

ASIAN PAINTS LIMITED, PATANCHERU (ANDHRA PRADESH)

Company Profile

Asian Paints Limited, Patancheru plant manufactures decorative and industrial paints, resins and varnishes. The plant was setup in 1983 and has expanded, over the years, to a total capacity of 80000 KL of paint per annum as on date. Asian Paints is the leading decorative paints company in India and has various units operating in the Asia-Pacific, the Middle East, etc.

Energy Policy

We are committed to continuously improve energy efficiencies in all our manufacturing processes.

To achieve our goal we shall:

Treat energy as one of the very vital inputs to our manufacturing processes.

Measure energy consumption, benchmark and monitor against entitlements.

Review and update entitlements at least once in a year.

Continuously explore and implement energy conservation technologies and practices. This will include opportunities to use renewable energy.

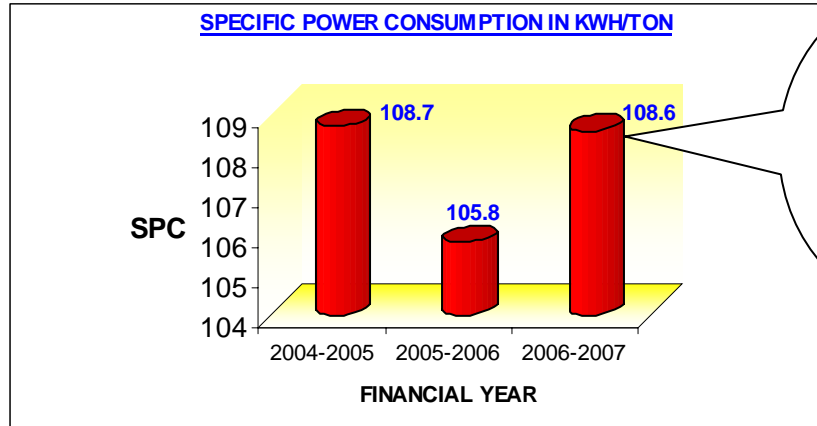
Enrich our experience and knowledge by actively participating in energy conservation forums to promote and exchange best practices.

Promote awareness among all our employees and their families about the need for energy conservation.

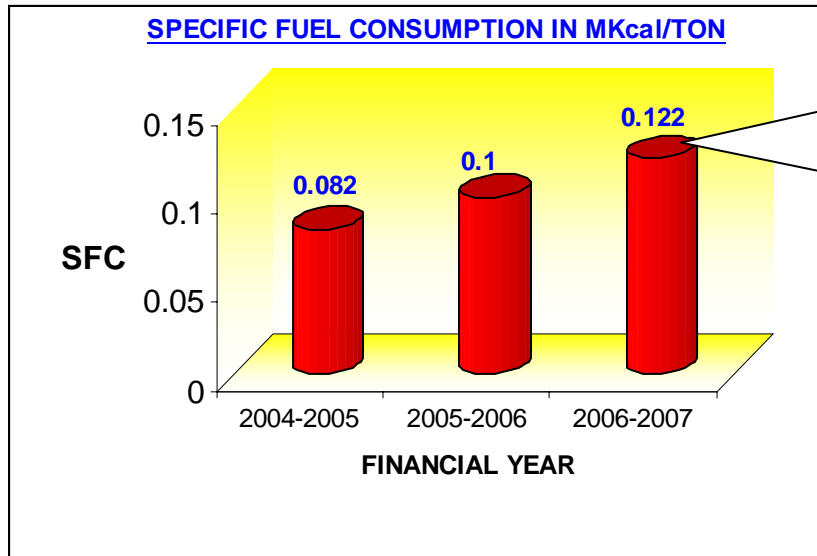
Energy Consumption

Specific power consumption details	Unit	2003-04	2004-05	2005-06
Annual Production	MT	73792	72378	78537
Total Electrical Energy consumption per annum	Kwh (lakhs)	80.22	76.59	85.28
Total Thermal Energy consumption	Million K Cal	9213	8920	9636
Total Manufacturing cost in rupees.	Lakhs	2207.85	2970	3004
Total Energy cost in rupees.	Lakhs	587.50	584.97	664.32
Energy cost as percentage Manufacturing cost	% age	30	19.7	22.1
Specific Power Consumption	KWH/MT	108.71	105.8	108.58
Specific Thermal Energy Consumption	MK Cal/MT	0.110	0.108	0.122

