

**IOL CHEMICALS AND PHARMACEUTICALS LIMITED**  
**Barnala (Punjab)**  
**Drugs & Pharmaceuticals**



**Unit Profile :**

IOL Chemicals and Pharmaceuticals Limited is a major Indian manufacturer of Organic Chemicals, Pharmaceuticals Bulk Drugs and intermediates founded in 1986. IOLCP has grown from a single product company to a major global player with a diversified multi product facility and quality professionals. IOLCP Limited's success is based on its strengths in chemistry & Technology, excellent facilities and absolutely dependable quality achieved with the help of highly qualified, competent & committed men power. The company has built up long term relationships with its business associates in India and world wide by supplying quality products on schedule and its commitment to ethical. IOL Chemicals and Pharmaceuticals Limited has world class manufacturing facilities located at village Fatehgarh channa, district Barnala of Punjab State.

The facility complies fully with cGMP standards. The company has two units

a) **Chemical Unit** b) **Pharma Unit**

b) **Pharma Unit**

This Unit manufacturing IBUPROFEN as per IP/BP/USP/EP/JP/Micronised. The Plant is designed to comply latest cGMP as well as WHO & FDA and 21 CFR. The capacity of plant is 10 TPD.

To fulfill the requirement of steam/power in chemical division and Pharma division, we have a 4MW cogeneration power plant. The plant is used to cater the steam and power requirement of the plan. The steam is produced at a pressure of 64kg/cm<sup>2</sup>. The steam is extracted at a pressure of 5.5 ata (24tph) and the rest is put to condensing to meet the power requirement.

Health, safety and environment responsibility is fundamental to IOLCP values. As to make IOLCP a world class company and the leader in chemicals and Pharmaceuticals, our vision is to make measurable improvements in the health, safety and environmental aspects of our products, services, and operations..... Every day, every month every year.

The unit is certified with

KOSHER Certificate-The IBUPROFEN is complying the LAWS OF KUSHRUTH and is processed and manufactured under HALACHA REGULATIONS. This is approved by Kosher Inspection service, India.

HALAL Certificate- IBUPROFEN is registered from the HALAL COMMITTE JAMIAT ULAMA-E-MAHARASHTRA.

ISO 9001:2000, ISO 14001:2004 is registered from BSI.

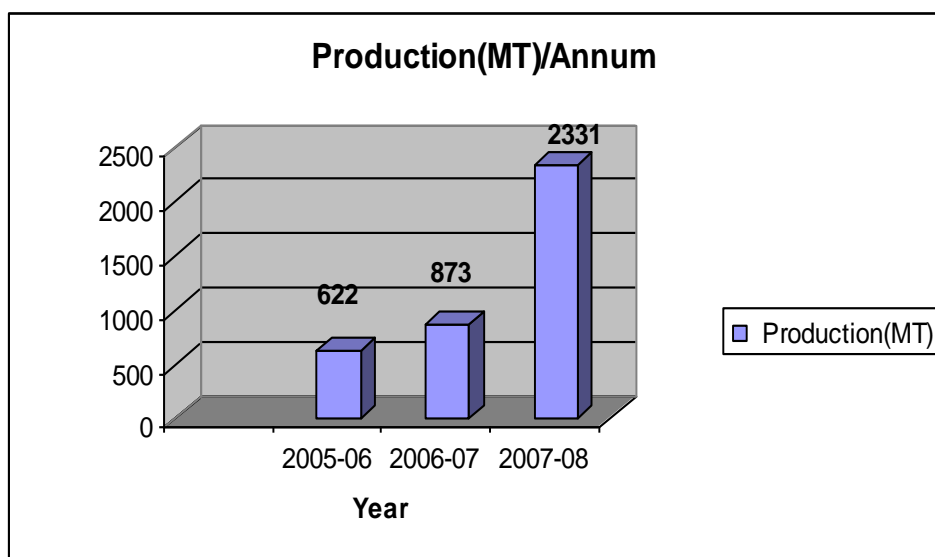
ENERGY AWARDS-The IOL Chemicals and Pharmaceuticals ltd is awarded from Ministry of Power for Energy savings in 2005, 2006, and 2007 in Chemical Sector.

