

We achieve
AVA & CC - Ace Value Added & Clean Company !

Number One LG, Professionalism, Pride & Fun Work



Energy
Environment
&
Safety

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LGPI - Introduction

- The company was incorporated in 1961 as 'Hindustan Polymers' for manufacturing of Styrene Monomer, Polystyrene and its co-polymers at Visakhapatnam.
- Taken over by LG Chem, Korea and renamed as LG Polymers India Pvt. Ltd.(LGPI) in July 1997.
- Accredited with ISO-9001-2000 certification from BVQI in Dec, 1997 and ISO-14001 from BVQI in Dec. 2003.
- The plant was originally designed to manufacture styrene monomer through molasses route.

Molasses \longrightarrow Alcohol \longrightarrow Ethylbenzene \longrightarrow Styrene

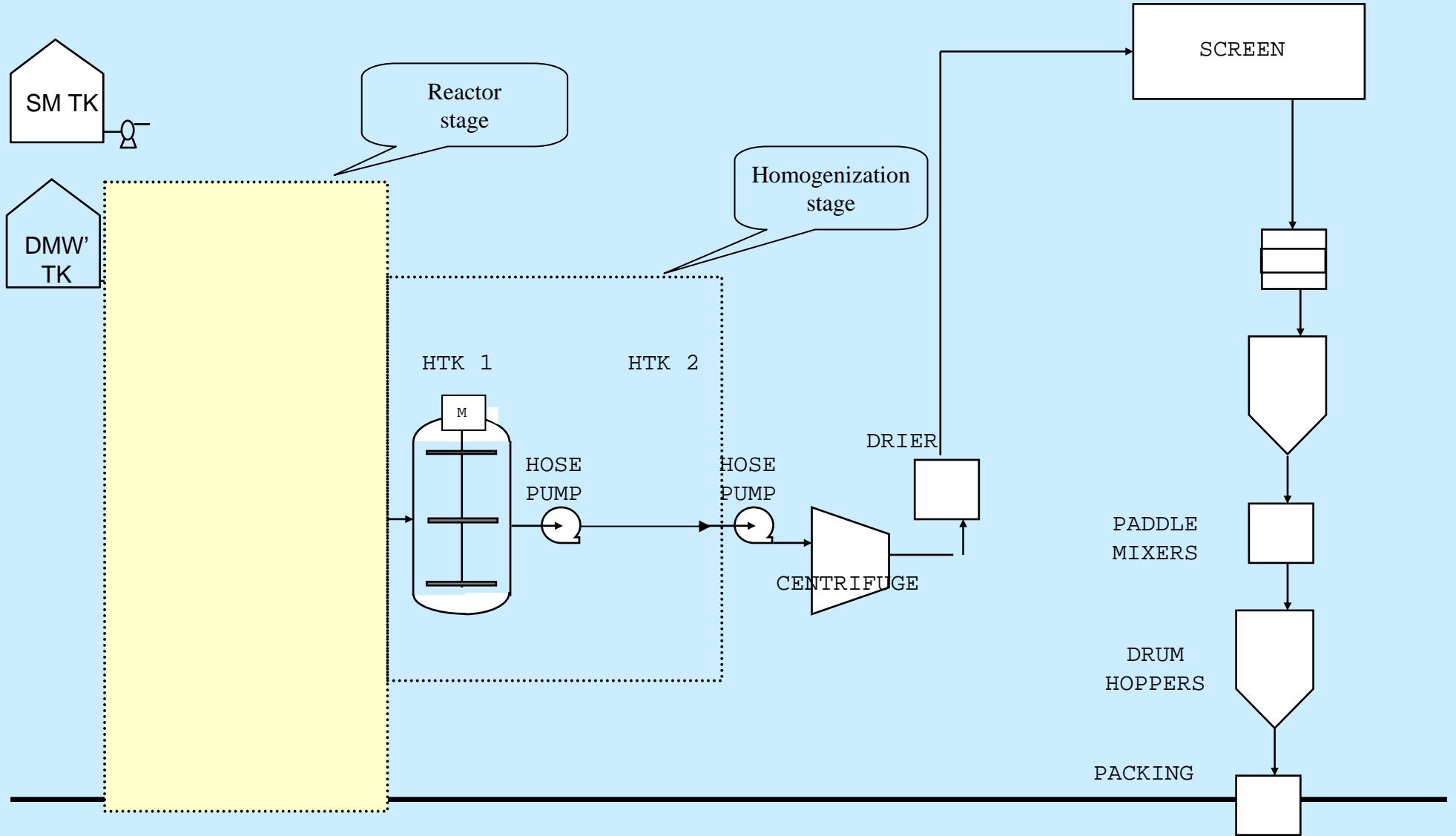
The process is highly energy and water intensive. Steam required for the process was produced by coal fired boiler. This process is not competitive at present and hence PS and EPS are being produced with imported styrene.

Manufacturing Process

General Purpose Polystyrene (GPPS) is produced by continuous bulk polymerization of styrene monomer and pelletized to cylindrical solids granules. Product is packed in 25 kg bags.

High Impact Polystyrene (HIPS) is produced by continuous bulk polymerization of styrene monomer in presence of poly butadiene rubber and palletized to cylindrical solid granules. Product is packed in 25 kg bags.

Expandable Polystyrene (EPS) is produced by batch suspension polymerization of styrene monomer in water. EPS in form of beads is separated from water and sieved for different sizes and packed as different grades in 25 kg bags. During the polymerization blowing agent, pentane is used which will help in expansion of beads at the subsequent processing EPS.



Applications

General Purpose Polystyrene (GPPS)

Audio/Video cassettes
Novelties & stationeries
Refrigerator components

High Impact Polystyrene (HIPS)

TV/Audio/Video cabinets
Cassettes
Disposable cups
Refrigerator liners
Toys

Expandable Polystyrene (EPS)

Insulation
False ceiling
Packaging

Disposable containers

Products of Manufacture (Present)

- Polystyrene : 100000 MT/year
- Expandable Polystyrene : 15000 MT/year

Details of Raw Materials (Major)

- Styrene
 - Rubber
 - Hydrochloric acid
 - Pentane
 - Liquid Paraffin
-

Various grades are available based on the tinge, MFI & other properties.

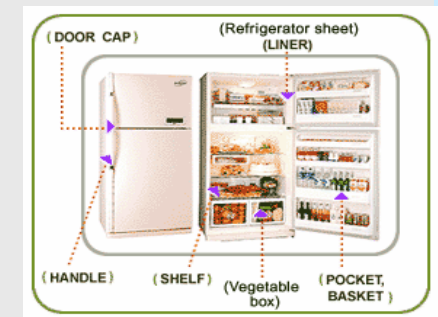
GPPS Grades (Features & Applications)

Application : Refrigerator Components, Crisper Trays

Freezer Tray

Crisper Tray

Application : Refrigerator Liners, Disposable Food Containers

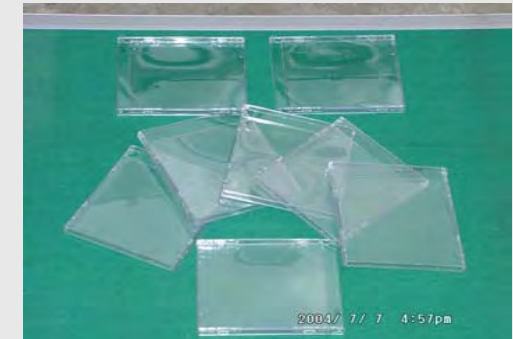


Various grades are available based on the tinge, MFI & other properties.

GPPS Grades (Features & Applications)

Cassette Grades (Injection)

- Application : Cassettes, CD Cases



- Application : General Purpose, Crystalware, thin wall cups, novelties

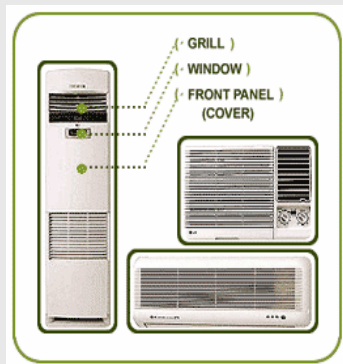


- Application : Hand-injection molding, imitation jewellery, master batches

Various grades are available based on the impact, MFI & other properties.

HIPS Grades (Features & Applications)

- Application : Novelty Items, Refrigerator tops,
- Application : AC Grills, Washing Machine Lids, Cap Layers
- Application : TV Cabinets, Computer Monitors
- Application : TV Cabinets, Computer accessories
- Application : 29" TV Cabinets, GAIN Applications



FTPS is used for Flexible Hangers, Disposable cups, Cold drink glass lids and Game Housing

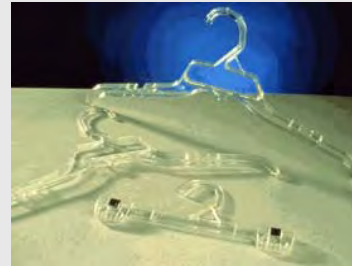
FTPS (Features & Applications)

■ Application : Flexible Hangers, Disposable cups, Cold drink glass lids and Game Housing

-Application : Disposable Cups, Glasses, Trays

Application : Disposable Cups, Glasses, Trays

Application : Deep draw items, Disposable Food pkgs.



Energy

LG Polymers India Pvt. Limited
Visakhapatnam

ENERGY POLICY

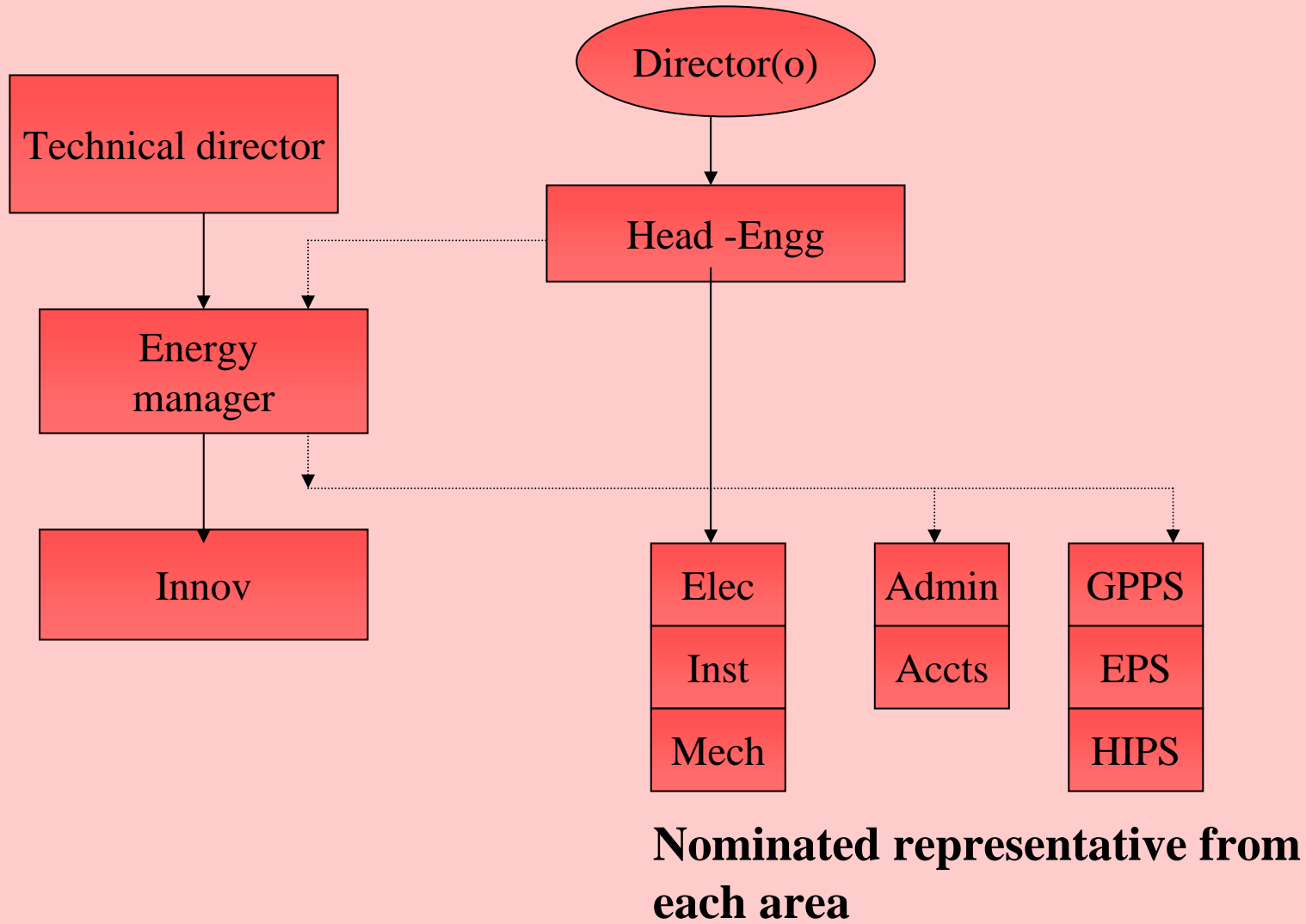
We, at LG Polymers India Pvt. Ltd., are committed to optimally utilize various forms of energy in a cost effective manner to effect conservation of energy resources.

