



Garware Polyester Limited

Naigaon, P.O.Waluj, Aurangabad-Pune Road, Aurangabad

Unit Profile

Garware Polyester Limited is the pioneer in the field of polyester film .The Company has developed different types of films and are exported to various countries. The company has excellent infrastructure and committed to quality, energy and environment.

The company has highly knowledgeable, skilled and experienced technical human resource employed in the field of product development, manufacturing, energy, environment etc.

The company has set up strong Energy Conservation Cell, which focuses on energy improvement. The company recognizes the importance of energy conservation, not only to improve the bottom line but also to help the environment and society at large.

Company has commissioned Poly-plant for production of 4500 MT of chips per annum in Aug 2006

By maintaining unity power factor, high level of load factor, Company has saved more than Rs. 50 lacs. during the year 2004 – 05.

Company gives thrust on identification & improvement in under performance equipments and processes.

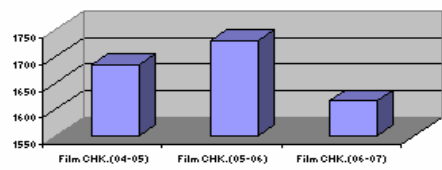
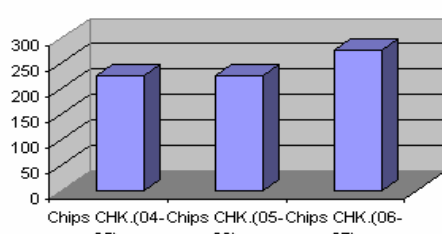
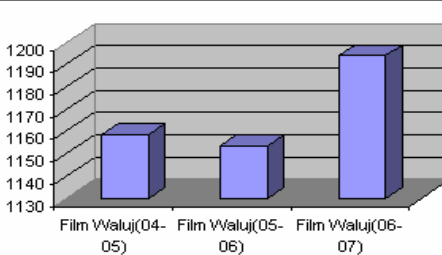
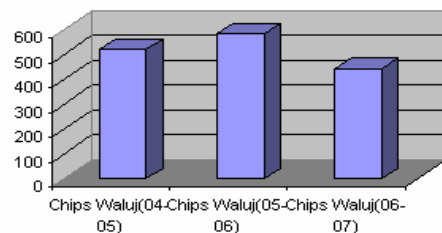
Garware Polyester Limited, Waluj Plant



The Company has converted majority of electrical heating applications to Thermic fluid heating/ steam heating. The details of few projects are appearing in the list of Encon Projects for last three years.