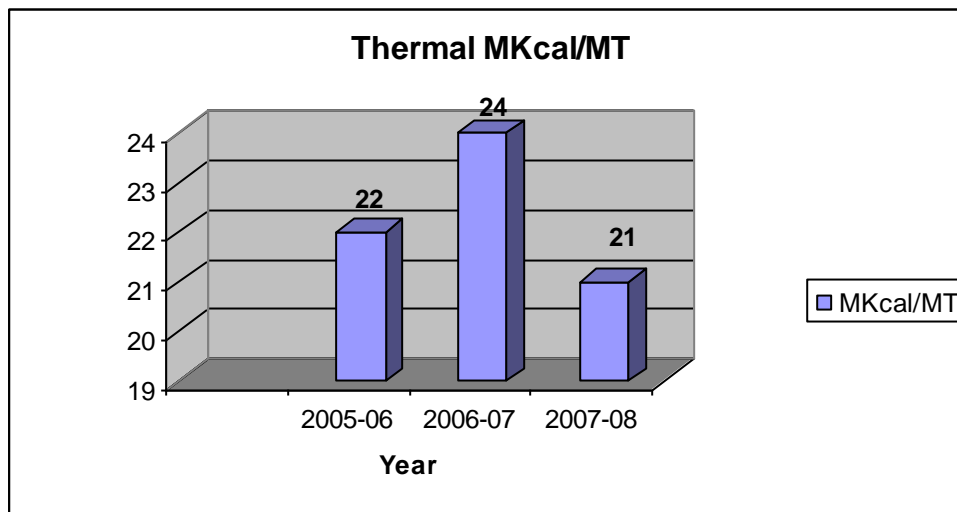
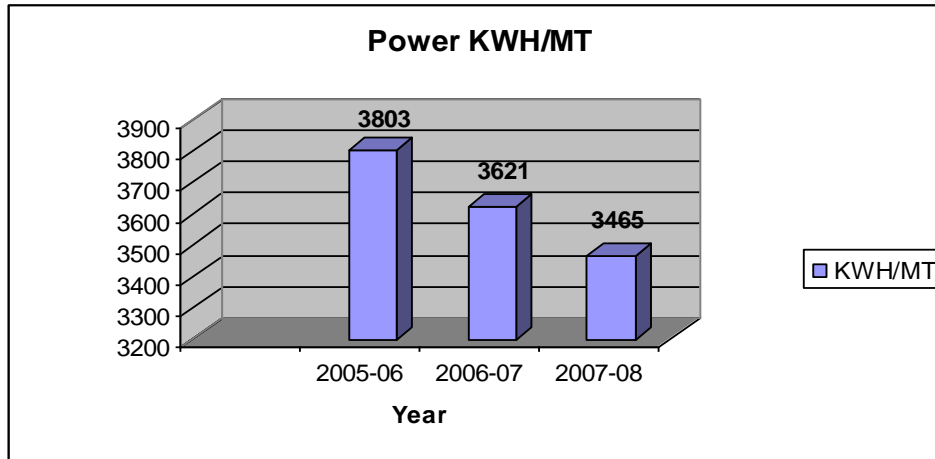
## Energy Consumption:

Energy Conservation continues to be an area of major emphasis for IOL Chemicals & Pharmaceuticals Limited. . IOLCP has been continuously making efforts to reduce specific energy consumption by both improving the technology & energy efficiencies of equipments.

For the last three years specific energy consumption shown below, which indicate continual reduction in energy consumption due to our sustained efforts to conserve energy with implementation of various energy conservation projects & ideas for increasing the efficiency of equipments/plant.

