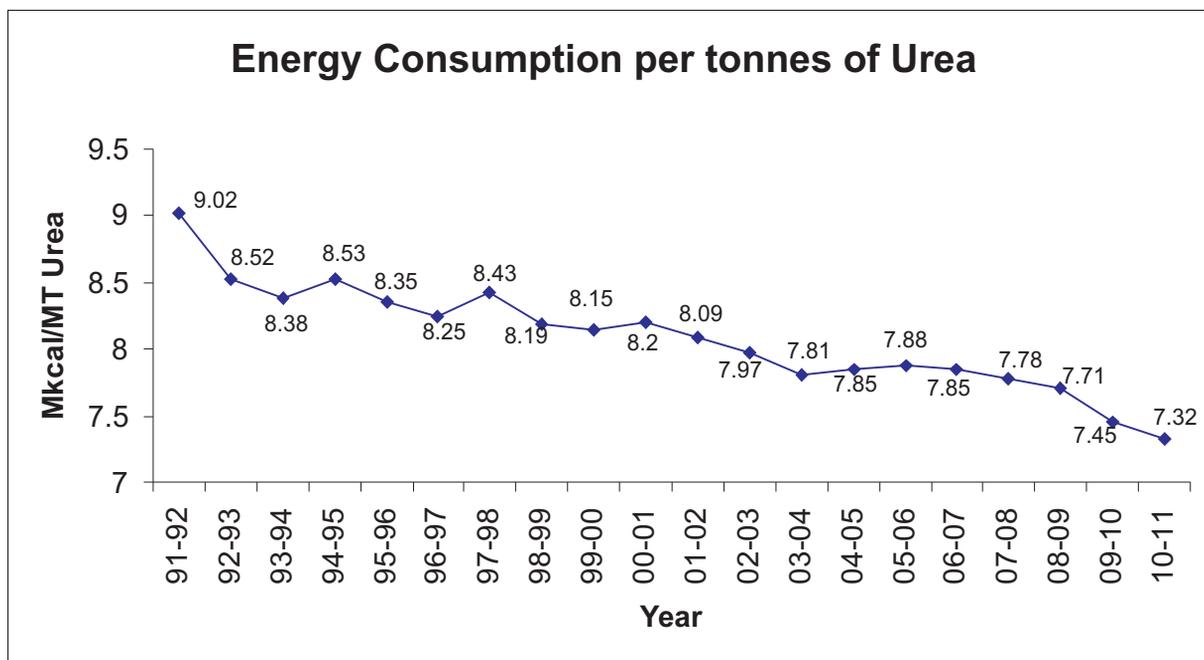
Since energy cost form about 80% of the production costs, energy conservation is a vital aspect of Ammonia - Urea Plants. The key focus has therefore always been on the reduction of energy consumption in the existing plant as well as on incorporating new process schemes into the plant to achieve better and better energy efficiency.

The main energy consumers in the plant are the Primary Reformer, CO<sub>2</sub> gas removal system, the motor driven positive displacement type compressors and the refrigeration equipment of the synthesis section. A dedicated captive power plant of 35 MW and, to some extent, the State Electricity Board caters to the power requirements of the complex.

In order to avoid energy losses in any form in the plant, monitoring of energy consumption is done on daily basis. Energy audits are also carried out periodically. This includes monitoring of critical plant parameters, steam and water balance, pressure drop surveys etc. Process analysis based on computer simulation of the plant process & various modifications undertaken have drastically reduced the energy consumption.

The overall energy consumption reduced from levels of 9.02 MKCal/MT Urea to present levels of 7.324 MKCal/MT.

**Improvement in energy consumption over the years**



**Energy Conservation Achievements**

Plant is committed to be one of the most energy efficient plants in the World and it endeavor continuously to reduce the energy consumption to the levels of new technologically advanced plants. Technical personnel are kept abreast with the State of Art technology in various fields through interactions in various forums. Technical personnel are nominated to participate in national and international technical conferences and the available information and technical inputs are absorbed into the plant processes wherever possible.

With daily monitoring of process parameters such as Steam / Carbon ration, fuel consumption, water ingress into the system etc. and also daily monitoring of energy consumption, plant have been able to reduce energy consumption significantly.

### ***Environment and Safety***

In pro active approach to the subject plant has installed and built in adequate pollution control devices so as to prevent any discharge of effluents or emission of gases. Electrostatic Precipitators have been installed in the power plant. The fertiliser plant effluent is treated and pollutants are removed and recycled to the process. Special attention has been accorded to create a clean and green environment in the plant and towards this goal about 4.6 lac trees have been planted.

A new Hydrolyser Stripper System has been installed in Urea Plant at an expenditure of Rs. 6.3 Crores. This has resulted in improving effluent quality significantly. The discharged water is now being used as boiler feed water/cooling tower make up instead of being drained.

This unit has received recognition at the national level in 1991-92 for Prevention and Control of Pollution from the Govt. of India. Again in 2003-2004 the unit has received the Greentech Silver Safety Award for performance in the field of EHS.

### **Fertiliser and Power plants have been certified for ISO-14001 and OHSAS-18001**

Safety of manpower is accorded highest priority and all measures are taken to ensure safe operation. Continual training is given to the operating staff and workmen so that all operations are carried out safely and there are no accidents. Safety audits of the buildings, plants, equipments and rotating machinery are carried out by in-house safety officers every month and external agencies once a year to identify and rectify any short comings.



### ENERGY MANAGEMENT POLICY

It is our policy to continuously strive to optimise the use of energy in all our operations. This is a key component of our strategy to improve cost competitiveness of our products and their long-term profitability.

We shall achieve above objectives by adopting following proactive approaches:

- a) Improve awareness about energy conservation within organisation through training and education.
- b) Reduce energy consumption through better process control, maintenance and regular energy audits by accredited energy auditor.
- c) Promote more efficient and environment-friendly energy sources and energy-use methods.
- d) Promote Energy Conservation as one of the ways of Improving Environment and waste minimisation.
- e) Incorporate modern energy efficient practices and design concepts during the planning stages of new projects.
- f) Incorporate life cycle energy consumption concepts during the procurement stages of new equipment and systems.

We shall implement our policy by benchmarking our energy utilisation techniques with best practices, adopting modern techniques, retrofitting with high efficiency equipment and seeking cooperation from external agencies to reduce our energy consumption.

DSCL is aware of its social responsibility towards sustainable development and environmental improvement and believes that energy conservation is the key means of achieving this cause.

( K. K. Kaul )

Executive Director & Resident Head

DATE: 25<sup>th</sup> March '06