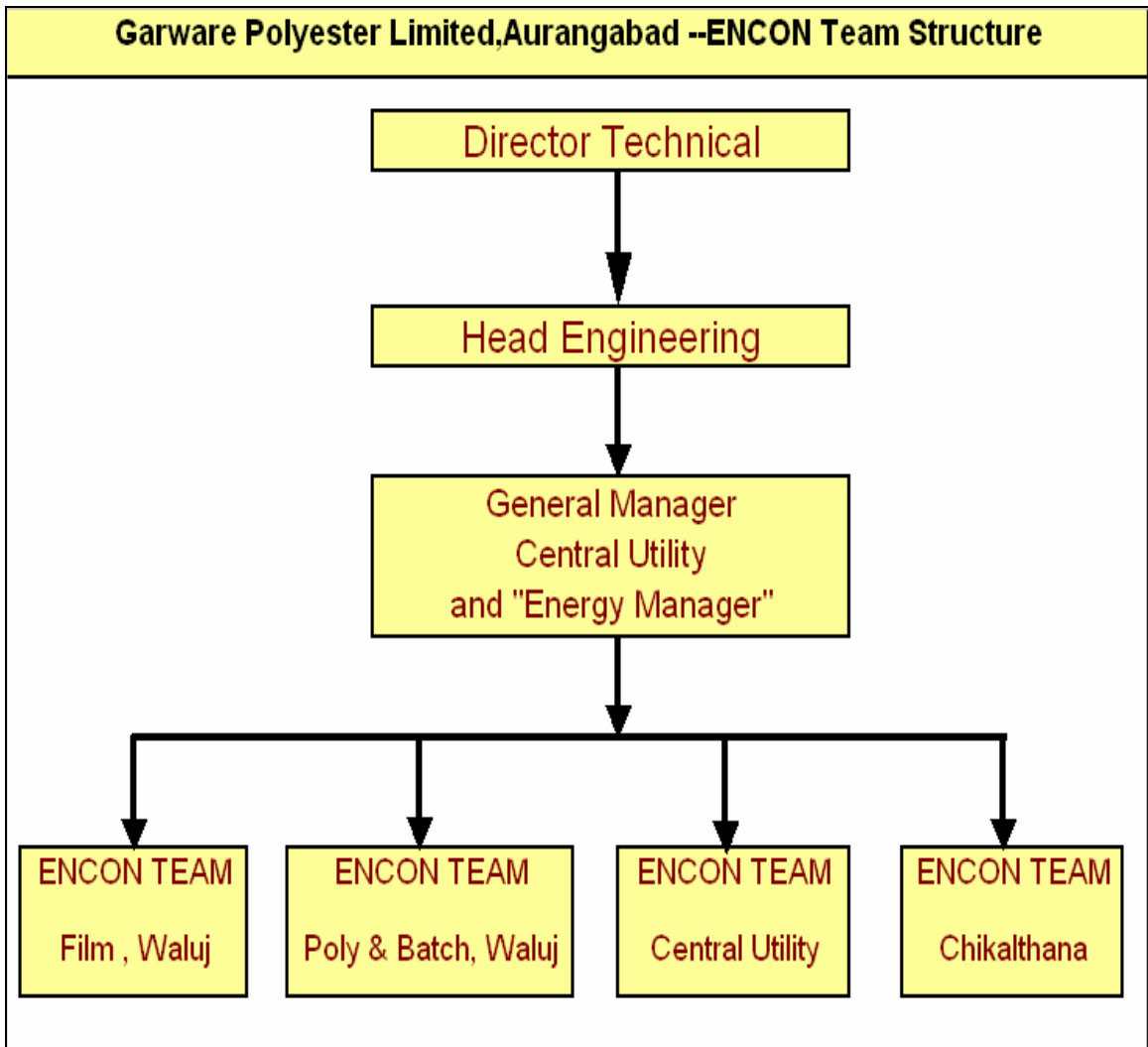
Energy Consumption

With implementation of various Energy conservation Projects, specific energy consumption of some plants has reduced however there is rise in some plants due to commissioning of 4500 MT per annum Polychips plant at Waluj Aurangabad. Company has also added new equipments for improvement in quality of the final product which has led to higher specific energy consumptions in some plants.

Garware Polyester Limited, Specific Power consumption		
Plant	Specific energy consumption(kWh/tonne)	
Film CHK.(04-05)	1685.02	
Film CHK.(05-06)	1731.27	
Film CHK.(06-07)	1616.68	
Chips CHK.(04-05)	224.65	
Chips CHK.(05-06)	224.59	
Chips CHK.(06-07)	276.02	
Film Waluj(04-05)	1158.85	
Film Waluj(05-06)	1153.44	
Film Waluj(06-07)	1194.08	
Chips Waluj(04-05)	520.08	
Chips Waluj(05-06)	583.96	
Chips Waluj(06-07)	443.71	