Description	Unit	2005-2006	2006-2007	2007-2008
Production	MT	622	873	2331
Electrical	KWH/MT	3803	3621	3465
Thermal	MKcal/MT	22	24	21





## Energy Conservation Commitment, Policy and Setup:

Energy Conservation has always been an important management objective. We are aware that conserving energy is desirable not only to reduce costs but also for conserving precious & fast depleting fossil fuel reserves and protecting the environment.

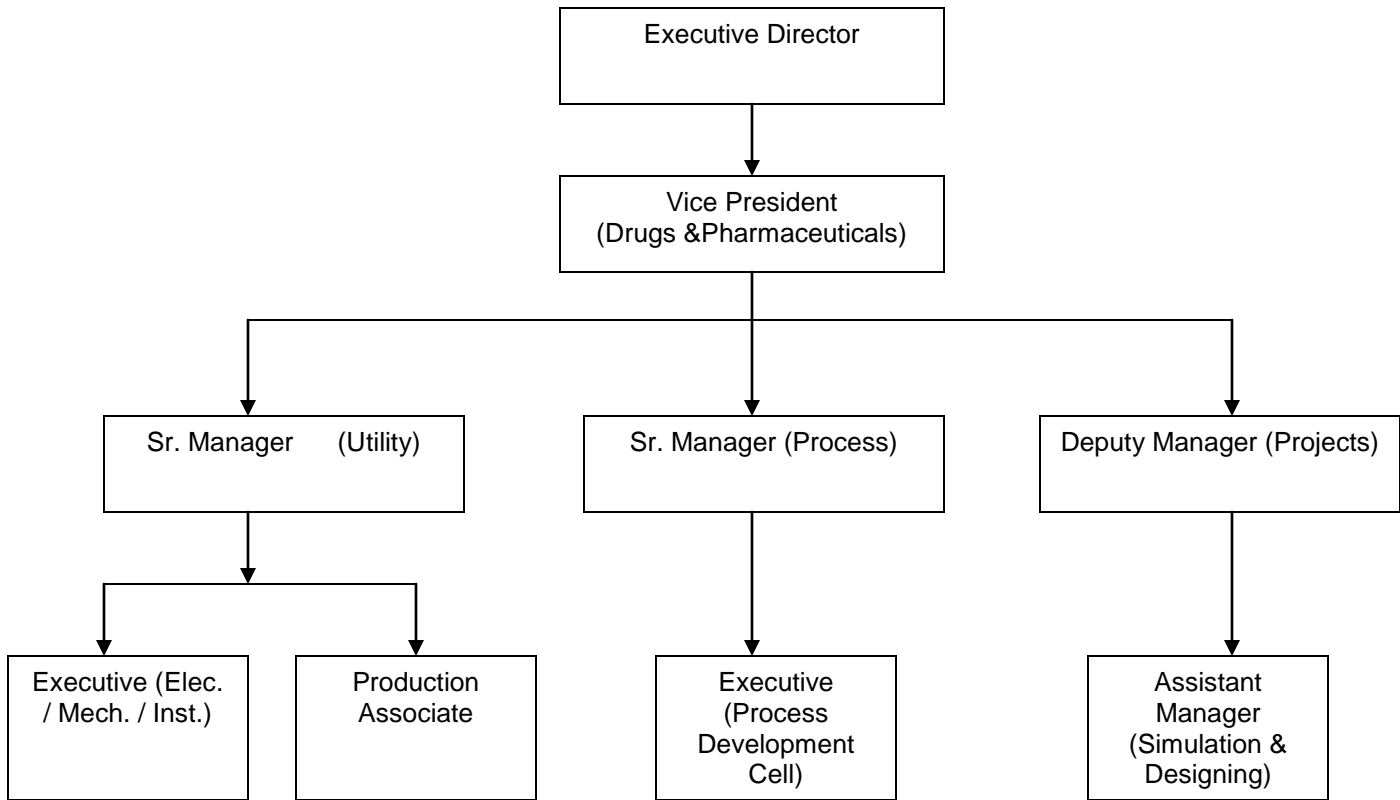
Modernization, Technology, Energy & solvent conservation, Process automation and waste elimination are some of the drivers adopted to drive this journey for continuous improvement, to reach excellence in the field of energy conservation.