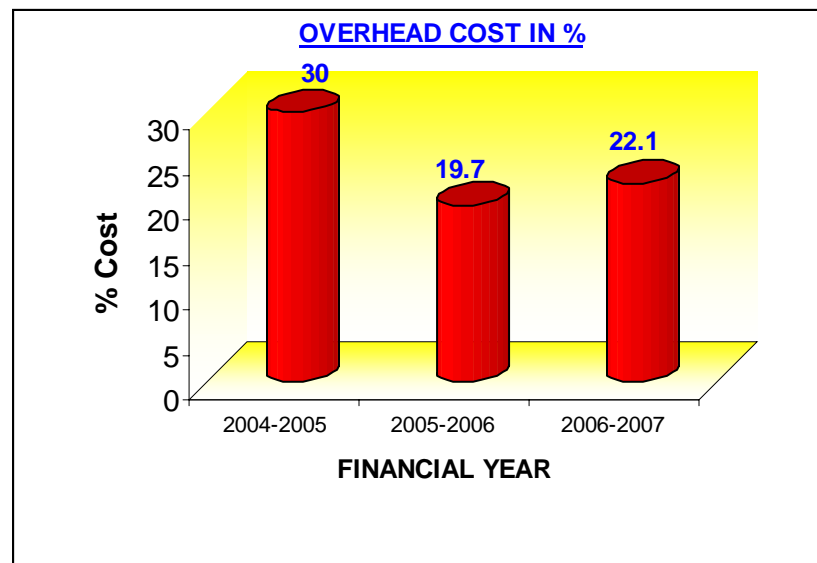
Graphical Representation of Specific Energy Consumption



As part of automation in the plant we have added Two automatic packing lines which mainly runs on compressed air. Because of these M/Cs SPC has increased.



MKcal/Ton has increased because of increase in production of higher cycle time Industrial Resin