Garware Polyester Limited, Specific Thermal consumption										
Plant	Specific energy consumption (Million Kcal/tonne)									
Film CHK.(04-05)	1.23	<table border="1"> <caption>Specific energy consumption for Film CHK.</caption> <thead> <tr> <th>Period</th> <th>Specific energy consumption (Million Kcal/tonne)</th> </tr> </thead> <tbody> <tr> <td>Film CHK.(04-05)</td> <td>1.23</td> </tr> <tr> <td>Film CHK.(05-06)</td> <td>1.15</td> </tr> <tr> <td>Film CHK.(06-07)</td> <td>1.05</td> </tr> </tbody> </table>	Period	Specific energy consumption (Million Kcal/tonne)	Film CHK.(04-05)	1.23	Film CHK.(05-06)	1.15	Film CHK.(06-07)	1.05
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Chips CHK.(04-05)	1.09	<table border="1"> <caption>Specific energy consumption for Chips CHK.</caption> <thead> <tr> <th>Period</th> <th>Specific energy consumption (Million Kcal/tonne)</th> </tr> </thead> <tbody> <tr> <td>Chips CHK.(04-05)</td> <td>1.09</td> </tr> <tr> <td>Chips CHK.(05-06)</td> <td>1.15</td> </tr> <tr> <td>Chips CHK.(06-07)</td> <td>1.4</td> </tr> </tbody> </table>	Period	Specific energy consumption (Million Kcal/tonne)	Chips CHK.(04-05)	1.09	Chips CHK.(05-06)	1.15	Chips CHK.(06-07)	1.4
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Chips Waluj(05-06)	2.17									
Chips Waluj(06-07)	1.97									
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Organization Chart





GARWARE POLYESTER LIMITED

**Naigaon,
Aurangabad-Pune Road,
Waluj, Aurangabad**

Date: 01/09/2007

ENERGY MANAGEMENT POLICY

Garware Polyester Limited plays vital role for producing variety of products with high level of quality standard and prioritizes energy value for the final product.

Our mission is:

- ❖ To produce products with minimum use of energy.**
- ❖ Use of cleaner technologies wherever possible and ensuring efficient and uninterrupted supply of utilities to plants.**

This, we plan by following ways.

- ❖ Efficient energy generation, utilization and distribution.**
- ❖ Continuous evaluation of performance of plant equipments and processes to achieve most efficient, high standard quality products.**
- ❖ Targeting the under-performance equipments and processes for improvement.**
- ❖ Monitoring and targeting the specific energy consumption to achieve best possible as compared to past performance.**
- ❖ Use of internal and external expertise to achieve targeted performance.**
- ❖ Train employees and implement ideas of energy conservation thorough small ENCON teams.**

**M.S.Adsul
Director - Technical**

Energy Conservation Achievements


Year of Commissioning of the projects	Project description	Achievement of energy savings per year basis					Total savings n (Rs. Lakhs)	Investment incurred on the project (Rs. Lakhs)
		Electricity	Fuels*			Total (fuel) in Mkcal		
		(Lakhs kWh)	Coal (tonnes)	F.Oil (KL)	Gas (lakhs m ³)			
2004-2005	05 Nos.	0.66	—	186.66	—	1489.54	56.67	54.20
	Sub Total	0.66	—	186.66	—	1489.54	56.67	54.20
2005-2006	24 Nos.	34.66	—	62.45	—	498.35	114.75	9.65
	Sub Total	34.66	—	62.45	—	498.35	114.75	9.65
2006-2007	17 Nos.	21.15	—	202.66	—	1617.15	109.58	30.75
	Sub Total	21.15	—	202.66	—	1617.15	109.58	30.75
	Grant total of 3 years	56.46	—	451.77	—	3605.04	281.01	94.60

ENCON PROJECTS (2006-2007)