## **ENERGY MANAGEMENT POLICY:-**

IOLCP is committed to produce good quality of product with a mission to reduce the specific energy consumption 5 % every year. The action plan for achieving the target is as follows:

- Adopting best energy management practices.
- Regularly monitoring energy use.
- Reporting quarterly on energy use to staff and at Management Board meetings.
- Establishing an Energy Management organization structure.
- Encouraging Energy Managers of significant facilities to initiate Energy Management Committees and/or Energy Champions for their facilities.
- Ensuring that new appliances, equipment, and building projects are energy efficient.
- Identifying all areas of opportunity for improved energy performance via detailed consultation with staff.
- Facilitate developing and implementing an action plan.
- Checking the effectiveness of the energy saving measures, periodically document any changes in procedures resulting from process improvement, and make comparisons with objectives and targets.
- Continual interaction with the technology suppliers and visits and interaction with best pharma based plants in world and benchmarking various parameters is an on-going exercise at Pharmaceutical & Drug division.
- Everyday energy consumption is reviewed in daily coordination meeting and corrective actions are taken best achieved consumption is taken as target.

**ENERGY CONSERVATION STRUCTURE:-**



**Energy Conservation Achievements:**

IOLCP has implemented many energy saving proposals of small, medium and large measures. IOLCP has always been a leader in adopting new developments in the field of ibuprofen production and number of modifications/revamp have been carried out over the year which have substantial improvement in energy consumption.

**Specific Energy Consumption Reduction:**

<b>Year</b>	<b>Product</b>	<b>KWH/Tonn</b>	<b>% Reduction Over 2005-2006</b>
<b>2005-2006</b>	<b>Ibuprofen</b>	<b>3803</b>	<b>--</b>
<b>2006-2007</b>	<b>Ibuprofen</b>	<b>3621</b>	<b>4.78 %</b>
<b>2007-2008</b>	<b>Ibuprofen</b>	<b>3465</b>	<b>8.89 %</b>

## Major Energy Conservation Projects implemented During the Year 2007-2008:

### Replacement of Hastelloy coil with continuous falling film reactor cum absorber.



Replaced conventional batch type Hastelloy coil system with high heat transfer coefficient continuous Graphite falling film reactor cum absorber thus resulting in shifting of heat load from Brine to CT Water moreover process breakdown eliminated after implantation of this system.

Power Saving: 1.35 lakh kwh per annum.

Steam Saving: 2400 MT per annum.

Investment: Rs 15.00 lakh

Saving: Rs 26.14 lakh/annum

## Replacement of Batch type CSTR Sulphuric Acid dilution system with Continuous Graphite Dilution system



Replaced the batch type CSTR Sulphuric Acid dilution with continuous energy efficient Graphite dilution system. Due to this replacement heat load from brine water shifts to the Chilled Water and Cooling Tower Water addition to this production increases in same set up due to reduced time cycle.

Power Saving: 0.50 lakh kwh per annum.

Steam Saving: 500 MT per annum.

Investment: Rs 4.50 lakh

Saving: Rs 6.41 lakh/annum

**Batch type High vacuum distillation replaced by Continuous Agitated thin film evaporator.**



High heat transfer coefficient  
Continuous Agitated thin film evaporator was installed in replace of batch type High Vacuum Distillation reactor, Better heat transfer co-efficient means using the same amount of area available more evaporation can be done, thus increasing production rate. results in maximizing productivity and yield by minimizing utility consumption.

Power Saving: 1.50 lakh kwh per annum.

Steam Saving: 2450 MT per annum.

