

NIRMA LIMITED

Savli, Baroda (Gujarat)

Unit Profile

NIRMA LIMITED is one of the leading detergent and Toilet soaps manufacturer in the country. The company, as a first step in backward integration, has successfully implemented and commissioned 75,000 MTPA Linear Alkyl Benzene (LAB) project, a prime raw material for detergents manufacture, in the last quarter of 1997. Later, in January'2000, the 65,000 MTPA Normal Paraffin project was commissioned in a record 18 months time. Both these projects were implemented at a cost of around Rs.700 Crores. It may be noted that NIRMA is the second plant in the world to employ Eco-Friendly Solid Bed Alkylation catalyst for the manufacture of LAB.



Energy savings in pumps

The LAB and Normal Paraffin manufacturing facilities are located at Alindra Village, Savli Taluk, Baroda. The process technology for the units was supplied by UOP LLC of USA. The detailed Engineering was carried out by reputed consultants including M/s SNC LAVALIN, Canada and M/s. UHDE, India.

With the commissioning of these two projects NIRMA joins the elite group of IPCL, Reliance and TPL, the only other 3 LAB & Normal Paraffin manufactures in the whole country.

Energy Consumption

NIRMA Ltd. (Alindra site) has an annual consumption of about 650 lakhs of electrical units consumption. Also about 55,000 KL of fuel oil consumption is there for process heating.

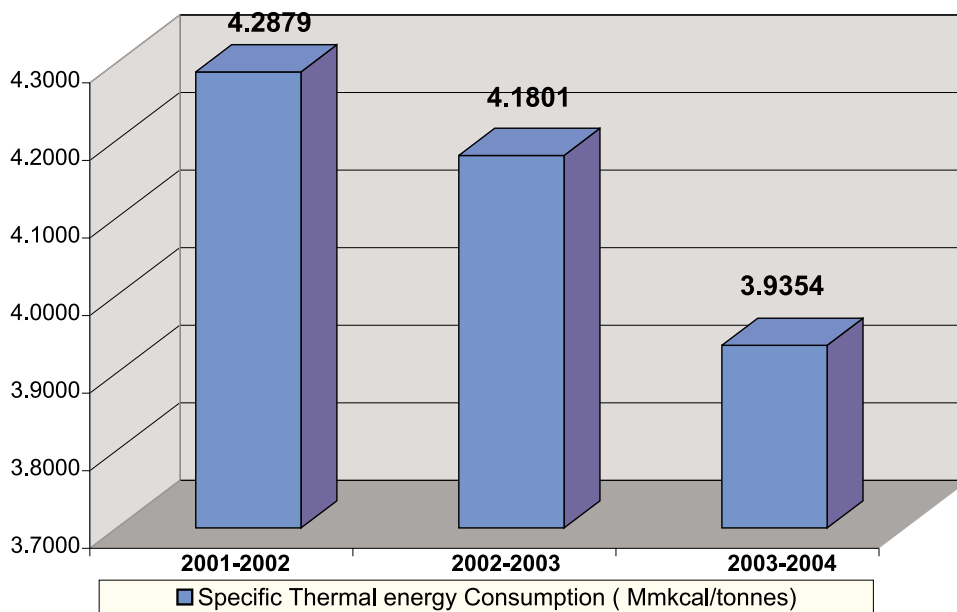
The annual bill of electricity is around 2500 lakhs. The specific consumption of electricity is around 550 kWh/MT of LAB produced and fuel oil consumption is around 0.35 MT/MT of LAB produced.