Year of Commissioning of the projects	S.No.	Project description	Achievement of energy savings per year basis				Investment incurred on the project (Rs. Lakhs)
			Electricity	F.Oil (KL)	Others	Total savings in (Rs. Lakhs)	
			(Lakhs kWh)				
2006-2007	1	Condenser cooling water pump replaced with high efficient pump.Film Plant, CHK.	0.49			1.78	0.30
	2	Increasing efficiency of heater thereby reduction in F.Oil. Film Plant,CHK..		96	0	15.34	0.35
	3	Optimisation of Brine system provided for line-2 DX Unit.Film Plant,CHK..	0.67			2.45	4.50
	4	Stoppage of holding tank agitator by 20 Hrs./ Day.Film Plant,CHK..	0.78			2.83	0.00
	5	Optimisation of AHU -3 & 4 water pump with adequate size pump.Film Plant,Waluj.	0.45			1.66	0.30
	6	Replacement of Boiler feed water pump with high efficient pumps & less flow. CU,Waluj.	1.28			4.67	2.05
	7	Replacement of VAHP cooling water pump with energy efficient pump.CU waluj.	0.31			1.12	0.30
	8	Stopping of FO line heating steam to tankfarm. CU, Waluj.		106.66		17.04	0.00
	9	Stopping of CKD compressor & commissioning of CP plant Compressor.CU, Waluj.	9.58			34.97	14.00
	10	Reducing power requirement for polyester chips material conveying by using LPC instead of DPC at feeding Silo No. 4 Erema.Film Plant, Waluj.	0.33			1.21	1.10
	11	Optimisation of air quantity & use of energy efficient blower for Line-4 Pull roll, Winder & Slitter.Film Plant, Waluj	1.22			4.45	4.00
	12	Optimisation of air quantity & use of energy efficient blower for Line-4 MDO & Chill roll.Film Plant, Waluj.	1.32			4.82	3.00
	13	Conversion of electrical heating to steam heating for hot water & Alkali bath at filter room.Film Plant, Waluj.	0.69			2.52	0.05
	14	Line-2 MDO secondary pump RPM reduced to 1500 from 3000 RPM. Film Plant,CHK..	0.23			0.83	0.10
	15	Line-2 Chilled water pump to replaced with high efficient pump. Film Plant, CHK..	0.97			3.54	0.45
	16	Raw water pumps and water treatment plants operation optimisation. CU waluj.	1.87			6.83	0.25
	17	1.25 MVA transformer isolated, Film Plant, CHK.	0.96			3.52	0.00
		Sub Total	21.15	202.66	0.00	109.58	30.75

Chikalthana Plant Encon Projects- 2006-2007

Title : Condenser Cooling Water Pump Replacement by Energy Efficient Pump, Chikalthana.
 Investment: 0.30 Lacs.
 Saving: 1.78 Lacs / Annum

Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
<p>-----</p>	 <p>New High efficiency pump, Chikalthana Plant</p>


Title: Heater efficiency improvement, Chikalthana.
 Investment: 0.35 Lacs.
 Saving: 15.34 Lacs / Annum

Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
<p>-----</p>	 <p>Thermic Fluid Heater – TP 15, Chikalthana Plant</p>

Title: Optimisation of Brine system, Chikalhana.

Investment: 4.5 Lacs.


Saving: 2.44 Lacs / Annum

Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
<p>-----</p>	 <p>Brine system of 5 TR capacity, Chikalhana Plant</p>

Title : Stoppage of ETP Tank Agitator, Chikalhana.

Investment : NIL.

Saving : 2.83 Lacs / Annum



Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
<p>-----</p>	 <p>Chikalhana Plant ETP incoming effluent tank agitator.</p>

Waluj Plant Encon Projects- 2006-2007

Title : Optimisation of AHU, Water Pump with Adequate Size pump, Film Plant, Waluj

Investment : 0.30 Lacs.

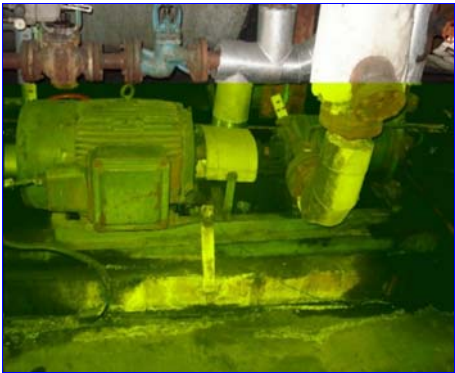

Saving : 1.66 Lacs / Annum

Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
	

Title : Replacement of Boiler Feed Pump, Central Utility, Waluj

Investment : 2.05 Lacs.

Saving : 4.68 Lacs / Annum

Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
	

Title : Replacement of VAHP cooling water Pump, Central Utility, Waluj
 Investment : 0.30 Lacs.
Saving : 1.12 Lacs / Annum

Picture/ sketch/ drawing before modification
 (if available)



Picture/ sketch/ drawing after modification



Title : Stopping of Furnace Oil Line Heating Steam, Central Utility, Waluj
 Investment : NIL.
Saving : 17.04 Lacs / Annum

Picture/ sketch/ drawing before modification
 (if available)



Steam supply ON.