To accomplish this we will :

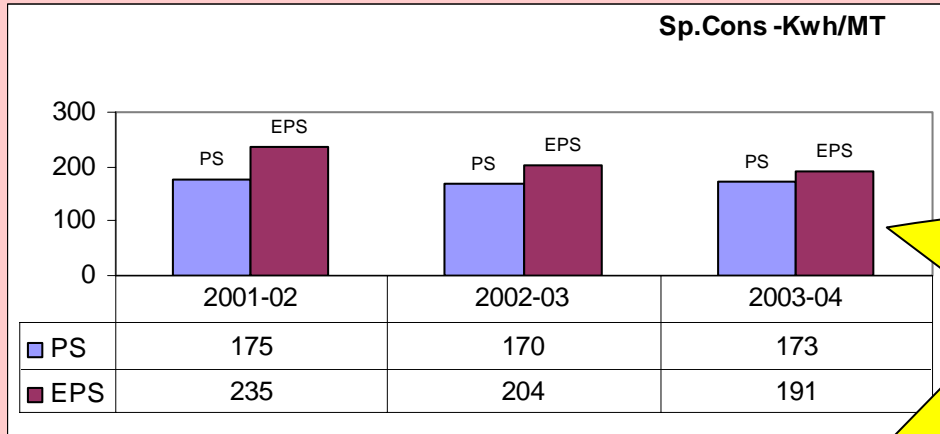
- Continued Monitoring and Targeting of specific energy consumption with set benchmarking
- Improved energy efficiency By going for energy efficient systems for utilities
- By constituting energy committee and involving people At user end .
- By creating awareness through Training.
- By reducing scrap and improving yield
- By improving environmental aspects through Recycling/Reusing the waste.

The target values are indicated in respective department goals

Proposed Energy Conservation - Team



I tem 20 iii - Specific Consumption

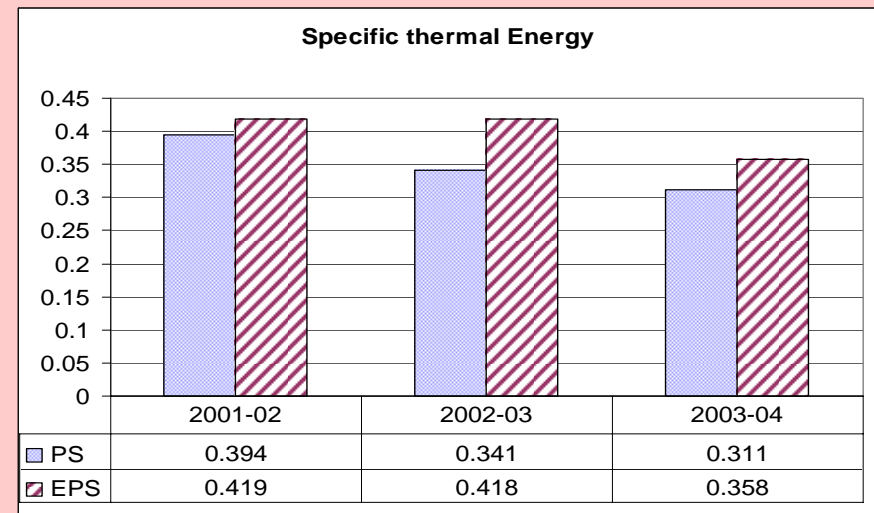


Electrical

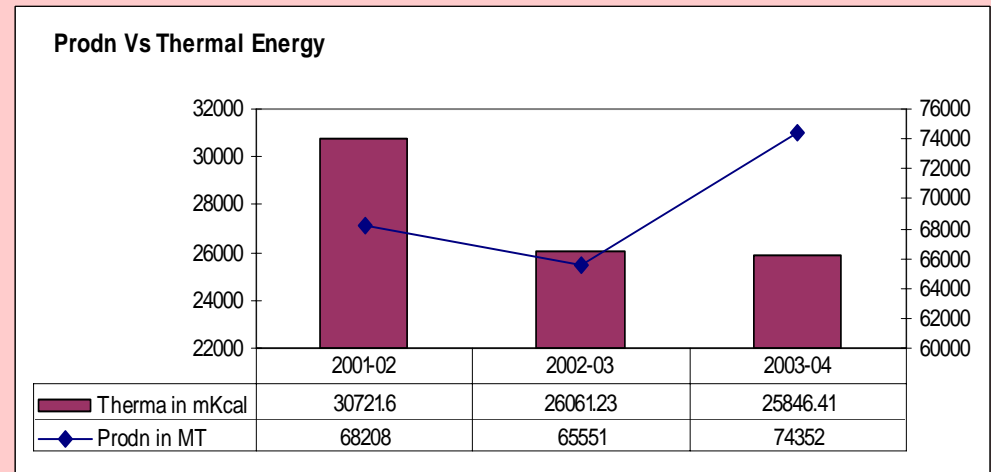
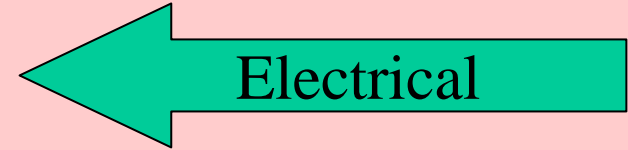
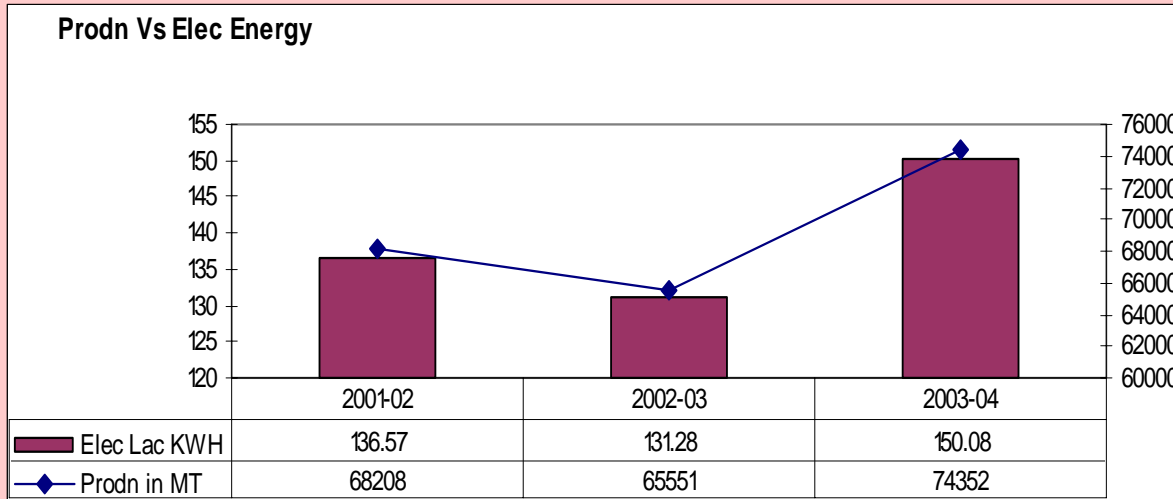
**17 % -
Reduction over
2001-02**