Energy Conservation Commitment, Policy and Set up

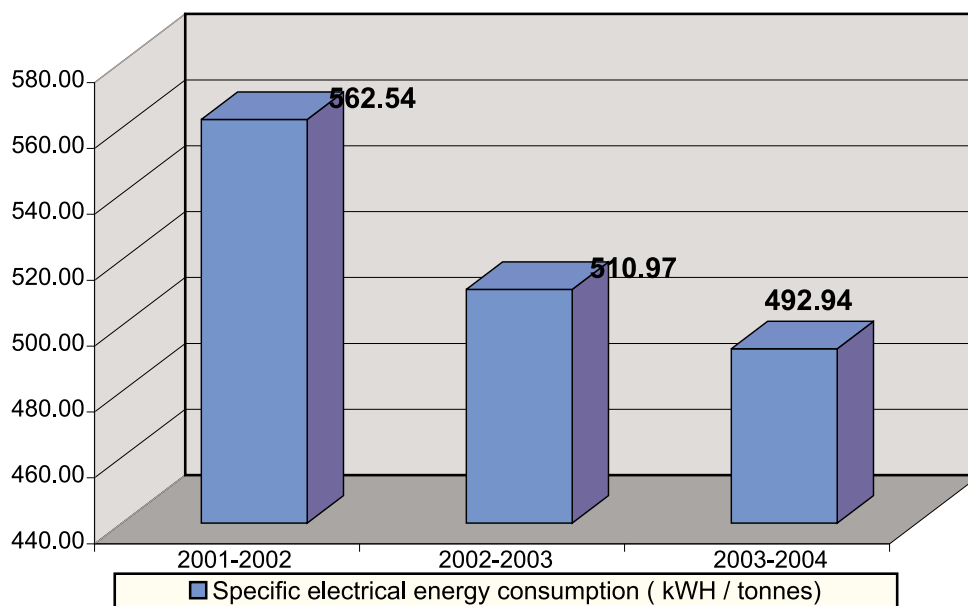
NIRMA along with UOP ensured that the plant is designed with highest Safety Standards and Energy Efficient process. Also during the normal operation, NIRMA personnel have been consistently involving themselves in conserving Energy of various forms.

In view of the current market trend, the increasing petroleum prices and fast depleting petroleum resources, the management is constantly striving and putting efforts towards energy conservation measures. Consistent efforts are on to reduce the energy consumption in the complex.

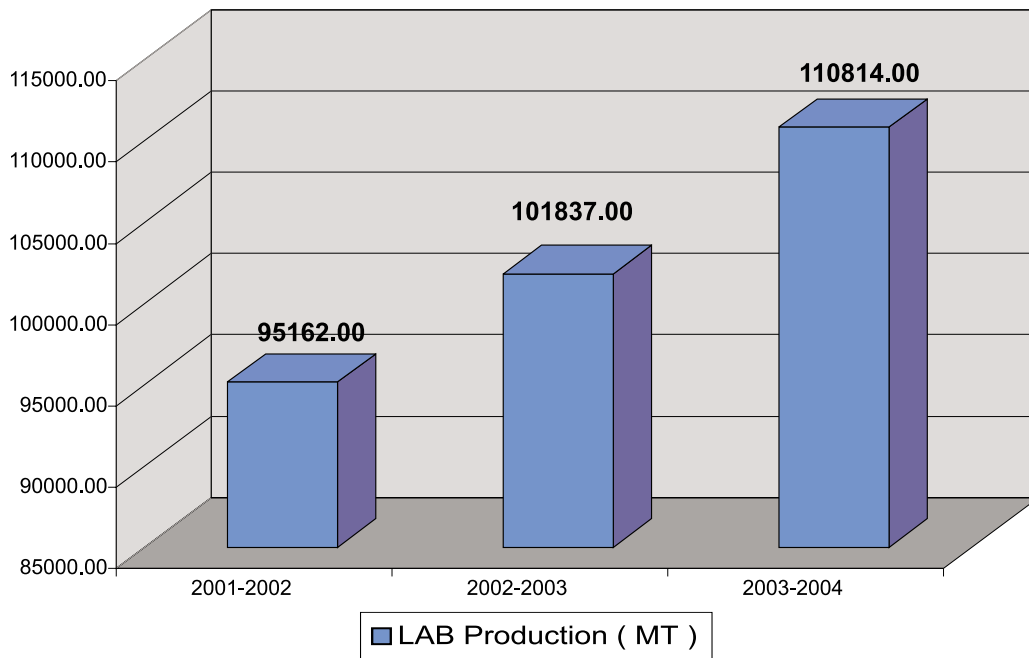
Specific Thermal energy Consumption (Mmkcal/tonnes)



Specific electrical energy consumption (kWh / tonnes)



LAB Production (MT)



A full-fledged energy cell has been established with the latest equipment for monitoring the energy consumption in the complex. As per the management's policy, daily monitoring is being done and also the figures are declared on daily basis. Close monitoring is always ensured and any deviation from the standard is critically reviewed and the problem is sorted out there after.

