(i) UNIT PROFILE

Jubilant Organosys Ltd. is one of the largest Custom Research and Manufacturing Services (CRMAS) companies in India and a leading manufacturer of acetyl products, pyridines, pyridine derivatives and fine chemicals. The company is amongst the global leaders in the manufacture and development of pyridine and pyridine derivatives.

*The meaning of "**Organosys**" is derived from an amalgamation of "Organic" i.e., life and nature and "**Sys**" i.e., systems, synthesis and science. This combination makes **Jubilant Organosys a Science Active** Company that is focused on moving up the value chain through research-based knowledge industries.*

The net sales of Jubilant Organosys Limited recorded a growth of 22.8% to Rs. 19770 Million in 2007-08 as compared to Rs. 16097 Million in the previous year. The corporate headquarters are at NOIDA (Near Delhi). The company is further supported by an international subsidiary in U.S.A. and representative office in China. Global customers in more than sixty countries rely on our Science Active quality products. Our export revenues were Rs.8860 million in 2007-08

Business Operation – The business of Jubilant Organosys Limited is organized into three divisions. The individual businesses have fully integrated strategic growth units. The science Active products from the business units serve a number of industries such as pharmaceuticals, agrochemicals, textile, construction, food & beverages and paper & packaging.

FACTS ABOUT THE COMPANY :

Jubilant Organosys Limited is the largest specialty chemical company of India and a leading global manufacturer in defined chemical categories viz. largest in pyridine and its derivatives, third largest in solid polyvinyl acetate and leading positions in acetyls and other specialty chemicals. These include pharmaceuticals & life science chemicals, performance chemicals, organic intermediates, agri products and a range of other specialty chemicals.

Jubilant Organosys Ltd.was incorporated in the year 1978 under the Companies Act, 1956 .The company is part of Jubilant Corporation, which also includes Jubilant Enpro, Domino's, Jubilant Biosys. The manufacturing facilities located at Gajraula in JP Nagar District, U.P.

The company established an R&D group in the year 1982 and the R & D was recognized by the Dept. of Science and Technology (DST). The groups have developed a number of products, which have been commercialized over a period of time. The various

groups of the R&D carry out research in the field of Polymers & adhesives, 'Organic chemicals, Biotechnology and Environment.

***MORE ABOUT THE COMPANY* :**

The three main divisions are:

- Organic Intermediates Specialty & Fine Chemicals Division
- Performance Chemicals Division
- Plant Health & Animal Nutrition Division

I : Organic Intermediates, Speciality & Fine Chemicals Division:

The Organic Intermediate business is the largest producer of acetyl range of products in India and largest producer of acetic acid from renewable resources worldwide. Entire ethanol production, sourced in-house from one of the **world's largest** distilleries, is **utilized captivity for down stream**. This makes us reliable and consistent supplier of ethanol based products.

Pyridine, a basic organic chemical, is an excellent solvent and versatile building block in agrochemical and pharmaceutical industries. It acts as an acid scavenger and can catalyse reactions. The major uses of pyridine is conversion to bipyridyl compound for agrochemicals. Chlorinated, brominated and hydrogenated pyridine and pyridine derivatives are popular intermediates in the pharmaceutical industry

Products	**Principal Applications**
Acetaldehyde	Organic chemical
Glacial Acetic Acid	Ethyl Butyl and other esters, Vinyl Acetate, Acetic Anhydride, PTA, Dyes, Drugs, Agro-chemicals, Textiles etc.
Acetic Anhydride	Dyes-stuffs, Paracetamol, Aromatic chemicals, Cellulose acetate, Agro-chemicals, Aspirin.
Ethyl Acetate	As a solvent
Vinyl Acetate	Polyvinyl Acetate & co-polymers, Polyvinyl alcohol & compositions, used in adhesives, coatings, inks and fibers.
Pyridine Alpha-Picoline Beta-Picoline Gama-Picoline 2-Cyano-pyridine 3-Cyano-pyridine 4- Cyano-pyridine 2-3-5-Collidine 2-3 Lutidine, 2-6 Lutidine, 3-5 Lutidine Pyridine hydro-bromide Pyridine hydro-chloride	Herbicides, Biocides, Pharmaceuticals Vinyl Pyridine, Agro-chemicals Insectcides, herbicides, vitamins Isoniazid (anti TB drug), 4-vinyl pyridine Agro-chemicals Niacinamide Isoniazid Intermediate in pharmaceuticals and agro-chemical products Pharmaceuticals Pharmaceuticals Pharmaceuticals