Investment: Rs 20.00 lakh

Saving: Rs 27.06 lakh/annum

## Installation of Plate type heat exchanger instead of conventional Shell & Tube Heat Exchanger



Plate type heat exchangers were installed in replace of Conventional Shell and Tube type Heat exchanger. Due to this replacement steam consumption reduces by 1500mt/annum

Steam Saving: 1500 MT per annum.

Investment: Rs 15.00 lakh

Saving: Rs 12.60 lakh/annum

**Exhaust fan in Raw Material store was replaced by natural turbine air ventilators.**



Replaced the electrical operated exhaust fan with natural air operated turbine air ventilators. Hence now there is no power consumption for exhaust system. Moreover they are maintaince free and eco friendly.

Power Saving: 0.51 lakh kwh per annum.

Investment: Rs 2.02 lakh

Saving: Rs 2.28 lakh/annum

**Pitched blade agitators were replaced by Hydrofoil impellers in CSTR.**



The hydrofoil impellers produce the same process and flow results, at lower power consumption as compared to Pitched blade agitators thus results in saving of power and better yield.

Power saving: 0.50 lakh kwh per annum.

Investment: Rs 5.00 lakh

Saving: Rs 2.18 lakh/annum

**Process modification was done in intermediate stage through R&D to remove moisture instead of conventional distillation.**



Conventional distillation replaced by chemically treatment of intermediate solvent to remove moisture content, results in saving of steam consumption during distillation.

Steam Saving: 500 MT per annum.

Investment: Rs 2.00 lakh

Saving: Rs 4.20 lakh/annum

## Environment and Safety:

The unit is committed to preserve its Environmental, Occupation Health & safety of its employees.

### **Environment**

The unit has been accredited ISO 14001:2004 from BSI.

The Unit is dedicated for safe environment and has an “Environmental Policy”

The quality of treated effluent will be within the prescribed norms of PPCB.

The unit is continuously managing itself “Eco Friendly”.

### **Environment Policy:-**

We, IOL Chemical and Pharmaceuticals Ltd., are in the business of manufacturing Industrial Chemicals and Active Pharmaceutical Ingredients. In consequence to this we are committed for the protection and preservation of the environment with in and outside of our premises through following ways:-

- Incorporate Environmental management in all our business processes and practices.
- Strive to minimize adverse environmental impact by controlling emission, effluents and waste generation in order to prevent pollution.
- Optimum utilization of resources through Our practices – Recovery of solvents, improvement in the yields, energy and water
- Continuously upgrade the operating standards, EMS and to comply with applicable legalization and regulations.
- Create awareness about the EMS.
- Policy shall be reviewed periodically.

## **Safety:-**

Safety of employees is the prime concern of management at IOLCP and all measures are taken so that no untoward incidence took place.

- Entire plant area is dedicated as no smoking area.
- Work Permit procedure followed for all kind of jobs
- Adoption of health & safety policy
- Documented safety manual, Use of PPE's, Job safety analysis.
- Adequate fire protection system with 60 fire points at different location in plant.
- Onsite Emergency plant manual documented as part of ISO 14001:2004.

## **Strengths in Pharma Section for Energy Conservation**

- ✓ IOLCP is the second largest manufacturers of IBUPROFEN in India as a final product.
- ✓ IOLCP is the Indian first company to replace conventional batch type high vacuum distillation process into continuous distillation by using high heat transfer coefficient agitated thin film evaporator to save energy in pharma section.
- ✓ IOLCP is the first pharma manufacturer to design & implement quenching technology through falling film reactor cum absorber to save energy by shifting heat load from brine water to cooling tower water.
- ✓ IOLCP have designed the plant in such a way that all the material flows through gravitational flow instead of pumping to save energy.
- ✓ IOLCP is having backup of Chemcad software for designing & sizing of process equipments for optimum utilization of energy.
- ✓ IOLCP is continuously working on Pinch Energy technology for energy system utilization.
- ✓ IOLCP is having well professional qualified staff to make the plant energy efficient.