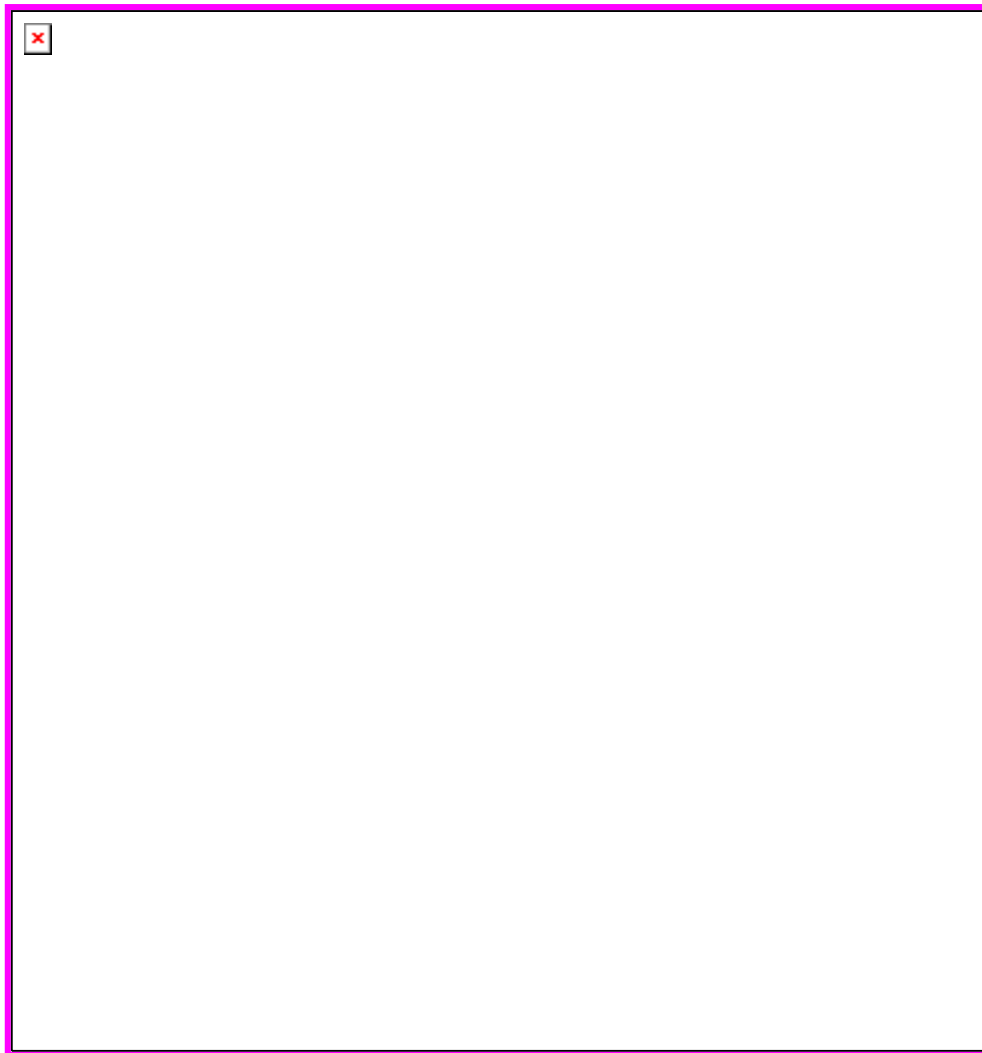


Energy Conservation Commitment and Set-up

Energy Conservation is identified as one of the plant goals towards continuous improvement. Every year, several activities are taken up to reduce the consumption of various forms of energy. Several awareness campaigns are carried out to nurture attitude towards Energy Conservation as a day-to-day work practice.

The plant has an Energy policy that is modeled with sustainable development as the basis for resource conservation.

Energy Conservation Cell Structure



The Plant Energy Council is the nodal agency for coordinating various Energy Management and Conservation activities. Members are drawn from various sections and all user groups are well represented. The council evaluates the specific energy consumption trends and identifies tasks towards reduction in energy consumption. Reduction in manufacturing cycle times has been a key benefit due to the involvement of user groups in Energy Management.

Energy Conservation Achievements

Over the past few years, rapid strides have been made in improving manufacturing operations. Effective Energy Management Drive has been a key component in the continuous improvement process. As part of this drive, several energy conservation initiatives have been implemented. A total of 67 initiatives have been implemented during the period 2000 – 2007, with energy savings amounting to Rs. 151 lakhs. Plans are on the anvil to achieve further reduction in specific energy consumption. An important milestone in the continuous improvement process was achieved in the development of a unique Energy Model.

Major Energy Conservation Projects implemented during the year 2006-2007

1. Conversion of Thermopacs and Boilers from HSD to LPG

As a part of our continuous exercise to reduce cost and develop a cleaner environment, we had explored usage of various cheaper yet cleaner fuels against HSD & LPG was found the most appropriate fuel available at higher calorific value and lower cost. After a detailed study, a 10 MT and 5 MT LPG bullets were installed by SUPER GAS on BOM (Build, own & maintain) basis.

Thermopacs TP-20, TP6 & one Boiler converted to run on LPG. The above heating utilities consume 70% of the total fuel and hence maximum benefits arising out of conversion. After installation the consumption of LPG is monitored on monthly basis.