Custom Research & Manufacturing Services:

Jubilant Organosys is **"One stop shop"** for giving pharma companies services right from early stage development phase to commercial production which include product development, process development and technology scale-up, in-house research and integrated engineering capabilities complying quality and environmental regulations. Its strong IT & communication network and efficient supply chain management systems support effective solutions.

We offer seamless scale up from grams to Metric Tonne quantities:

- Grams quantities of intermediates for API, agrochemical and other industries can be offered from our lab facilities.

- Smooth scaling-up process from grams quantities in lab to kilograms and few MTs in our **kilo lab** facilities. Our process of manufacturing at this stage is completely developed and ready to cater large-scale requirements.

- Commercial quantity requirements (5 to 100MTs and above) can be produced at our multipurpose facilities using process developed at the lab and kilo lab levels of manufacturing.

Chemistry services*:*

Jubilant offers chemistry Services on **molecule or FTE** basis for advance intermediates and NCEs in milligrams to grams quantities for drug discovery, pre-clinical and clinical studies.

Multipurpose Production Facilities:

Our multipurpose production facilities at Gajraula**, strictly operating on cGMP guidelines,** is the latest addition. The facility is used to manufacture wide range of intemediates for pharmaceutical, agrochemical and other industrial applications. Multipurpose facilities are supported by process development, analytical laboratories, solvent recovery and recycling facilities and incinerators for both organic and inorganic effluents.

II : Performance Chemicals Division:

The Performance Chemicals business is a recognized leader in the manufacture of products such as emulsion polymers, adhesives, wood finishes, speciality polymers, Liquid CO2, and their application to industry segment as diverse as tyres, textiles, construction, decorative paints, packaging, paper coating, food & beverages. The business works closely with customers, using research and development to introduce new products to suit the end consumer's needs.

The products are sold under the brand names vamicol, vamigum, shakticol, vambond and vamifix. An umbrella brand **JIVANJOR** has been adopted for the branded products of Jubilant Organosys Limited.

Products	**Principal Applications**
Emulsion Polymers	Paint Coating, Textile & Lamination, Pressure sensitive packaging, Cigarettes & Adhesive.
Solid Polyvinyl Acetate	Chewing Gum / Bubble Gum base
Hot Melt Adhesives	Book binding, Packaging and Labeling, Telecom cables, and white goods electronics.
Flexible Packaging Adhesives (Polyurethane)	Lamination – ➢ Film to film, Metalized BOPP ➢ Metalized PET
CO2	Soft drinks and food, Green houses, Fire extinguishers, Shield gases for MIG, MAG, welding for Ferro steel material.
Foot wear and leather products adhesives	Foot wear substrates, Leather garments, Belts, Purses, Upholstery,
Art and Craft adhesives	Art and craft adhesives, Bonding of papers, Card boards, Fabric, Rubber and leather substrates,
Wood finishes chemicals	Furniture, Interiors,

III : Agribusiness Division:

The growth unit focuses on improving soil health and providing crop nutrition and Corp protection products for farmers. The core products manufactured by this unit include Fertilisers, Organic manuares and Insecticides. The endeavor of this unit is to provide refined technology for the benefit of farmers by working with them, anticipating their needs and doing so with a more environmental friendly approach. The range of products offered are in the following segments of use

- **Soil Health** : Ramban Organic Manure (ROM)

  This is an eco-friendly manure manufactured by recycling agricultural solid waste into a beneficial "Soil Enricher" by composting and value addition. ROM helps to maintain soil fertility and protects soil health making it an ideal partner for sustainable agriculture.