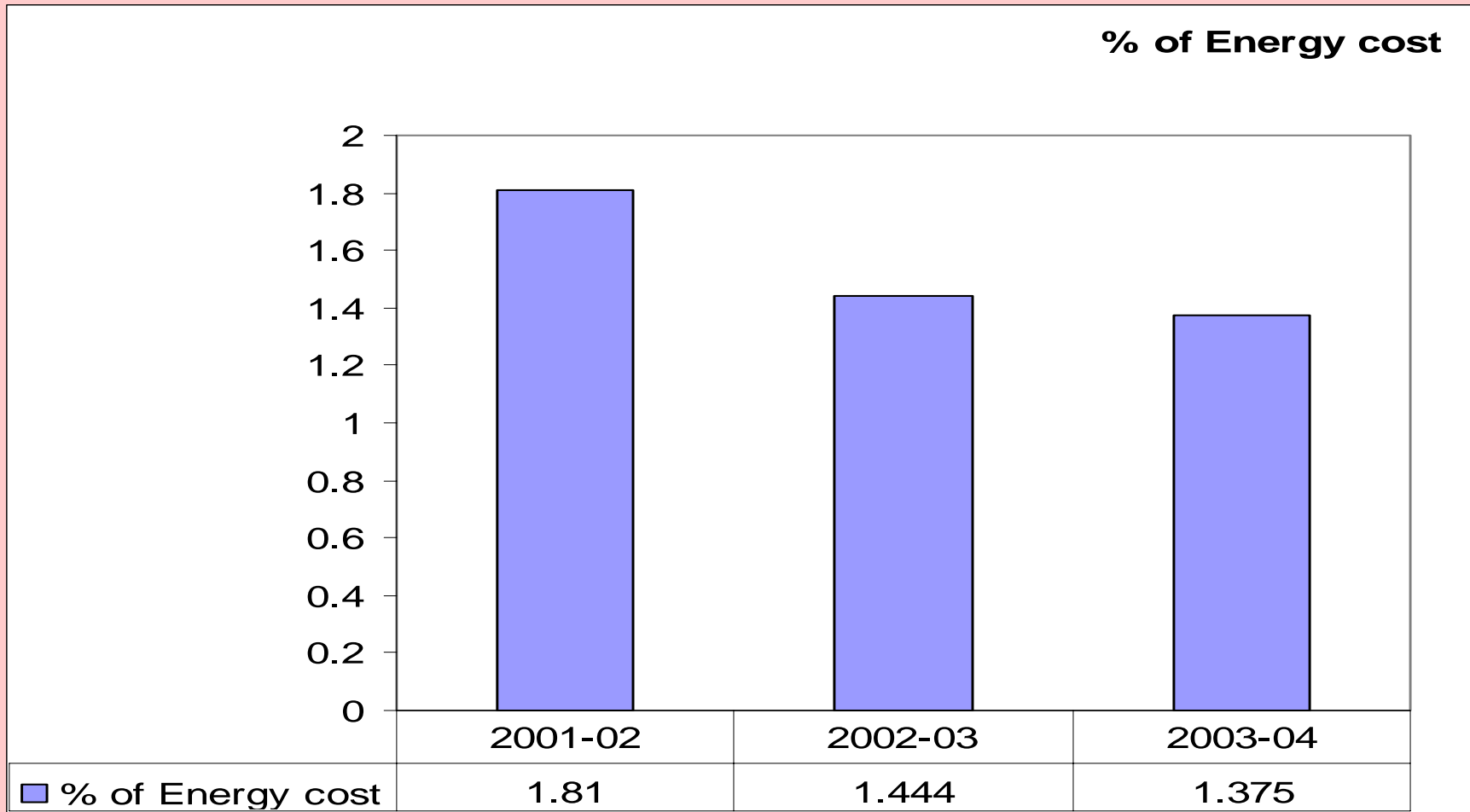
Thermal

**19 %
reduction
Over 2001-
02**



I tem 20 ii - Prod. Vs Thermal/Electrical





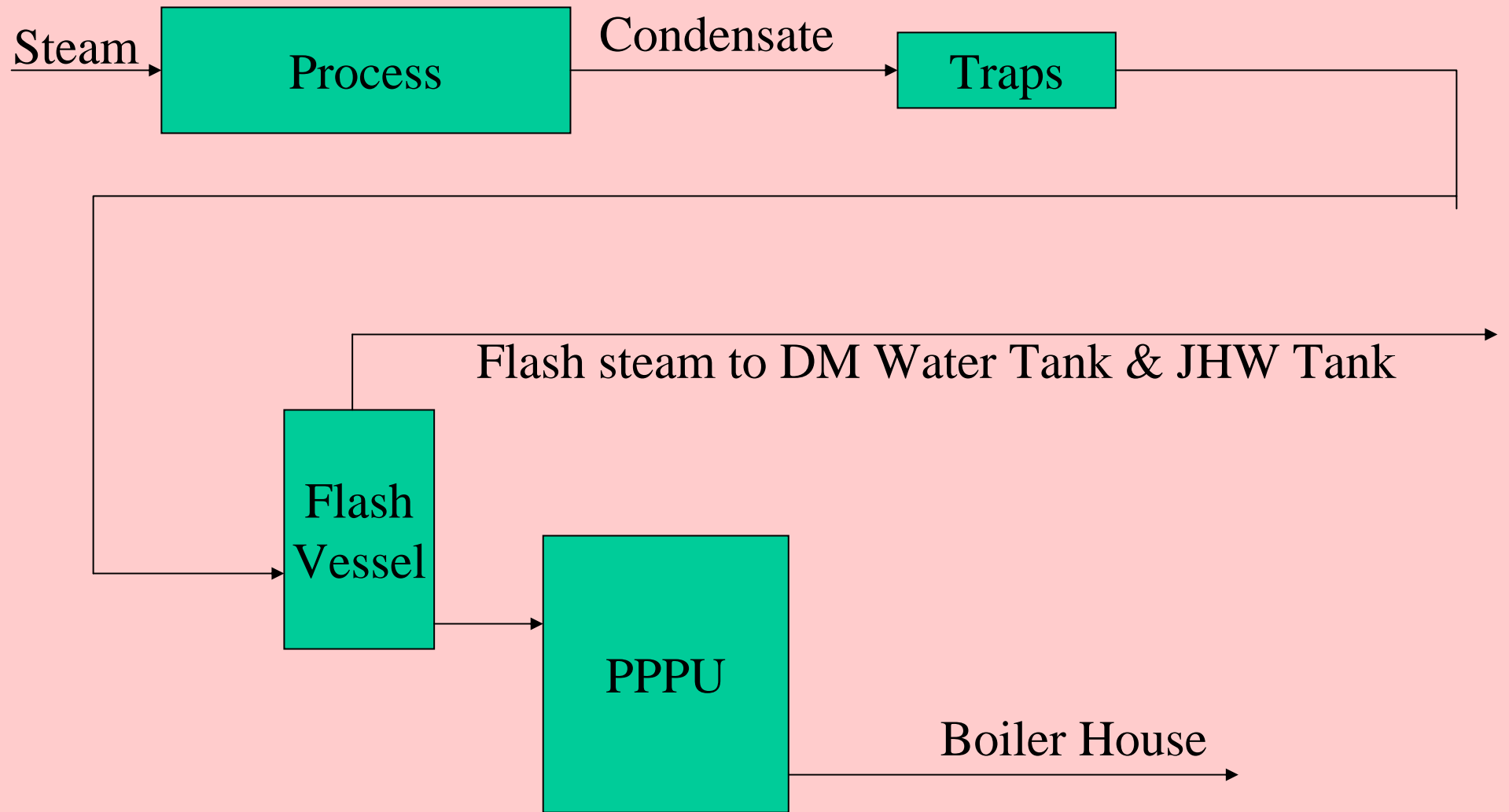
Reduction of 24 % in over 2001-02 in % of Energy cost

Energy Saving Measures

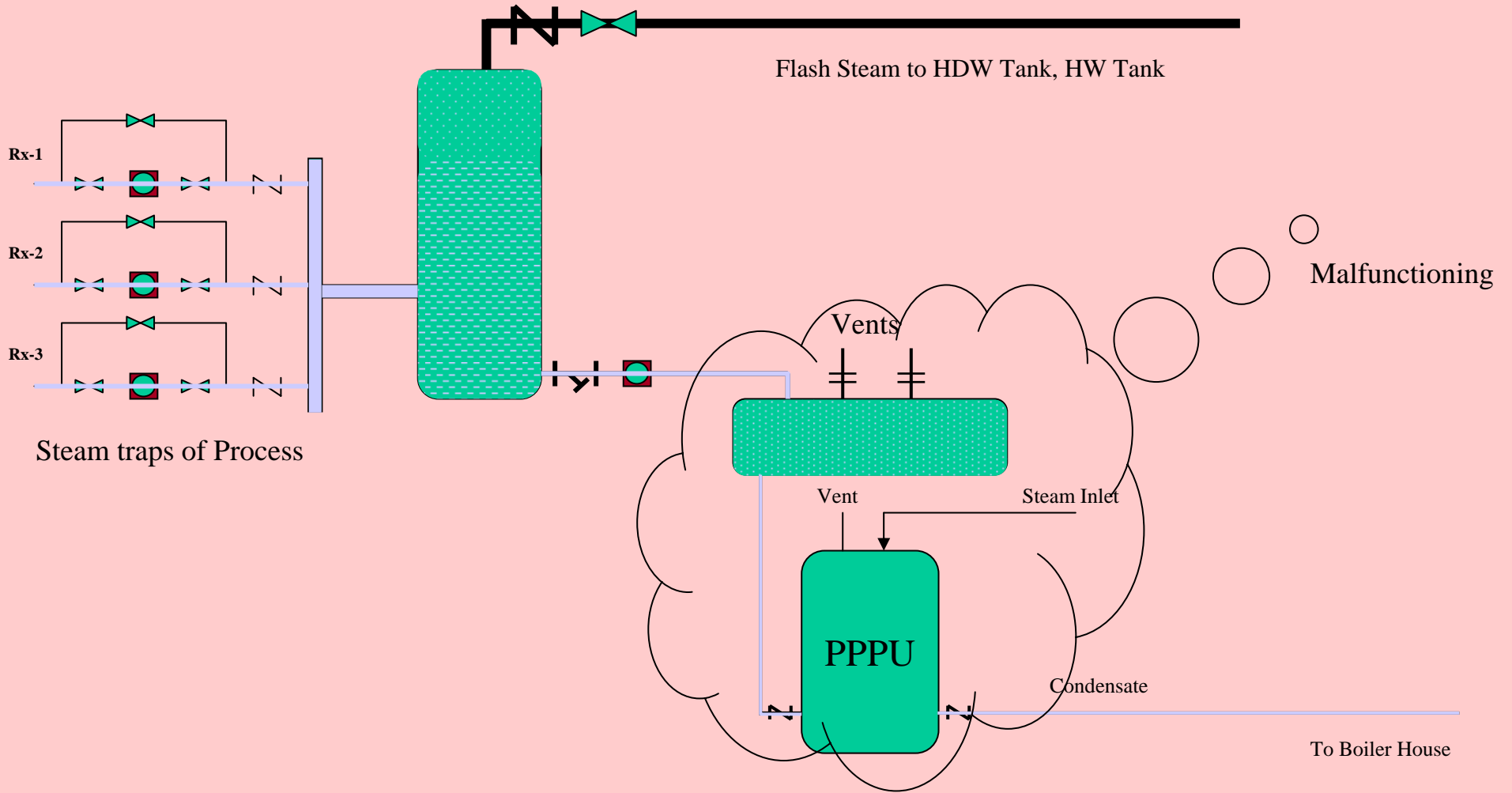
Project description	Achievement of energy savings per year basis				investment
	Power(La khs kwh)	F.oil (KL)	Total (fuel) in Mkcal	Total (Rs.lakhs)	
Improvement of Condensate Recovery System	0	30.412	316.2848	2.94	0.75
HTK-1 to HTK - 2 Pneumatic conveying in stead of SP 40 Pumps (2 x 5.5KW)	0.85			2.17	0.1
Energy Efficient Heater - GPPS	0.79	310	3224	32	40
LRP installation for Still distillation in place of steam ejectors		74	769.6	8	3.5
Steam quenching conversion from HP to LP		23	239.2	2.5	0.2
Window AC provision to Admn block in place of Package unit	0.30			0.77	1
tower	0.12			0.30	1.20
<i>Speed reduction Of CI fan M6 refrigeration</i>	0.06			0.14	

*Condensate
Recovery*

Condensate Recovery



Process In Detail - Before - Condensate Recovery



Layout - Before - Condensate Recovery



2003/ 5/24 8:21am

Layout - After - Condensate Recovery



Cost Savings

- Increase in Recovery - 250MT /Month
 - Cost of 90° C Hot water →
Water Rs. 6250, Heating Cost - Rs. 24000 (For 250 KL)
 - Total recovery benefit = Rs. 30250/- per month
 - Annual Savings = Rs. 3.63 Lacs/Annum
 - No maintenance of pumps.
-

*Replacement of Hose
pump
with pneumatic
pumping*

Replacement of Hose pump with pneumatic pumping

Before



The pneumatic conveying resulted in power savings when compared with the cost of the air. The air is available in the plant; the cost is only for the extra power for the air > other benefit - reliability improvement, environmental protection due to eliminated consumption of rubber hoses for hose pump.