Picture/ sketch/ drawing after modification



Steam supply to FO tank coil & jacketed line stopped.

Title : Stopping of HT Screw Compressor & Commissioning of LT Reciprocating Compressor, Central Utility, Waluj
 Investment : 14.00 Lacs.
Saving : 34.97 Lacs / Annum

Picture/ sketch/ drawing before modification
 (if available)



HT screw compressor capacity 5000NM³/Hr

Picture/ sketch/ drawing after modification



2 Nos. of LT reciprocating compressor of lower capacity 600NM³/Hr. were installed. Other available compressor 2100 NM³/Hr. Capacity made operational.

Title : Reduction in Power for Polyester Chips Material Conveying Film Plant, Waluj
 Investment : 1.10 Lacs.
Saving : 1.21 Lacs / Annum


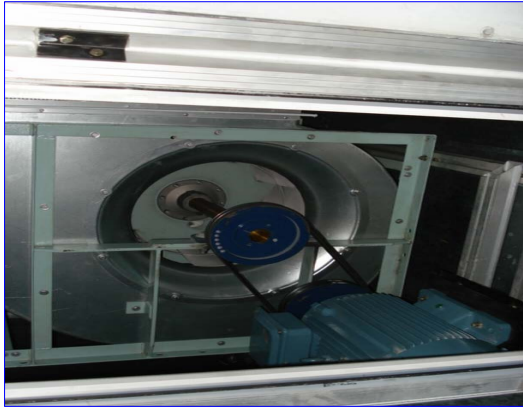
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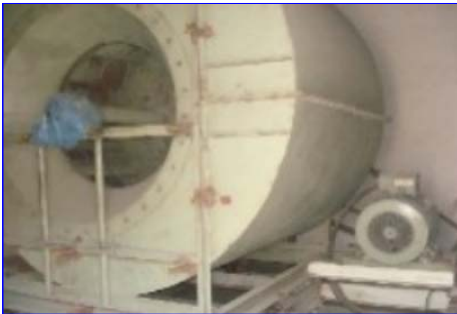

Picture/ sketch/ drawing after modification



Title : Optimisation of Air Quantity and use of energy efficient blower for MDO & Chill Roll, Film Line 4, Waluj
 Investment : 4.00 Lacs.
Saving : 4.45 Lacs / Annum

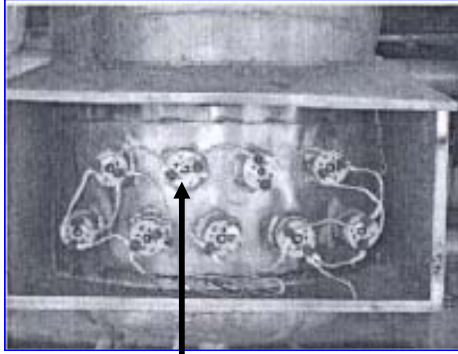
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
	

Title : Optimisation of Air Quantity and use of energy efficient blower for Pull Roll, Winder & Slitter in Film Line 4 , Waluj
 Investment : 3.00 Lacs.
Saving : 4.82 Lacs / Annum

Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification
	
Total investment, Rs.: 3.00 Lacs	Year of implementation: Aug-2006

Title : Conversion of Electrical Heating to Steam Heating, Film Plant, Waluj
Investment : 0.05 Lacs.
Saving : 2.52 Lacs / Annum

Picture/ sketch/ drawing before modification
(if available)



ELECTRICAL HEATING.

Picture/ sketch/ drawing after modification



STEAM HEATING

ENERGY CONSERVATION CELL – FUTURE PLANS AND STRATEGIES

- Detailed external energy audit by NPC /MEDA / Equivalent.
- So far we have been looking at ENCON through medium - small investments / no investments. In future we shall look at ENCON project with attractive paybacks requiring medium to large investments.
- We shall try and collect benchmark figures for energy from Domestic as well International players in similar products.
- We shall cultivate energy efficiency culture right down to workmen level through
 - Trainings.
 - Competitions.
- We are already promoting various suggestion schemes, employee awarding and it shall be focused and improved upon.
- To study the Energy Conservation abstracts of highly energy efficient Organisations through their balance sheets.