- **Crop Nutrition** : Ramban – Single Super Phosphate (SSP)

  This is a high quality Phosphorus and Sulphur supplying fertilizer

- Ramban – SSP is the largest selling brand of SSP in Northern India and is the preferred brand amongst the farmers.
- This plant is the first ISO 9002 accredited SSP manufacturing facility in the country with an annual capacity of 1,32,000 TPA.
- It has bagged the Environment Protection Award several times. The latest being for the year 2000-2001.
- The plant has a 180 tons per day capacity Sulphuric Acid (98.4% conc.) manufacturing unit.

Products	**Principal Applications**
Powdered Single Super Phosphate	**Useful for short duration crops such as Oil seeds, Pulses and Vegetables.**
Granulated Single Super Phosphate	Effective and useful in long duration crops like Sugarcane , Wheat and Paddy.

- Ramban SSP gives pronounced results in Sulphur deficient soils and Sulphur loving corps like Oil seeds and Pulses.
- Ramban SSP increases oil content and protein in seeds.
- Besides improving the quality of produce, significant yield improvements with the use of Ramban SSP have been reported.
- Ramban SSP is also a good soil conditioner and helps to reclaim the alkaline soil.

(ii) ENERGY CONSUMPTION :

The company has accorded top priority for minimizing energy consumption by putting consistent efforts towards optimization of operating / process parameters, modernization / upgradation of plant / equipment. The main energy source is in the form of Coal, FO, LDO, HSD and Biogas (own generation) and electricity. The company has 100 % self-sufficiency on power front.

The annual energy bill of the company for the year 07-08 was Rs.12574 lacs and was 15.21% of the total manufacturing cost. Continuous efforts have been made to bring down the figure from 21.03 % during 2005-06 indicating a significant reduction in the energy expenses as compared to previous years, inspite of rising prices of fuels and higher production levels. This has become possible by optimization of process parameters, technology innovation, R & D at the plant level and through analysis of Energy data at various levels. The energy consumption trends for the last five years as a function of the manufacturing cost for the site have been presented in the Table below.

DESCRIPTION	UNIT	2005-06	2006-07	2007-08
Electrical Energy	Lacs KWH	**1453.9**	**1652.49**	**1756.25**
Thermal Energy	M kcal	**744858**	**813535**	**947442**
Manufacturing Cost	Rs.lakhs	**47152**	**77635**	**82654**
Total Energy Bill	Rs.lakhs	**9937**	**9929**	**12574**
Energy as % age of total Cost of Manufacturing	%	**21.03%**	**12.73%**	**15.21 %**

Note: Manufacturing cost includes DFO , IDFO , R & D ,RMC, Fuel and Chemicals Cost.

(iii) ENERGY CONSERVATION COMMITMENT, POLICY & SETUP :

Commitment :

The top management is committed towards Energy Conservation. There is a full-fledged Energy Cell for close monitoring and control of Energy consumption parameters. Losses through the distribution network are monitored on regular basis and analyzed for preventive and corrective action.

Energy saving proposals are prepared by the plant heads involving section incharges, shift incharges and the workmen. The schemes are first discussed with the Head of Engineering / Head of Six Sigma and Head of Production and once the schemes are found feasible with 1-2 years pay back, they are forwarded to the top management for approval. These proposals are taken in to implementation once the top management gives the approvals.

The head of Six Sigma is functionally responsible for…

1. Identification area for improvement in Yield of finished product, Specific Energy consumption, Quality improvement and Capacity enhancement.
2. Bringing in operations ease, improving process safety and minimizing damage to the environment.
3. Finding alternative technologies for processing fine chemicals.
4. Creating value added outlet for the waste products