↑
Not required for this purpose now

After →



***Replacement of
Inefficient
Fired Heater with
New Efficient Heater***

Replacement of Inefficient Fired Heater with New Efficient Heater

Before



Old fired heater



New fired heater

Replacement of Inefficient Fired Heater -

Feasibility

Total FO consumption subsequent to capa up	19.9 Kg/MT
Present losses thro flue gasses (heater efficiency 65%)	4 Kg/MT
Present header losses (250M X 2 long)	4 Kg/MT

SAVINGS

FO SAVINGS

Reduced losses through flue gasses (new heater efficiency 85%)	4.00 kg/MT
Reduced header losses (heater located near to plant 125 M X 2)	2.00 kg/MT
Additional FO consumption (Towers and Still conversion to Hot Oil)	-6.03 kg/MT
TOTAL SAVINGS IN TERMS OF FO	-0.03 kg/MT
	-0.4 Rs/MT

STEAM SAVINGS

Conversion of Towers from Steam to hot oil	60 kg/MT
Conversion of Still from Steam to hot oil	40 kg/MT
TOTAL SAVINGS IN TERMS OF STEAM	100 kg/MT
	108 Rs/MT

NET SAVINGS	107.6 Rs/MT
-------------	--------------------

Details

Total annual savings on FO (345 days @ 110 MTD)	40.84 Rs/lacs
Investment	110.89 Rs/lacs

Payback	32.6 months
---------	--------------------

Replacement of Inefficient Fired Heater - Costing

GPPS HEATER COST ESTIMATION

S No	Details	Rs
1	Heater (1 Million K Cal/hr)	35.71
2	Chimney	5.00
3	HO pumps	7.00
4	Piping	6.00
5	Instrumentation	11.00
6	Electricals (Incl MCC)	2.50
7	Structurals	1.00
8	Fabrication & Erection	3.00
9	Civil foundations etc	3.00
10	C5 tank relocation	3.50
11	Contingency	2.29
	Subtotal	80.00
11	Book value of existing Heater(0.6 Million K Cal)	32.39
12	Salvage value of existing Heater	-1.5
	Subtotal	30.89
	T O T A L	110.89

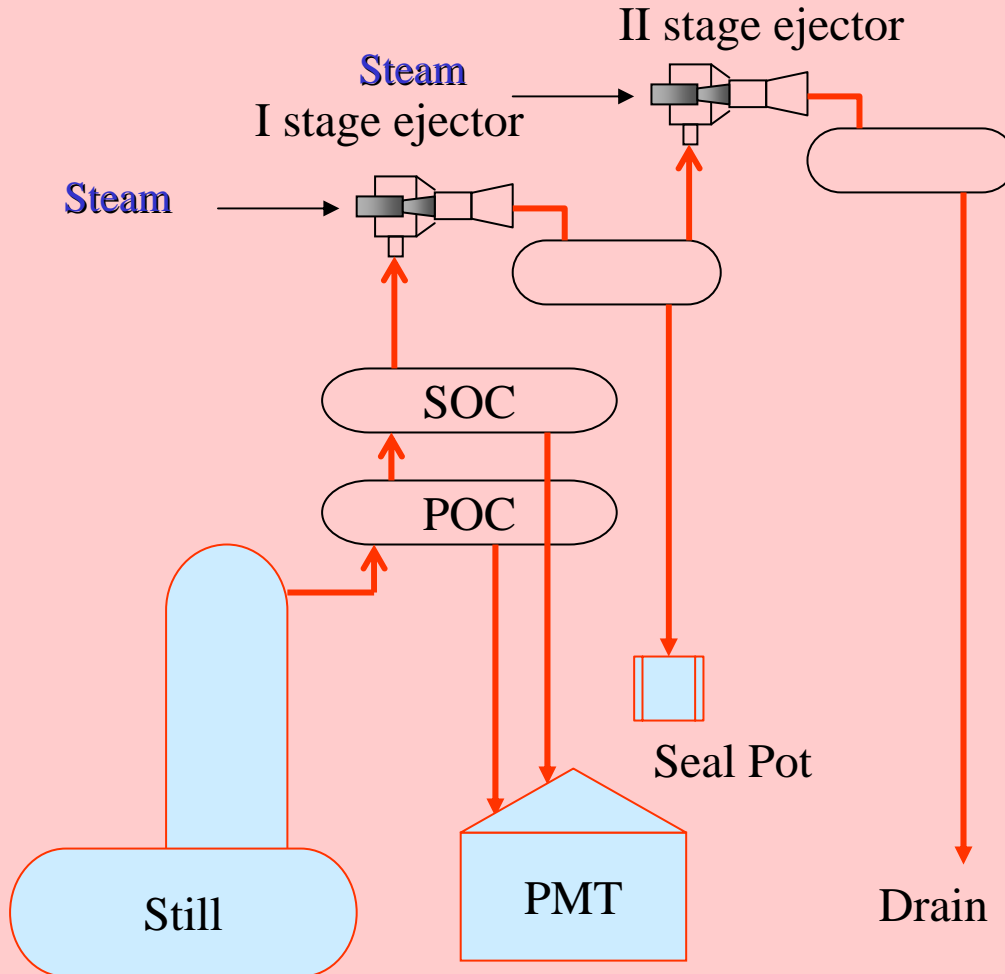
Replacement of Inefficient Fired Heater - utilities comparison

GPPS PLANT : UTILITIES COMPARISON

		Per MT						
	Unit	Rate	110 TPD		115 TPD		115 TPD	
			Present case (Jan'03)		Future with existing heater		Future with new heater	
			Consum	Amt	Consum	Amt	Consum	Amt
Power	Kw	2.87	157	450.843	134	384.80	134	384.80
Steam	kg	1.08	192	207.23	181	195.36	81	87.42
FO	kg	10.96	24	263.016	19.9	218.08	20.3	222.47
Water	KL	21.25	1	21.2455	1	21.25	1	21.25
TOTAL				942.335		819.48		715.93
DIFF						122.85		103.55

*Replacement of Steam
ejectors
with
Liquid ring pump*

PFD Distillation System



Vacuum: 30 Torr

Steam consumed : 120kgs/hr

Operating cost analysis:

Steam : 120kg x 24hrs xRs0.90

= Rs 2592/day

= Rs 9.07 lacs/annum

Spares : Rs 0.41 lacs/annum

Total cost : Rs 9.48 lacs/annum

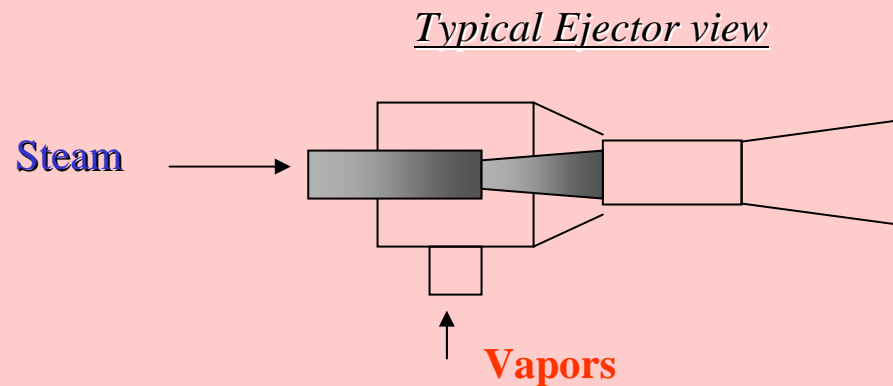
Phenomenon Analysis - Distillation system

Vacuum Distillation:

- In GPPS plant, low purity styrene from tanks & DV styrene is taken into the Still for distillation.
 - Vacuum distillation is done by steam ejectors and pure styrene is condensed in Primary & Secondary overhead condensers.
 - The pure styrene is collected in Pure Monomer Tank (PMT) and used for feed preparation.
 - About 120kg/hr of HP (16 bar) steam is consumed by the 2 stage steam ejectors to generate a vacuum of 30 Torr.
 - Interstage condensers are installed between the ejectors to condense the steam & traces of styrene vapour.
 - The condensate is collected in a seal pot & hydrocarbon is separated manually.
-

Disadvantages of Ejectors

- The operating medium for ejectors is **steam** (motive fluid), which is **expensive**.
- The ratio of the steam to the gas pumped is high, especially under low vacuum resulting in **excessive demand of steam** in multistage systems.
- Overall performance of the steam ejector is **sensitive to changes in operative parameters** such as steam pressure & water flow.
- Interstage condensing is required.
- Maintenance cost high.**
- **Condensate recovery not possible.**

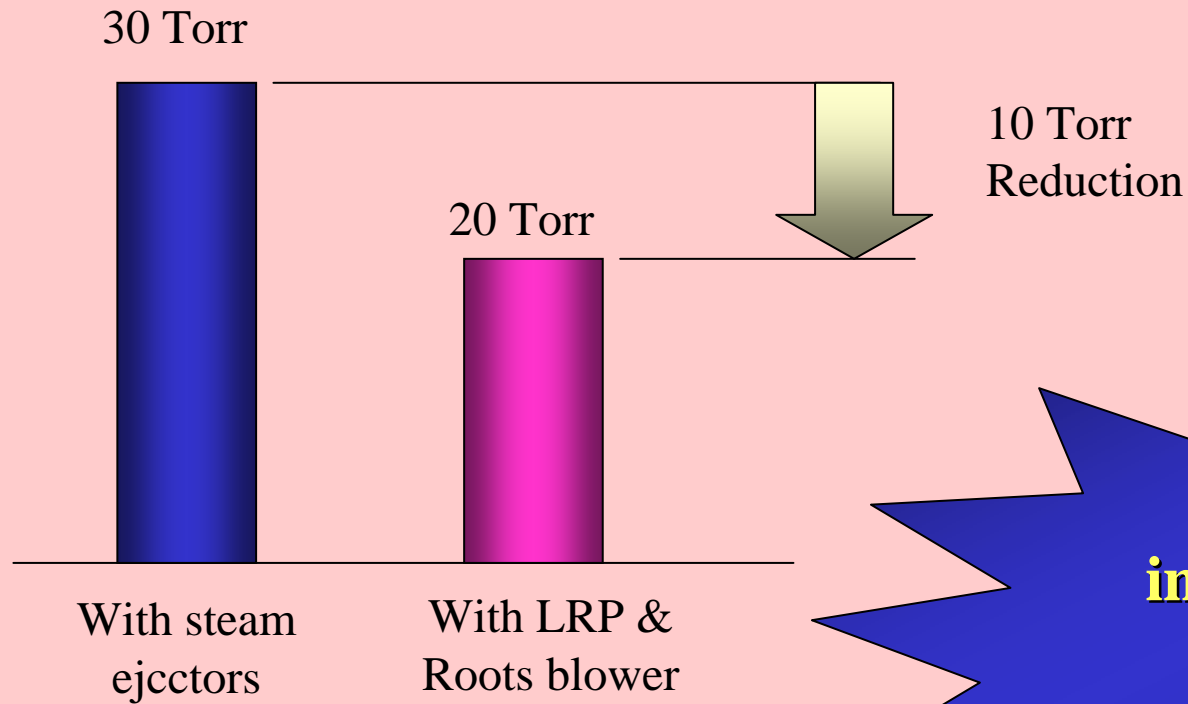


Replacement of Steam Ejectors with Energy Efficient Liquid Ring Pump



Evaluation - Replacement of Ejectors with LRP

< Vacuum >



Vacuum improved by 33% !!!