SAFETY & ENVIRONMENT

GOAL : To generate, develop and sustain a voluntary movement in Safety, Health, Environment & Hygiene at all levels, Prevent Incident, Accident, Fire and thereby protect Human, Assets and the Environment.

Support from Top Management and Visible commitment demonstrated down the line to achieve our Objectives.

We believe in 'Safety First & Quality Production Must'.

We have Centralized Fire & Safety Department with Corporate Head, functioning with advice to Plant management and contribute in ensuring safe working Environment at work place. Sustaining efforts for further improvement in raising safety standards of the Company.

Loss prevention through Safety Management System is achieved and integrated with Job quality, production standards, Customer Satisfaction and allied elements, besides Cost Saving opportunities. The system is drawn & enforced under PDCA – closed cycle loop.

Safety technique / tools are used & monitored continuously to enhance effectiveness. Various Fire & Safety activities are carried out to improve the system dynamically. Safety audits (Internal / External), Safety Inspection / Survey, Emergency Mock drill (includes random Surprise drills), Hazard Identification & Risk Analysis, Task force rounds, Peoples' safety audit, Near-miss reporting, Ventilation / Illumination / Noise level / Housekeeping & Hygiene and work place safety surveys are conducted with schedule.

Necessary follow-up in appraising safety performance is achieved through involvement of employees, discussions, monthly safety meetings, weekly field rounds. MSCM (Top level safety committee) is held on 5th day of every month. The reports are drawn in W – 3 (What, Who, When) format for time-bound implementation.

Company has good set up of Effluent Treatment Plant at Waluj and Chikalthana with availability of expertise in operation and maintenance of the same. Treated water is used inside the plant for gardening purpose. Treated effluent meets MPCB norms.

Ambient air stack analysis is carried out through MoEF approved Agency and all parameters are maintained within MPCB norms.

As a part of appraisal, we have been recognized with Safety Awards – at State & National level - from National Safety Council, Mumbai and DGFASLI, Ministry of Labour & Employment, Delhi.

SAFETY POLICY

Garware Polyester Ltd.

SAFETY, HEALTH AND ENVIRONMENT POLICY

Garware Polyester Ltd. (mentioned as "The Company" in this statement elsewhere) believes in good Health & Safety of its employees and the conservation of environment, equally important as other primary objectives.

It is the policy of The Company to take utmost care of the Health and Safety of its employees and of other persons (including Contractors) working in its Plant and give due regard to the conservation of the environment. This objective is well reflected in our Safety Procedures / Guidelines as stated in our Safety Manuals.

The Safety Measures / Procedures are designed to prevent accidents and damage to health and environment. We believe that it is the responsibility of all employees to follow the Safety Procedures.

Training, information and communication are essential elements in achieving Safety. The company organizes training, which is a continuous activity. We also provide channels of communications at every level in the Organization (Management Safety Committee, Departmental Safety Committee, Zonal Head System, etc.).

All employees are equally responsible for their own Safety & Health, and that of others. Their attitude towards Safety shall be a factor in determining their career advancement.

We have developed system to report all injuries, accidents and incidents endangering human being and environment. These are thoroughly investigated and precautionary measures are implemented to avoid recurrence. Various Safety Audits including Procedural Compliance, Risk Analysis Studies etc. form important tools in maintaining high Health, Safety and Environment Standards in our Organization.

We keep pace with the Technological Advances and update our information w.r.t. Safety, Health and Environment.

Housekeeping is given equal importance to maintain workplace clean and tidy. This is an essential requirement for Safe and Healthy working.

I firmly believe that this policy and important points mentioned above are of equal benefit to the individual employees and the company.

Date : January 01, 2004



S. B. Garware

Chairman & Managing Director