Energy Savings per annum	:	160	MKcal
Savings in Rs. per annum	:	52	Lakhs
Investment made	:	24.3	Lakhs
Pay back	:	6	Months



2. Power quality improvement

A MaxPower™ system was installed to replace Capacitor panels for control of power factor in the plant. The MaxPower™ system allows the correction of multiple problems at once, which results in energy savings and power quality. The unit is installed in LT room as well as in individual MCCs at 6 different areas in the plant. This unit samples voltage, amperage, power factor, and current threshold, calls for different stages, different configurations and different hybrid configurations of the stages to address a particular or multiple problems that exist.

Energy savings per annum	:	3.9	Lac KWH
Savings in Rs. per annum	:	14.1	Lakhs
Investment made	:	25	Lakhs
Pay back	:	21	Months



3. Replacement of old inefficient air compressor with new screw air Compressor

Energy audit conducted in the plant showed that we are using 11.86 KWH power per KL of paint produced which was very high. Hence we have replaced the two old compressors with one 587 cfm screw compressors and some energy conservation activities in the compressed air network. As this new air compressor is air cooled we have stopped the water pump of 2.2 KW. Separated the high pressure areas which operate at 6 bar pressure and low pressure areas which operate at pressures between 4 to 5 bar. 6 areas of body cleaning are identified and air guns with pressure regulators were provided to give low pressure air.

Energy savings per annum	: 3.6 Lakhs KWH
Savings in Rs.per annum	: 12.96 Lakhs
Investment made	: 8 Lakhs
Pay back	: 8 Month



4. Replacement of old inefficient cooling water pumps in Grundfos Hydro pumping system

During energy audit in the plant we observed that cooling water valves were found to be open without any utilization where cooling water supply is required only during the cooling cycle of Reactors and Blenders. Interlocking of the cooling water valves with process equipment during running was immediately completed. Replaced the old inefficient pumps with Grundfos skid mounted Hydro pumping system with inbuilt VFD and Microprocessor to control the pumps depending on the discharge header pressure. A pressure transmitter in the delivery header of the pumps would sense the pressure and give feed back to the system. When the equipment is not running cooling water valves closes automatically, when the valves closes pressure in the header will increase. This pressure will be sensed by pressure transmitter and will give feed back to the microprocessor in the pumping system, this microprocessor will give signal to the VFD to control the speed of the pump to match the discharge header pressure with SET pressure. There are three pumps in the system on common skid, depending on the pressure requirement ether one, two or three pumps will be in ON condition. VFD will be shifted from one pump to other pump depending on the running hours of the individual pump.

Energy savings per annum	:1.08 Lakhs KWH
Savings in Rs.per annum	:4.32 Lakhs
Investment required	:6 Lakhs
Payback	:16 Months



5. Energy efficient agitator for continuously run high rated motors.

Worm and Worm gear boxes with pitch turbine type agitators were used in Resin house trade Reactors. With advent of new technology, agitators with hydrofoil design was found in the market. A detailed study was made with RATHI LIGHTENIN and proposed to install energy efficient hydrofoil design agitator with helical gear box to Reactors. The new energy efficient hydrofoil design agitator was installed, commissioned and performance was found satisfactory.

Energy savings per annum	:	1.44 Lakhs	KWH
Savings in Rs.per annum	:	5.184 Lakhs	
Investment required	:	9.0 Lakhs	
Payback	:	21 Month	



6. Auto cut off for Cooling Tower pump in WBU cooling water system when reactor cooling is not there

During Energy audit we found that cooling tower pumps are running without utilization while the process equipment was switched OFF. Interlocking of the cooling tower pump with the process equipment was thought off. Interlocking between pump and cooling valves was made in the existing DCS System. When any one of the cooling valves of both reactors are in open condition pump will switch ON automatically, if all valves are in closed condition pump will switch OFF.

Energy savings per annum	:	24000 KWH	
Savings in Rs.per annum	:	0.865 Lakhs	
Investment required	:	0 Lakhs	
Payback	:	0 Months	



7. VFD for Cold well pump in 36 TR Chilling plant

Cold well pump is running continuously 24 hrs a day. During the study in Chilling plant we observed that chilling plant load is connected to 14 Sand mills and all sand mills do not run simultaneously. We have decided to install a new VFD with pressure transmitter in the discharge header of the pump.