Benefits - Replacement of Ejectors with LRP

- Lesser pitch generation resulting higher pure styrene yeild.
 - Start up time is very low i.e. 30 min as against 120 min with ejectors.
 - Mechanical vacuum boosters are more energy efficient and cheaper operating cost.
 - Ease of operation & maintenance.
 - 2 nos. post condensers eliminated. Hence heat load reduction in cooling tower and reduced cooling water flow.
 - Losses in steam supply header eliminated.
 - Problems of leaks, choking & corrosion of hardware eliminated.
-

*Optimizing
Air Conditioning
Requirement*

Power Saving - Optimizing Air Conditioning Requirement

C) EVALUATION OF SCHEME:			
1	Power required to operate the plant for accounts block	47.3	
2	Power required to operate WAC units in Administration building is	13.5	
		60.8	
S.No	Calculation basis	Amount	Units
1	Present cost of power 75kw/h X10 hrsX300days X Rs 2.42	545806.8	Rs/-
2	Revised cost of power 59 kW/h X10X300 days X Rs 2.42	441666.1	Rs/-
	Savings		
3	In power cost per annum (1-2)	104141	Rs/-
	In operating Cost of the Single unit / Annum	35000	Rs/-
	Total savings	139140.67	Rs/-
7	Total Installation cost	188800	Rs/-
	Pay Back Period		
I	PAY BACK PERIOD (with out considering the operating cost)	1.81	Years
II	PAY BACK PERIOD (considering the operating cost of the Single Central AC Comp.unit)	1.36	Years

Power Saving - Optimizing Air Conditioning Requirement



← Window Air Conditioners installed

Larger Compressor
eliminated



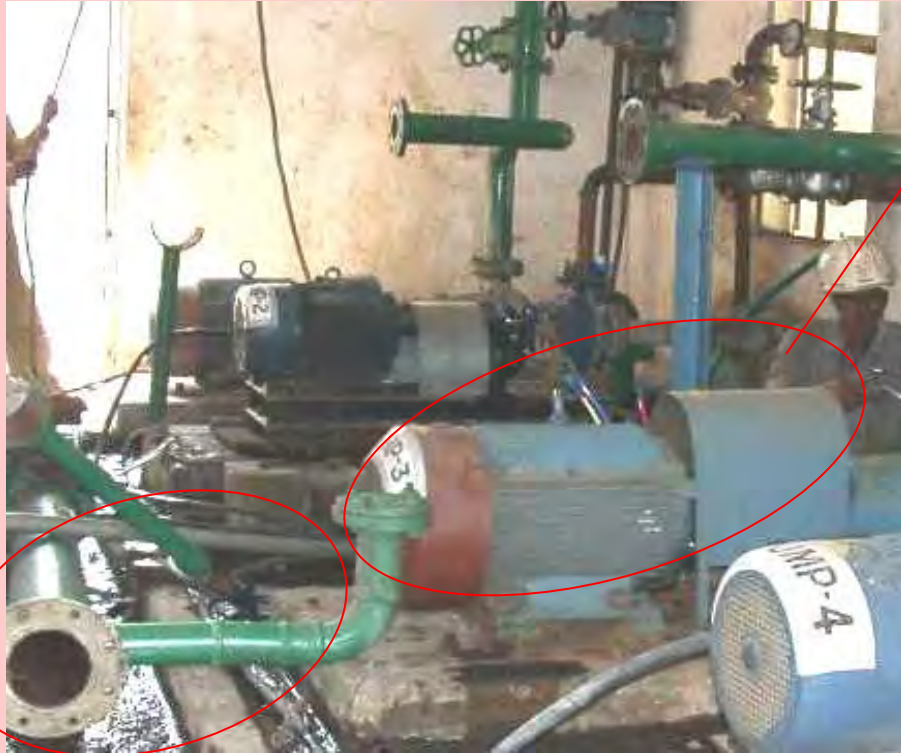
Optimum Sizing of RL Pump

Right Sizing of RL Pump

- New RL pump commissioned on April 30 th'03 in replacement with Old RL pump as a part of Energy saving scheme
 - Previously old RL pump was of higher capacity with 15 kW motor
 - Present new RL pump with 7.5 kW motor has been procured and kept in operation
 - Cramped layout, unwanted pipes & oversize header pipe line are modified to simple layout for ease of operation
 - Savings: Rs 1.74 lacs/annum
-

Right Sizing of RL Pump - Improvement Affect

Before

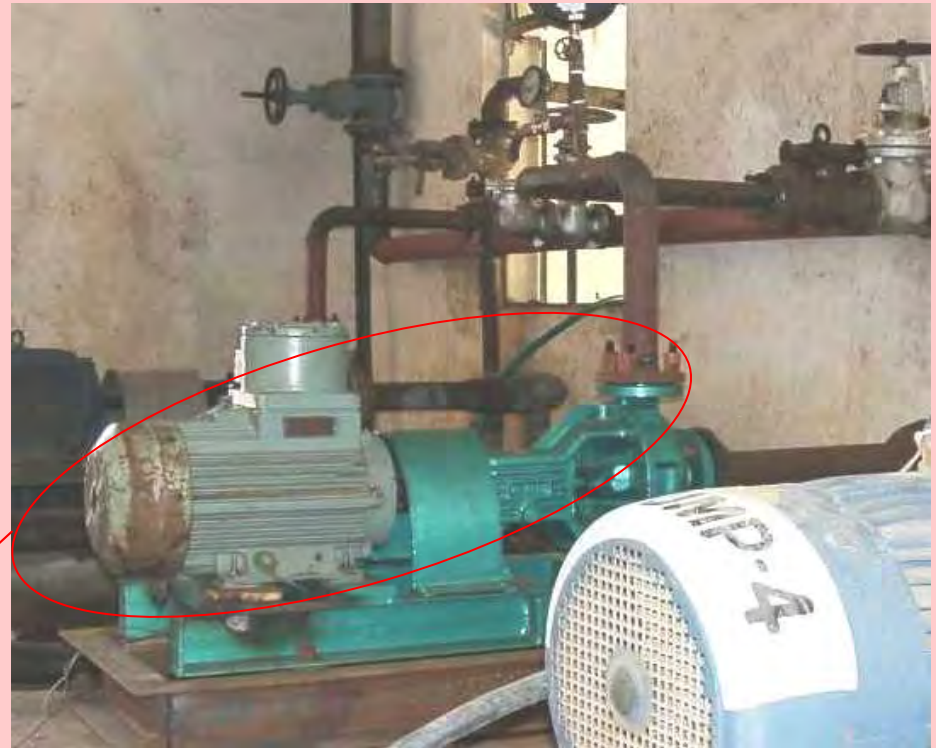


Old RL pump

Oversize header

New RL pump

After



***Installation of
Variable Frequency
for CT Fan***

Power Consumption at Full Load:

- **Motor Full load capacity = 15kw**
 - **At Full load motor running load = 11.7 kw**
 - **Energy consumed per hour = 11.7 kwh**
 - **Cost of energy / kwh = Rs 2.50/**
 - **Total Energy cost of CT motor = 11.7 x 24 x330 x2.50**
= Rs. 2.32 lacs/yr.
-

Data Collection - Installation of Variable Frequency for CT Fan

Date	Time	Power Data				CT Temp data	
		Frquency	Volts	Amps	KW	Inlet	Outlet
26.05.04	1400	50	419	21.6	11.7	37°	35°
26.06.04	1100	50	420	20.8	13	35	33
26.06.04	1400	30	340	13	6.8	35	33
28.06.04	1000	25	291	11.8	5.43	34	33
	1030	30	341	12.6	6.46	34	32
	1100	35	362	14.3	8.17	34	33
	1100	40	383	17	9.61	35	33.5
	1130	45	415	18.2	11.1	35.5	34
	1200	50	447	20.7	13.2	36	34

Note: Optimum frequency without effecting delta temperature is 30HZ

Evaluation - Installation of Variable Frequency for CT Fan

Before

After

1). Operating Frequency

1. 50 HZ

1. 30 HZ

2). Running Load of Motor

2. 11.7 kw

2. 6.46 kw

3). Energy consumed /day

3. 281 kwh

3. 155 kwh

4) Energy consumed / yr

4. 92730 kwh

4. 51150 kwh

5) CT inlet water temp.

5. 33.5°C

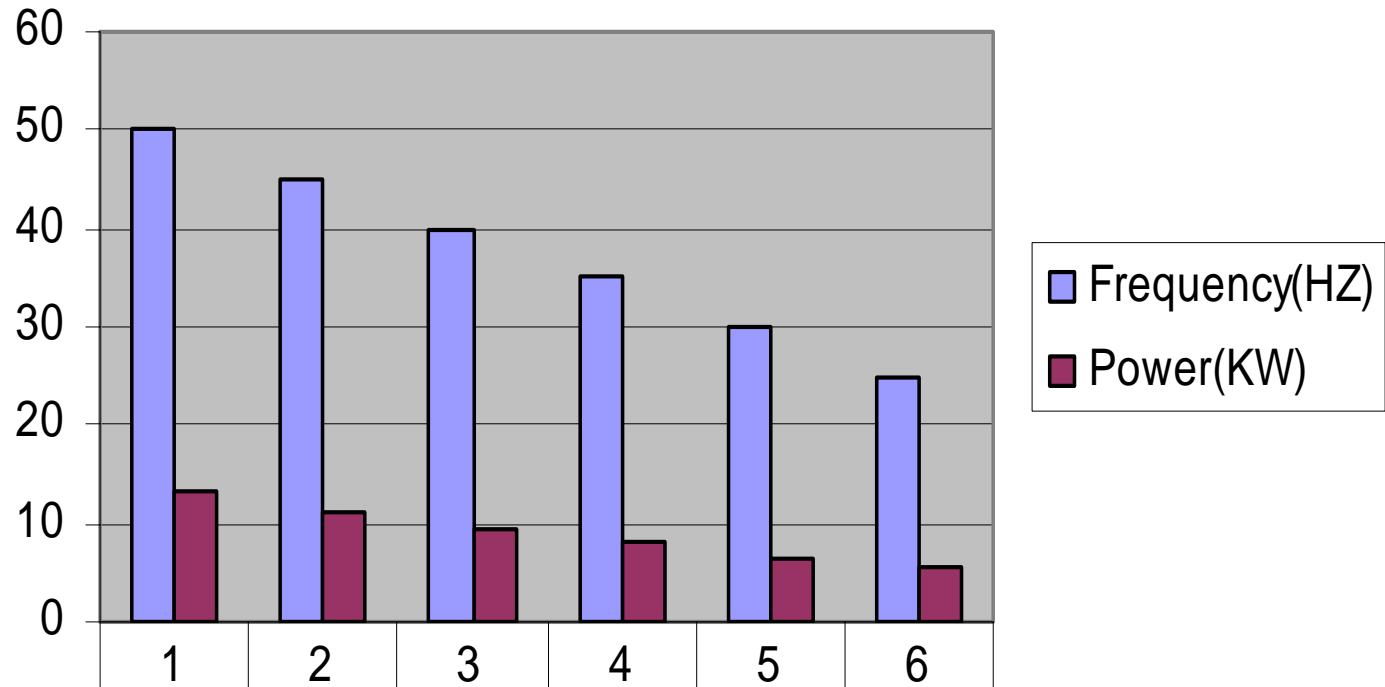
5. 34°C

6) CT outlet temp.

6. 31.5°C

6. 32°C

Evaluation - Installation of Variable Frequency for CT Fan



■ Frequency(HZ)	50	45	40	35	30	25
■ Power(KW)	13.2	11.1	9.61	8.17	6.46	5.43

Cost Savings - Installation of Variable Frequency for CT Fan

Saving achieved Rs. 1.04 lacs / yr.