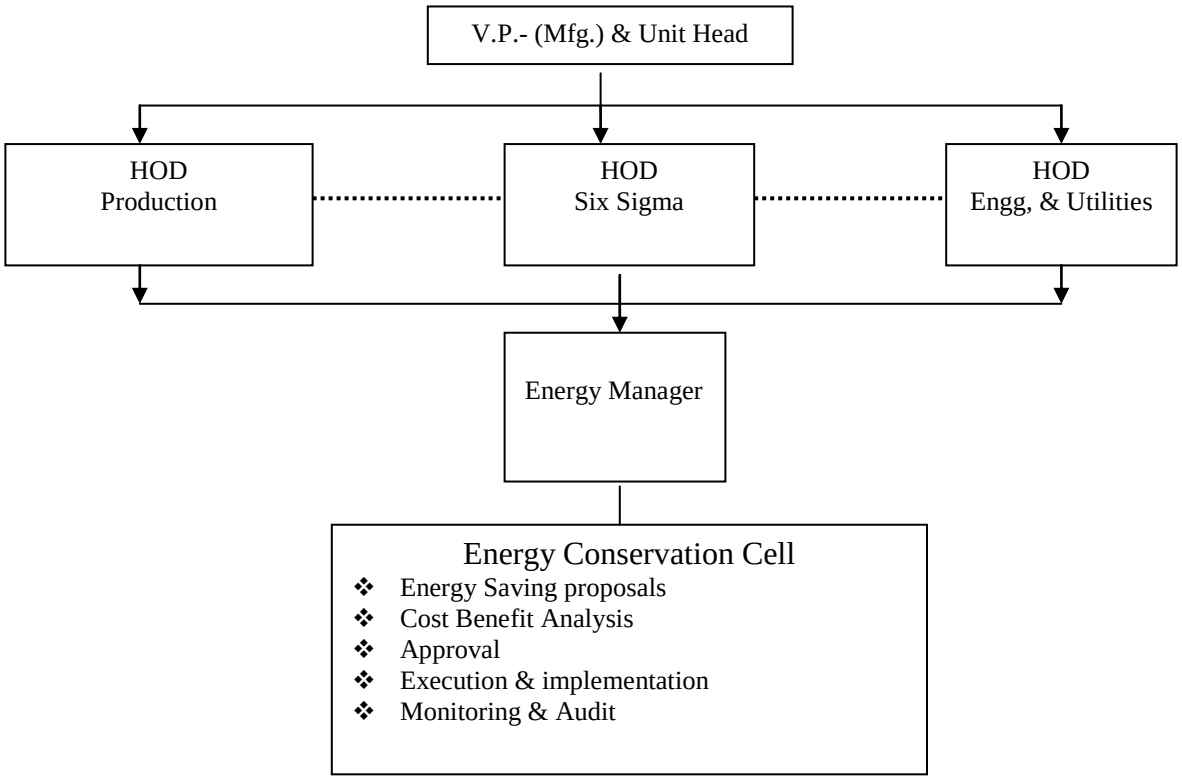
Jubilant Energy Policy :

Our policy is to manufacture and supply products with the lowest specific energy consumption.

We target to achieve this through..

- Maximizing utilization of non conventional fuel
- Continuous benchmarking witin the industry.
- Effective management of energy resources through good operating and maintenance practices.
- Incorporating energy efficient technologies
- Training & developing awareness about energy conservation programme among employees.

Energy Conservation Team Setup:



(iv) ENERGY CONSERVATION ACHIEVEMENTS:

Jubilant Organosys Limited has consistently achieved reduction in Energy consumption at the same time increasing production and productivity consistently. The company has improved its own earlier achieved specific consumption, norms consistently. Various Energy Conservation schemes in house & suggested by external agencies were taken up on continuous basis. The Major energy saving projects/ schemes for the year 2007-08 are as follows:

- To reduce energy consumption on CT-5.
- To heat DM Water from flash steam at P &P..
- Reduction of power consumption at CT-5A.
- To utilize surplus flash steam at new acetyls.
- Optimization of power consumption in the hot oil pump of water base furnace.of 3CP Plant.
- Reduction in the consumption of LDO at Lutadine Plant.
- Utilization of hot water unit of 3CP for the hot water requirement of the PHBR Plant.
- To utilize the LP Condensate in Pyridine & Picoline Plant.
- Optimization of power consumption in the brine circulation at FC.
- To separate the condensate of EA-1 & EA-2, to optimize the drainageof condensate at the start up & S/D of the plant.
- Optimization of power consumption at the blower of ACH-6.