The monitoring is done by Energy cell on daily basis and daily reports are being prepared and the same are being discussed in daily production meeting.



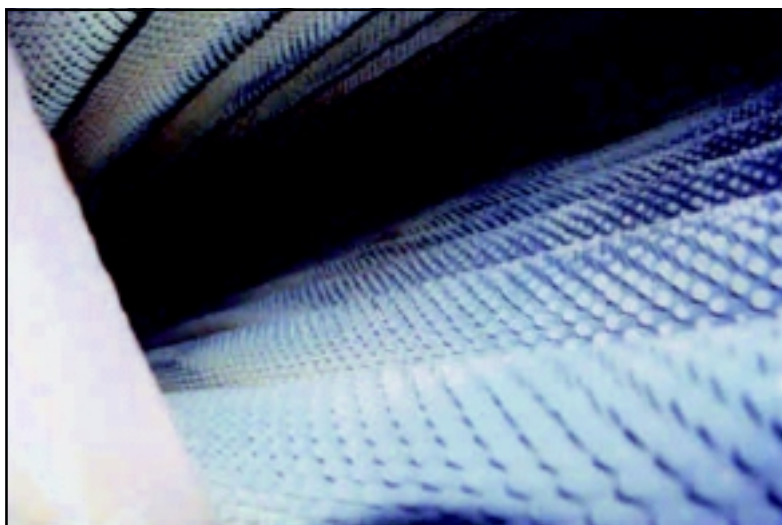
Monthly report for the same is also prepared and then discussed at apex levels and new targets are set every month and they are then reviewed in the next meeting.

Energy Conservation Achievements

The untiring efforts made by the plant employees and the thriving encouragement shown by the management, NIRMA Ltd. has been able to implement number of energy conservation schemes which

has led to enormous savings in terms of POWER and fuel oil consumption. Some of the measures implemented till date are given below:

1. The unit has two numbers of pumps for pumping the water from cooling water return sump to cooling water. It was found out that they are high head pumps. Hence they have been replaced with low head pumps resulting in reduction power consumption from 21.5 kWh to 5.5 kWh.
2. The unit has provided zero air leak Moisture trap for N2 PSA unit. Thus the air losses from the traps have been made almost zero.
3. By critical monitoring efforts and process optimization, unit has been able to improve the plant on-stream efficiency from 133.66 % to 147.67%. Thus the specific consumption has been reduced significantly.
4. The unit has 56 MMKcal/hr Hot oil Heater. It was observed that the flue gas exit temperature to the stack had increased up to 215 C against a design of 173 C and also unit was forced to bypass lot of flue gases directly to stack without doing the heat recovery. Subsequently a detail study of the heater operation concluded that the fouling in the convection section was responsible for the high ex-convection temperature. The convection section was washed with water, also APH cleaning was done with water during shutdown. This resulted in improvement in heater efficiency by about 2.5 %.



Energy Conservation Plans and Targets

Towards the untiring efforts of management and the active participation shown by the employees, the management is considering the following future plans for energy conservation:

- a. Installation of low head and capacity raw water pumps.
- b. Revamping the unit for higher production.
- c. Installing a heat exchanger for heat recovery from the process.
- d. Converting a high pressure Hydrogenation operation (30 ksc) to low pressure operation (14 ksc).
- e. Carrying out FRP coating in our circulating cooling water pumps for power savings and efficiency improvement.
- f. Stopping of one of our process fin fan and reducing the heat duty in the downstream exchangers.



Environment and Safety

Strict environment and safety norms are maintained in the complex. Unit has installed on line analyzers for monitoring the stack emissions from the furnaces. Every month stack sampling and air monitoring is being done in house and by third party also. Unit has a fully automated Effluent treatment plant. A full-fledged green belt has been created by planting around 50000 trees.

The unit has a full-fledged safety department working round the clock and closely monitoring the safety standards in the complex. Every fortnightly safety meeting is conducted and the unsafe conditions or acts are highlighted.