Before QC Energy consumption of CT per year = 92730kwh

After QC Energy consumption of CT per year = 51150kwh

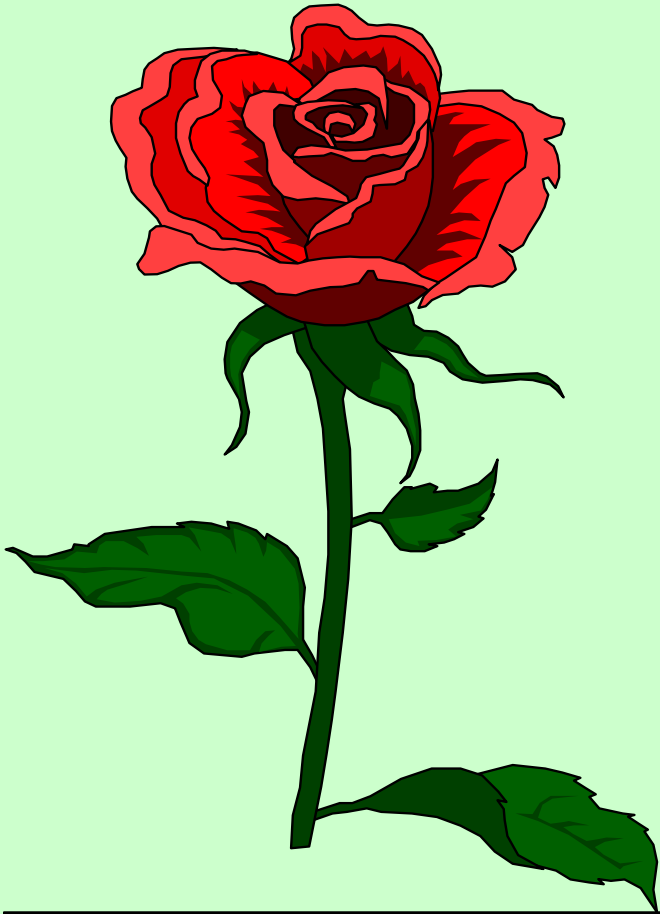
Saving in Energy per year = 41580 kwh

**Amount savings per year = Rs 2.50 x 41580
= Rs.103950**



LG Polymers India Pvt. Ltd.

An ISO 14001 Accredited company



Environment management System

ISO 14001



LG Polymers India Pvt. Ltd.

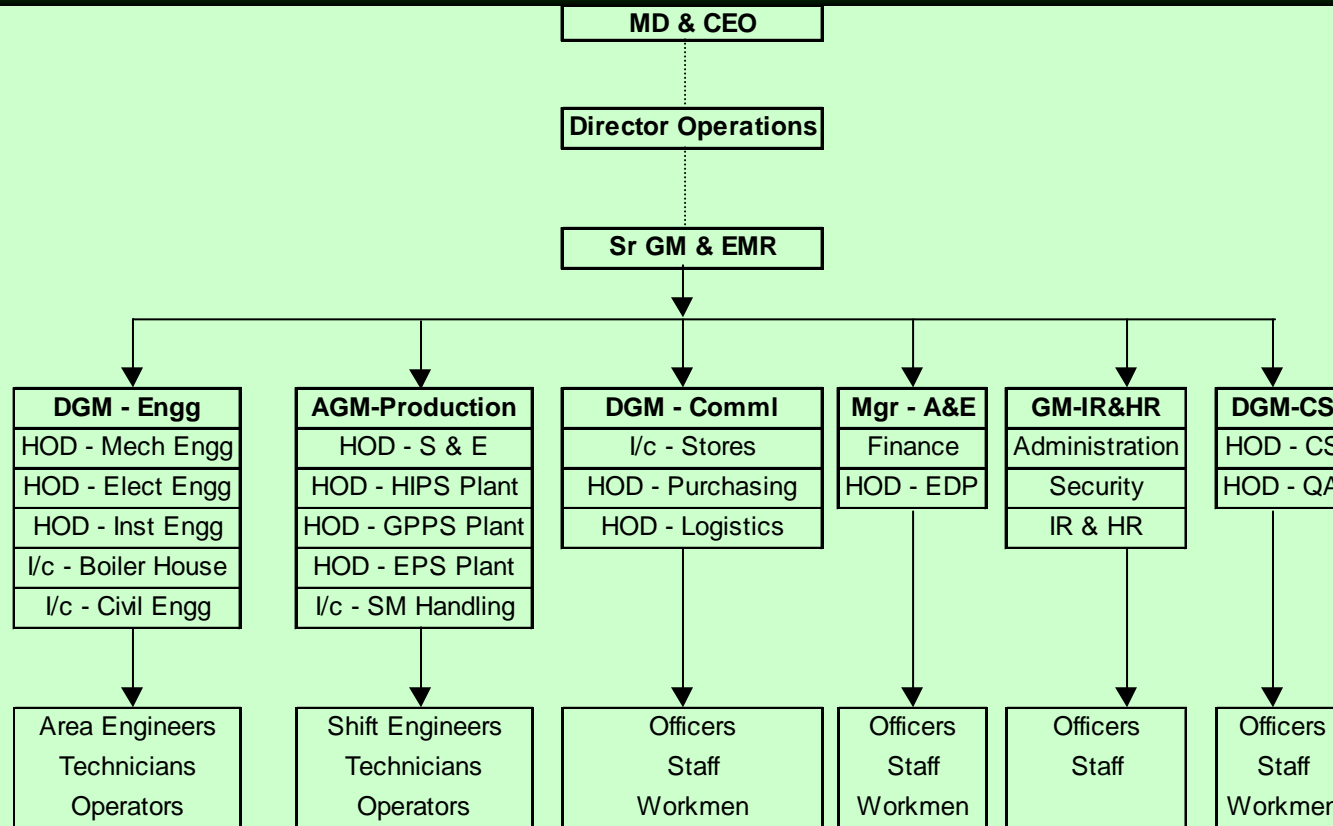
ENVIRONMENTAL POLICY

We at LG Polymers India Pvt. Ltd. shall ensure that we manufacture our product range of High Impact, General Purpose and Expandable Polystyrene resins in the most environmentally friendly way possible by

- Meeting all legal requirements related to our internal and external environment, and striving to exceed them where possible.
- Minimising exposure of all our employees to toxic and hazardous chemicals.
- Achieving excellent levels of house keeping in all areas, and maintaining a clean and green work environment.
- Using best available options for waste disposal and management, while actively working to reduce wastes at source.
- Striving to continually improve unit consumption of resources and reduce total demand where possible.
- Ensuring that our neighbouring community is not unduly disturbed and subjected to grave risks due to any our our activities.
- Improving local environment to the extent possible.
- Maintaining a high level of environmental awareness among all employees.
- Continually improving our environmental management system.

DIRECTOR (OPERATIONS)

MD & CEO



I/C - Incharge

HOD - Head of Department

MGR - Manager

AGM - Assistant General Manager

DGM - Deputy General Manger

GM - General Manger

Sr. GM - Senior General Manger

EMR - Environmental Management Representative

S&E - Safety & Environment

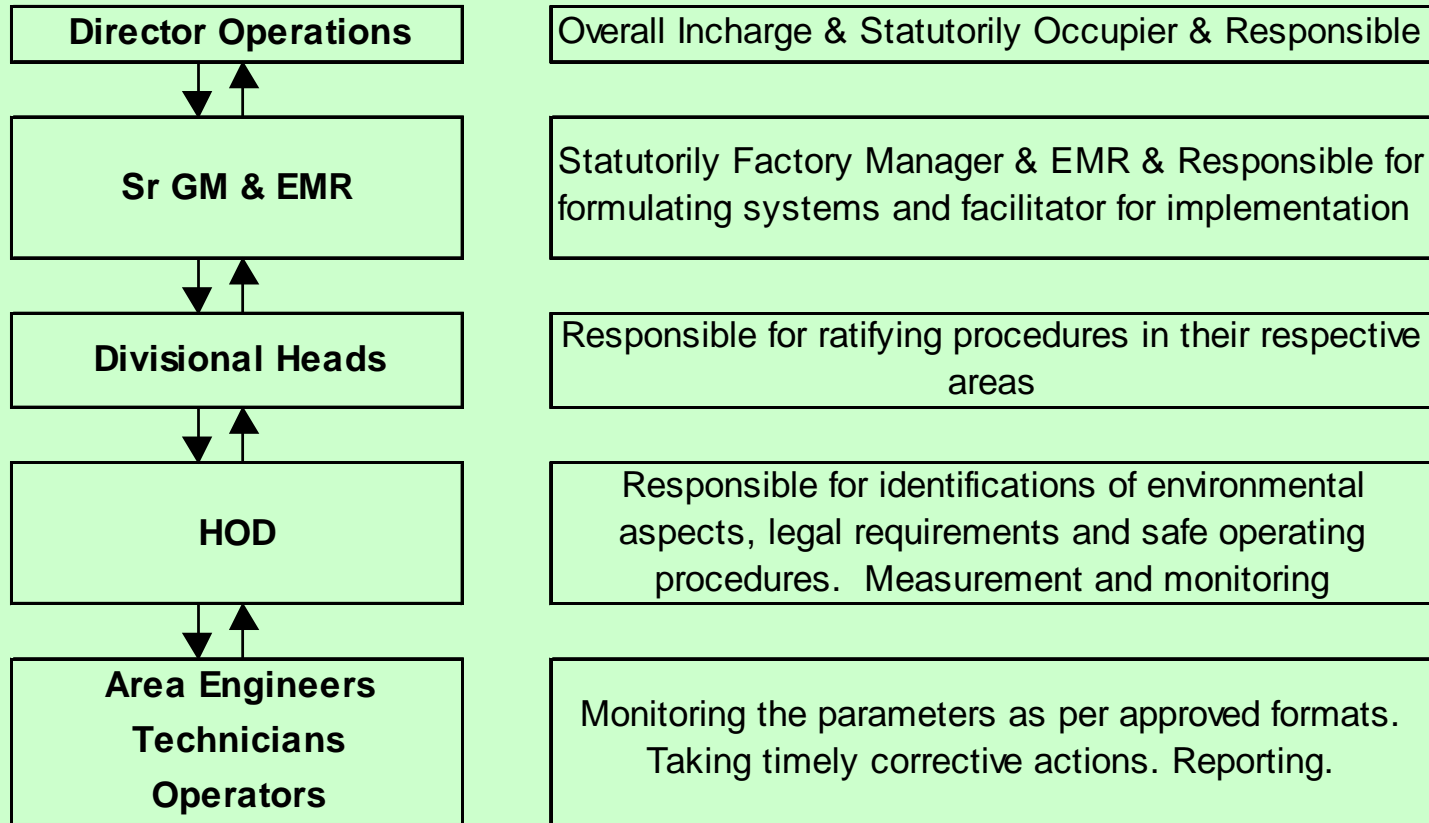
A&E - Accounts & EDP

EDP - Electronic Data Processing

IR & HR - Industrial Relations & Human Resources

CS - Customer services

QA - Quality Assurance



Major governing regulations are APPCB consent orders for Air, Water & Authorization for Hazardous waste Management

CONSENT ORDER FOR WATER.