The energy consumption effort has been combined with environment management to achieve the overall impact and the company has maintained a good track record on the energy management front. ***The company has been awarded first position on three occasions for energy conservation efforts / measures, by the Ministry of Power, for the Chemical sector***.

Besides, the company has bagged various prestigious awards in the past & the Table below enumerates them.

AWARDS MERITS RELATED TO ENERGY/ENVIRONMENT	
• **NATIONAL ENERGY CONSERVATION AWARDS**	
Energy Conservation Awards from the Government of India, Ministry of Power for the Chemical Sector	
Year	***Award Gaining Position***
1997	***First***
1998	***First***
1999	***Second***
2000	***First***
2001	***Second***
2003	***Second***

• ***ICMA Energy Conservation Award 1999 – Certificate of Merit***
• **National Safety Award for 1997 & 1998**
• **FAI Runners Up Award for best overall Performance in Environmental Protection for Fertilizer Division in 1997**
• **Best Distillery in U.P. for Environmental Performance 2001** • **Received Golden Peacock Award for Innovation management from the Institute of Directors in 2003-04**. • **Received Golden Peacock award Environment management 2005**, • **Green Tech Foundation award for outstanding achievements in Environmental Management 2005.** • **Green Tech Foundation award for outstanding achievements in Safety Management 2004, 2005 and 2006.** • **Golden Peacock Award for Corporate Sustainability (CSR)- 2007-08** • **Golden Peacock Award for Corporate Governance.**

The company has saved Rs. 328 lacs as a result of energy savings during the year 2007-08 with an investment of Rs.66 lacs and has plans for saving Rs 333 lacs during the year 2008-09 with an investment of Rs. 302 lacs. (***Please refer Annexure- 4 & 6 for details)***

(v) ENERGY CONSERVATION PLANS & TARGETS :

S. No.	Plant / Dept	Energy consevation Measures(Planned)	Anticipatet and Savings in Lakhs.	Approx. Investment (Rs.Lacs)
1	FC-II	Reduction of power consumption at the hot water pump of FC-II ,FC-III & FC-IV by optimizing the circuit.	2.00	3.8
2	Sulphuric Acid.	Reduction of power consumption at the cooling tower of Sulphuric acid Plant.	5.00	6.0
3	Incinerator III.	Reduction of power consumption at Combustion air Blower.	4.86	
4	p&p	To reduce the power consumption in the cooling water system of Pyridine plant.		0.0
5	KILO LAB.	To utilize waste heat vacuum seal pots of kilo lab and SPVA plants.	8.00	6.0
6	90TPH	To reuse blowdown of 90 TPH and medium pressure boilers.		14.0
7	CO2	To reduce the power consumption in raw water pumping at CO2 plant.	1.63	2.0
8	EOU.	Elimination of steam venting from LP flash vessel at EOU.	15.09	
9	WTP	Reduction of power consumption at the borewell pump.	5.00	5.0
10	Distillery.	Reduction in power consumption at distillery.	9.00	
11	EOU.	Optimization of power consumption in the cooling water circulation at EOU.		
12	MEE	Reduction of power consumption in cooling water circulation at MEE-I & MEE-II		
13	EOU.	To convert chilled water system at EOU from open loop to closed loop.	2.33	4.0
14	AGRI.	To use biowaste (bagasse) in SSP and GSSP furnaces.		
15	Boiler.	Optimization of the operating hours of the wet ash conveying system at 90 TPH boiler.	10.00	22.0
16	Kilo Lab.	Optimization of asset utilization .	4.75	
17	MEE-II	Utilization Of condensate draining at MEE.		