We have provided VFD for Coldwell pump of chilling plant and interlocked the VFD with pressure transmitter fitted in the discharge header of the pump. Whenever sand mills are not running pressure in the discharge header will increase and the same will be sensed by pressure transmitter which will give feed back to VFD to control the speed to maintain constant head in the discharge header.

Energy savings per annum	:	37440 KWH	
Savings in Rs. per annum	:	0.70 Lakhs	
Investment required	:	1.348 Lakhs	
Payback	:	6 Months	



8. Interlocking of Chilled water valves with process equipment(Sand Mills) to reduce the load on the pump as well heat load to chiller.

SBU Chilling plant compressor found running 20 hrs per day. During energy audit in the plant we observed that chilling water valves were found open without utilization, when process equipment were not running. Chilling water supply is required only during the running time of Sandmills, remaining time no need of chilling water circulation. Interlocking of the chilling water valves with process equipment during running was thought off. Installed the auto cutoff valves in chilling water lines of the equipment and given interlock such a way that valve open only when the Sandmill is in ON condition. Installed one pressure transmitter in the delivery header of the pumps to sense the pressure in the header. When the equipment is not running chilling water valves closes automatically, when the valves closes pressure in the header will increase. This pressure will be sensed by pressure transmitter and will give feed back to the VFD of Coldwell pump to control the speed of the pump to match the discharge header pressure with SET pressure.

Energy savings per annum	:	21840	KWH
Savings in Rs.per annum	:	0.78	Lakhs
Investment required	:	0.9	Lakhs
Payback	:	14	Months



9. Elimination of running of additional Cooling Tower for D.G. Sets

To meet the total heat load of four D.G. Sets, two cooling towers were running continuously. After conducting heat load study, we found that the Cooling water requirement for 4 D.G.Sets can be served by only one cooling tower instead of two cooling towers. The Cooling water lines were modified and interconnected all four D.G. sets cooling water lines to both of the cooling towers. Now one cooling tower became standby after this modification.

Energy savings per annum	:	2880	KWH
Savings in Rs.per annum	:	0.3168	Lakhs
Investment required	:	0.1	Lakhs
Payback	:	4	Months



Energy Conservation Plans and Targets

Energy conservation is a continuous process. Several projects have been identified to reduce the specific energy consumption, resulting in total annual estimated savings of Rs.48 lakhs against an investment of Rs.71 lakhs. A list of identified projects is given below:

Energy Conservation Measures (Planned)	Anticipated savings		Approx. investment (Rs.lakhs)	Project Commencement & Completion year
	in			
	Energy Value (specify units)	Rs. Lakhs		
Energy efficient agitator for continuously run high rated motors.	3.76	15	10	2007-2008
Replacement of cooling water pump with VFD in old bazar cooling water system	0.170625	0.6825	1.28	2007-2008
Energy efficient motors for all pugmills	1.1232	4.4928	10	2007-2008
Replacement of Worm and worm gear boxes with helical gear boxes for 4 T pugmills	0.3744	1.4976	6	2007-2008
Installation of VFDs for Stiff Pneumatic charging	0.3432	1.3728	1	2007-2008
Installation of VFD for EPS Pneumatic charging	0.54912	2.19648	1	2007-2008
Installation of VFD for 33 TR Chilling plant cold well pump	0.2496	0.9984	0.4	2007-2008
WBU DM Plant Degassifier pump interlock	0.138528	0.554112	0.05	2007-2008
Replacement of old inefficient 60 TR chiller with 66 TR chiller.	2.184	8.736	10	2007-2008
Reduction of RPM for ETP Roots blower	0.0864	0.3456	0.01	2007-2008
Level control interlock of paint tub with diaphragm pumps in all sand mills	0.5616	2.2464	1	2007-2008
Replacing chilling water with cooling tower water for 4 sand mills in SBU	0.156	0.624	0.6	2007-2008
Replacement of cooling water pumpset in Industrial Resin cooling water system	0.25125	1.005	1.25	2007-2008
Replacement of cooling water pumps in WBU cooling water system with Grundfos Hydro system	0.625	2.5	6	2007-2008
Replacement of hotwell pump in 33 TR chiller with Grundfos Hydro system	0.375	1.5	4	2007-2008
Replacement of coldwell pump in 36 TR chiller with Grundfos Hydro system	0.375	1.5	4	2007-2008
Utilization of heat available in condensate water for vaporizer system	0.37875	1.515	1.875	2007-2008
Energy efficient bulbs	0.2175	0.87	2.4625	2007-2008
Total	11.91917	47.636692	70.9875	