ORDER NO : APPCB/VSP/109/HO/W/2003/259-19 DT. 25/03/2004.

CONSENT ORDER DETAILS			
S No	Details	Limit	Status
1	Trade effluent after treatment	1120 kl/day	Being complied
2	Domestic Effluents	20 kl/day	Being complied
3	Manufacture of Polystyrene	235 TPD (85775 TPA)	HIPS – 117 TPD GPPS – 118 TPD Total – 235 TPD
4	Expandable Polystyrene	45 TPD	44 TPD
5	Validity	31 st Dec 2006	

CONSENT ORDER FOR AIR

ORDER NO : APPCB/VSP/109/HO/2003/A/259-19 DT. 25/03/2004.

S No	Details of Chimneys
1	Chimney attached to 2 X 8 TPH LSHS Fired Boilers
2	Oil Fired Heater
3	Old Fired Heater
4	Zinc Stearate Mixing Unit
5	4 X 1000 KVA + 500 KVA DG sets

S No	Details	Limit	Status
1	Manufacture of Polystyrene	235 TPD (85775 TPA)	HIPS – 117 TPD GPPS – 118 TPD Total – 235 TPD
2	Expandable Polystyrene	45 TPD	44 TPD
3	Validity	31 st Dec 2006	

Milestones in Pollution Abatement/Meeting Regulation

- 1998 Stopped operation of distillery unit - Reduced major water effluent.
 - 2001 Improvement in GPPS conveying system - Provision of Cyclone separator - Arrested ZnSt dust in work area.
 - 2002 Online Dosing of Caustic lye in EPS Effluent stream.
 - 2002 Styrene plant and Coal Fired Boiler dismantled.
 - 2003 Improved effluent channel (open concrete trench to closed HDPE pipe) for EPS effluent stream
 - 2003 Procurement and installation of 3rd Ambient Air Quality monitoring station
 - 2004 Analysis of effluent and stack emissions by external 3rd party.
-

Accredited with ISO 14001 : 1996 in Dec 2003

EMS scope is limited to LGPI Vizag Site

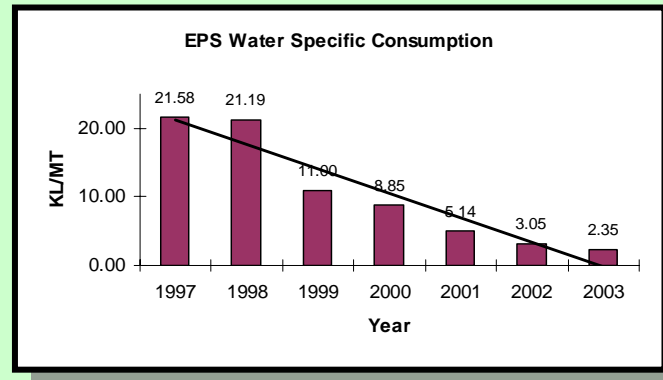
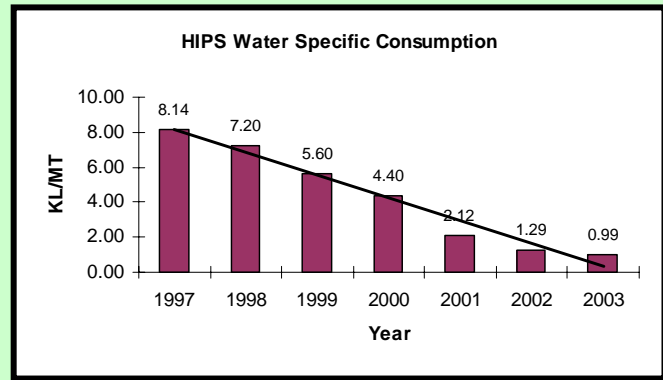
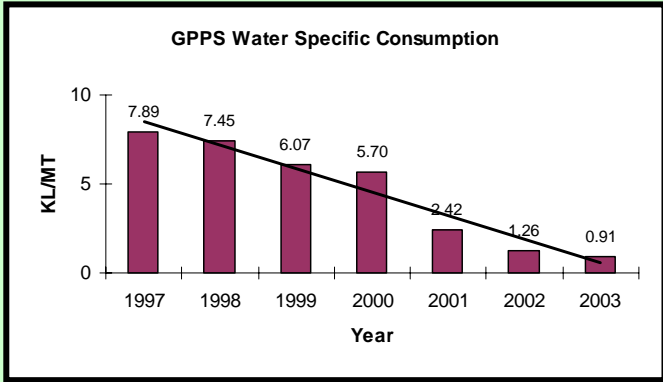
Production And Dispatch Of Natural & Coloured Polystyrene Granules For General Purpose & High Impact Applications.

Production And Dispatch Of Expandable Polystyrene (EPS) Beads For Packing, Insulation And Disposable Food Container Applications

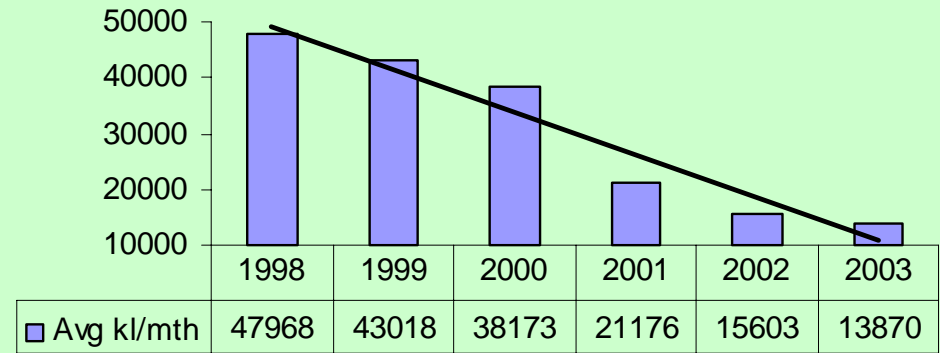
Purchase And Dispatch Of Styrene



Water consumption details



Total Water consumption KL/Month

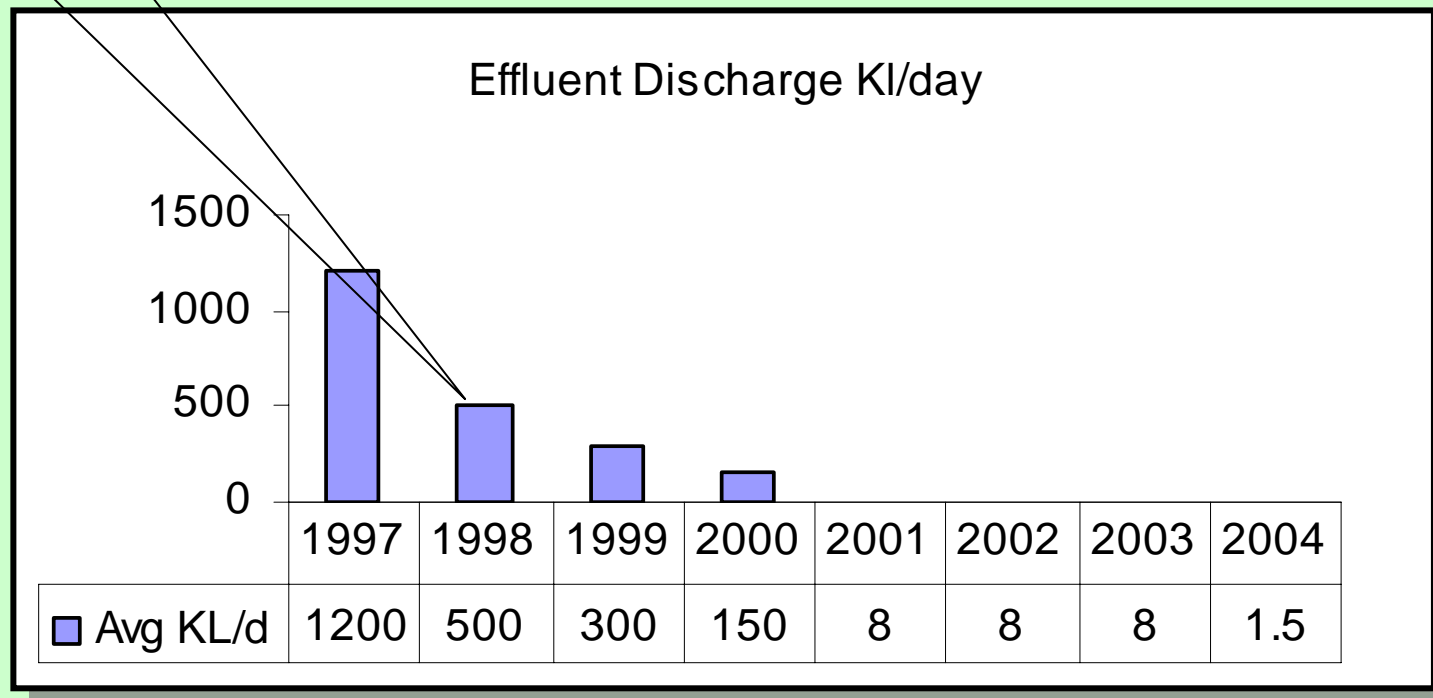


	1998	1999	2000	2001	2002	2003
■ Avg kl/mth	47968	43018	38173	21176	15603	13870

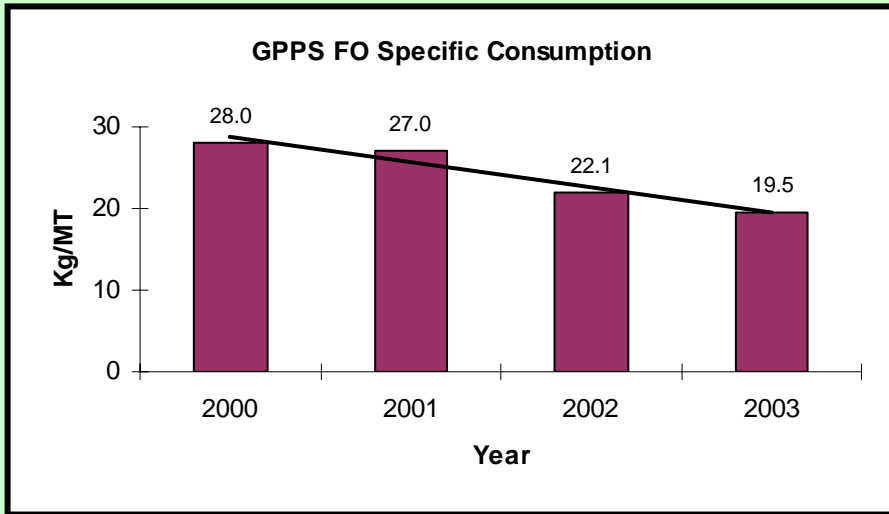
Water effluent discharge details

Reduction of 99.8 % in water emission since 1997

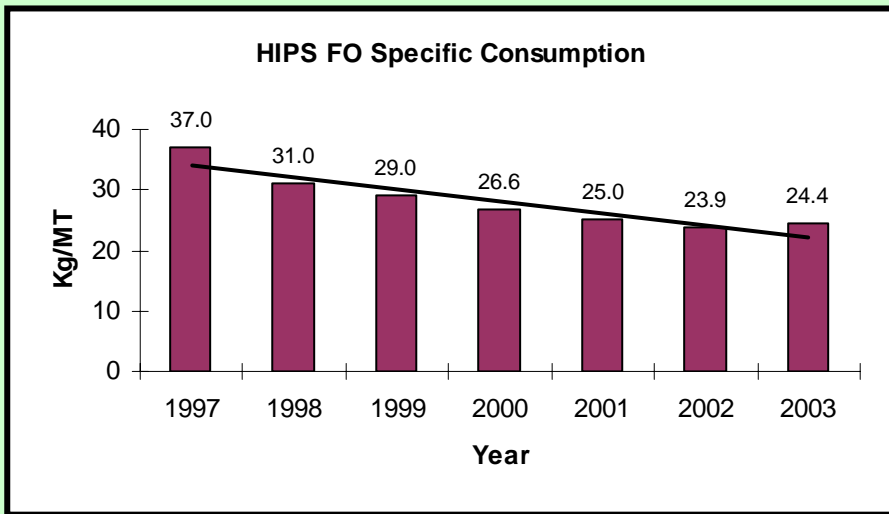
Distillery Operation Stopped since Sep'98