18	Boiler.	To utilize the heat of condensate for heating the feed water of boiler.	217.00	37.0
19	Coal Handling Plant.	Reduction in handling hours of coal handling plant of 20 & 40 TPH.		
20	SRP.	Recovery of condensate draining.	9.00	
21	Boiler.	Installation of 32 to 15 Kg/cm2 Steam Turbine to generate Additional power		
22	AC2O.	Utilization of flash steam of acetyl area.	11.31	
23	FC	Rerouting of 15 to 8 kg/cm2 steam utilization.		
24	FC-I	Reduction of power consumption at the FBR Blower in FC-I		
25	Acetyl.	Reduction in power consumption at Brine chilling plant (Acetyl).	14.45	70.0
26	Boiler.	Pre screening of fines (< 6 mm) in ROM coal.		
27	Boiler.	Installation of additional Ash -silo for medium pressure boiler.		
28	Acetyl.	Reduction in steam consumption at VAHP obtaining by buyback method.	13.21	133.0
29	PVA.	To reuse heat of condensate.		
30	p&p	Reduction of fuel consumption in hot air generation.		
	Total		**332.6**	**302.8**

PLANNED SPECIFIC ENERGY CONSUMPTION TARGETS

5	**PLANNED SPECIFIC ENERGY CONSUPTION TARGETS FOR THE YEAR 2007-08 & 2008-09**				
Year	**Product**	**Electrical**	**Thermal**	**Reduction Over the Year 2006-07**	
				Electrical %	**Thermal %**
2007-2008	Acetyl	213.86	1.03		
	Polymer, Co- polymers.	235.16	0.04		
	Specially Chemicals, Pyridine & derivatives.	510.67	3.00		
	Corbon –di- oxide.	241.24	0.02		
	SSP/ Sulphuric Acid.	40.82			
2008-2009					
	Acetyl	211.29	1.015	1.2	1.5
	Polymer, Co- polymers.	232.34	.039	1.8	1.3
	Specially Chemicals, Pyridine & derivatives.	504.54	2.955	1.5	1.8
	Corbon –di- oxide.	241.00	0.020	1.2	3.0
	SSP/ Sulphuric Acid.	40.33	--	3.2	--
2009-2010					
	Acetyl	208.76	0.999	1.2	1.5
	Polymer, Co- polymers.	229.55	0.039	1.8	1.3
	Specially Chemicals, Pyridine & derivatives.	498.49	2.911	1.5	1.8
	Corbon –di- oxide.	239.79	0.019	1.5	3.0
	SSP/ Sulphuric Acid.	39.85	--	3	--

(vi) ENVIRONMENT & SAFETY

As a responsible corporate entrepreneur, company believes in the principle of Safe, Healthy and clean environment in all its activities. Safety, Health & Environment are integral part of industrial activities and development process of Jubilant Organosys Limited. To achieve the aim of zero injuries, management has adopted safe and standard practices in day today working. The main activities being conducted by Fire Safety & Environment (FSE) department are:

- Encouraging the participation of all employees, developing and following SOPs.
- Developing & Implementation of Work Permit System,
- Imparting training to all employees and contractor workers,
- Safety & Environmental audits of plants, Environmental Monitoring,
- Analysis regarding the precautions to be taken to prevent accidents,
- Pre-startup Safety and Environmental Review of new Projects,

- ❖ Resource Conservation and Designing the new system for improving the Environment & Safety.

Jubilant, in line with its commitment to '**Responsible Care**', places a special emphasis on safety and care for the environment at all stages of its product value chain. At the design stage itself, **Material Safety Data Sheets (MSDS)** are developed for the safe handling, storage, transport and use of the products. These data sheets are reviewed, and its contents upgraded, on a continuous basis

On environmental front, company is working together with research institutions like NEERI, ITRC, IARI etc to develop various alternatives of environmentally compatible modes of utilization of treated effluent and besides saving the precious commodity i.e. water. In last two- three years, company has invested more than thirty crore of rupees in modernizing/revamping and providing the extra treatment facilities for Pollution Control and resource conservation.

The company has also received the OHSAS-18001 certification for the site, besides extending the ISO-14001 to the other plants at Gajraula site*. The Gajraula unit received the Best Distillery in U.P. for Environmental Performance –2001 from Government of Uttar Pradesh.*

The company has been selected by CII as one **of the four companies in the country for development of corporate sustainability Management Systems.** In fact, the company has already embarked on the concept has taken the bold step of holding Community Meets every month. These are open session with participants from the local surrounding community.