Environment & Safety

The plant has an Apex Environment, Health and Safety Committee (AEHS), headed by the Unit Head (General Works Manager) and comprises of key personnel in the plant. The committee meets regularly to review the status of various aspects of Safety, Health and Environment in the plant.

The Safety policy outlines the organizational commitment towards compliance to statutory requirements, continuous improvement in EH&S performance and training of personnel on safe work practices.

The Environmental policy outlines the organizational commitment towards resource conservation and environment protection.

There is a periodic Audit programme of the Environmental Management Systems and Safety Management Systems – implemented both through internal and external audits.

Suggestion scheme has been launched and various suggestions implemented in the area of improving Safety and Environment protection.

As part of contributing to the development of the neighboring society, several initiatives have been taken up, such as

Donating an ambulance van to the police department for handling medical emergencies on the highways.

Donating a water tanker to the local municipality

Conducting various Environment and Safety programmes for school children

Awards & Recognitions

- Won the prestigious Golden Peacock Environmental Management Award (in Manufacturing – Large category) for outstanding achievement in pursuit of cleaner environment – awarded in 2002 by the World Environment Foundation.
- Awarded Certificate in Recognition of Excellence in Environment Management by the Andhra Pradesh Pollution Control Board on the occasion of World Environment Day (June 5, 2002.),
- The Environmental Management System has been certified as conforming to the ISO 14001 standards in July 2003.
- Awarded the highest ranking of Safety “Five Star” by the British Safety Council-UK and achieved “ SWORD OF HONOUR” – the highest recognition for Safety Standards from British Safety Council for the years 2003-04 and 2005-2006.

Safety

- Ensuring high standards of housekeeping in the factory premises, resulting in a Safe Shop floor, by adopting 5S methodology.
- Development of Safety Manual as a common standard for Safety systems in all plants. The Safety Manual captures all the specific requirements of the paint industry and the hazards associated with it. The Safety Manual has been fully implemented.
- All personnel are trained on First Aid and basics of Safety management.
- Regular monitoring and analysis of accidents with a view to reduce accidents
- Involvement of workmen in Safety Management through the Safety Committee which is empowered to review various dangerous occurrences and initiate corrective and preventive action.
- Compliance to various Safety related statutory stipulations as per the Factories Act, Electricity Act, Petroleum Rules, etc.
- Various facilities have been setup to enhance the safety infrastructure in the plant, such as:
 - Semi-automatic fire alarm system with provision of heat detectors and smoke detectors
 - Closed circuit television in hazardous storage tank yards
 - Public address system
 - Fire hydrant system for entire plant
 - Foam pouring system for hazardous storage tanks
 - Rupture discs for reactors
 - CO2 system for extinguishing fire in thermopacs
 - 24 volt hand lamps for use during entry in confined spaces
 - Imported flexible earthing clamps for safe discharge of static electricity
 - Imported static electricity monitoring systems for solvent tankers
- Regular audits have been conducted by various external agencies.
- Risk assessments and HAZOPs are conducted for all activities and corrective & preventive action implemented.