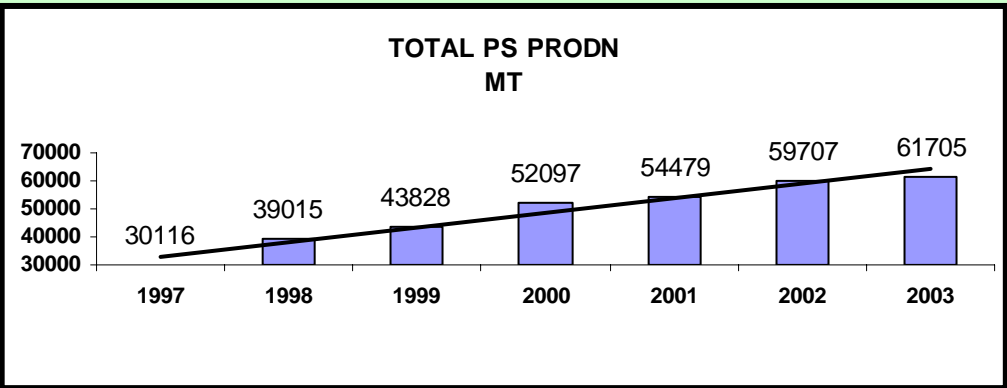
Fuel Oil Consumption



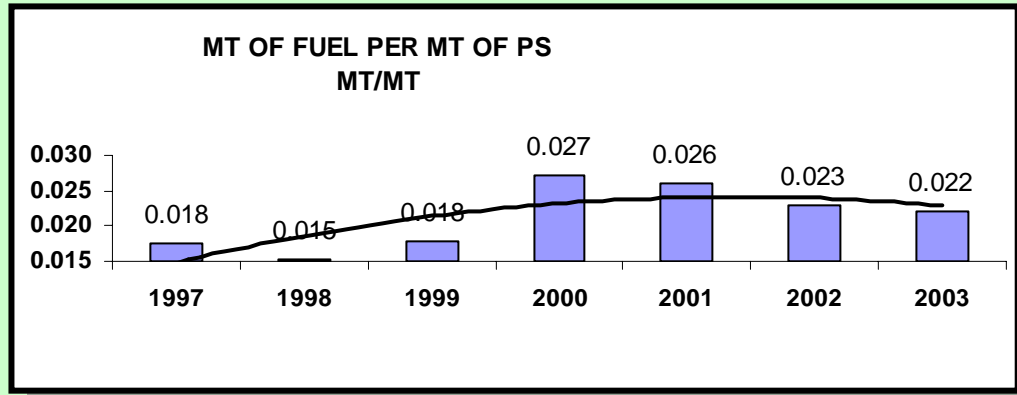
Improvement of 30% in fuel consumption since Y'2000



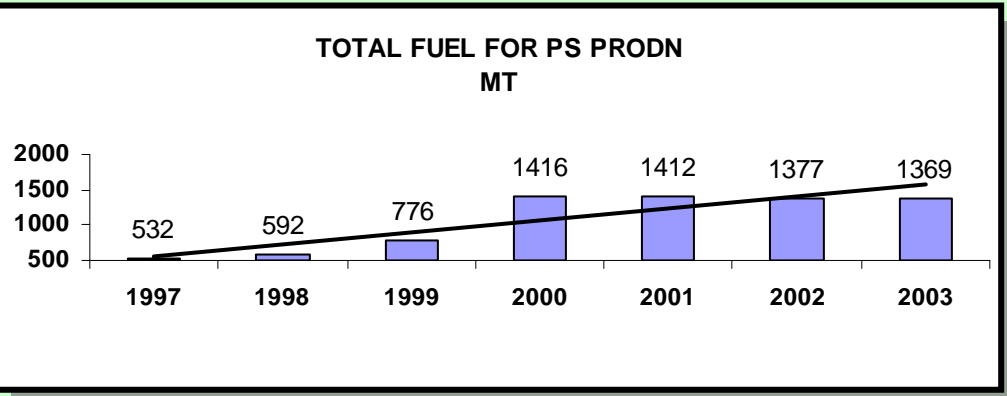
Improvement of 34% in fuel consumption since Y'1997



Improvement of 19% in fuel consumption since Y'2000



Y-2000 April, GPPS heating changed from Electrical to Thermic fluid heating.



Green Belt Development

Year	Planted	Survival
1993	5000	4600
1995	22200	21800
1996	6000	5000
1997	15000	13500
1998	4000	3500
1999	3000	2800
2001	2500	2350
2002	12000	9800
2003	2500	2000
2004	300	300
	72500	65650

Green Belt developed is 12 times the statutory requirement

Teak wood



Red Sandal



ENVIRONMENT IMPROVEMENT ACTIVITIES:

S No	Activity	Year	Benefit
HIPS PLANT			
1	Installation of efficient Heater for HIPS plant. Air automized burner system for better efficiency and reduced emissions	1999	Efficiency up from 70% to 87% Unit consumption of fuel reduced from 31 kg/MT to 23 kg/MT
2	Construction of oil separator in HIPS plant	1999	Separation of traces of oils from effluent.
3	Improved seals for Hot oil circulation pumps	2002	Reduced waste oil in oil separator
4	Cooling water treatment	2002	Water specific consumption reduced from 2.12 kl/MT to 1 kl/MT
5	Residual rubber solution from filters - recovery	2003	Reduced hazardous waste and improved yield. Yield up from 99.18 to 99.30
6	Recovery of waste rubber generated during cutting and conveying	2004	Recovery 30 kg/day. Reduced hazardous waste and improved yield. Yield up from 99.30 to 99.31

S No	Activity	Year	Benefit
GPPS			
1	Construction of oil separator in GPPS plant	2000	Separation of traces of oils from effluent.
2	Reactor system changed from open kettle operation to vacuum operation (closed system)	2000	Vapor releases reduced.
3	Cyclone separator for Product conveying	2001	Improvement of SPM levels. Reduction below 115 ppm
4	Augmentation of DV vapors condensation system	2002	HC losses reduction. Yield up from 98.99 to 99.06
5	Installation of efficient Heater for GPPS plant. Air automatized burner system and mass based control system for better efficiency and reduced emissions	2003	Efficiency up from 65% to 89% Unit consumption of fuel reduced from 28 kg/MT to 19.5 kg/MT
6	Improved seals for Hot oil circulation pumps	2003	Reduced waste oil in oil separator
7	Cooling water treatment	2003	Water specific consumption reduced from 1.26 kl/MT to 0.9 kl/MT
8	Improved operations – Styrene distillation system operation review and reduced operation	2004	Reduced hazardous waste and improved yield. Expected Waste reduced from 16 tpd to 6 tpd. Activity under progress.

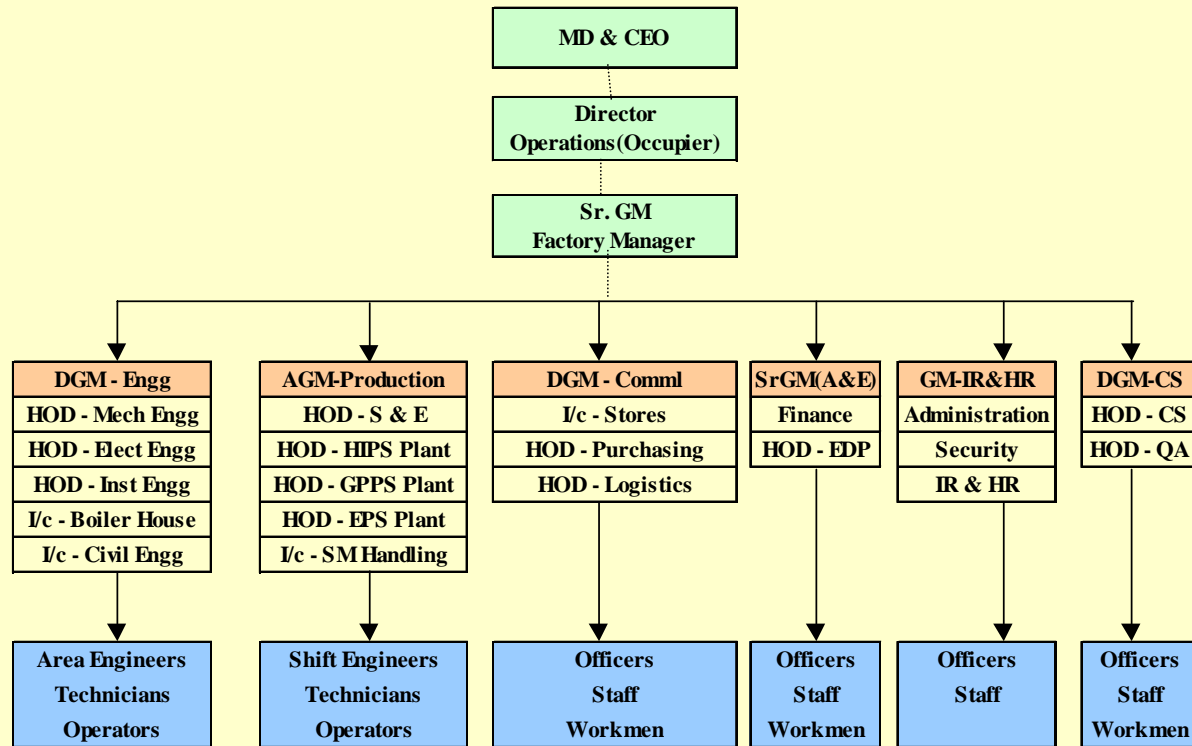
S No	Activity	Year	Benefit
EPS			
1	Construction of Effluent treatment pit	1998	Neutralization of EPS effluent. One day capacity of pits (80 KL/d) constructed
2	EPS effluent online neutralization	2002	Caustic dip facility (continuous) installed for neutralizing
3	Reduction of suspended solids	2002	Introduction of bag filter at effluent pump discharge. Reduced TSS to < 100 mg/l
4	Effluent channel modification	2003	Seepage of effluent from concrete trench avoided by introducing a closed type effluent conveying channel (HDPE piping)
5	Improved solids recovery from effluent	2004	Procurement of new decanter centrifuge under progress. There will be one stand-by eqpt continuously available. TSS in effluent will be controlled below 2000 ppm

S No	Activity	Year	Benefit
UTILITIES			
1	Steam generation	1998	Replaced old (30 years old) inefficient water tube boilers with fire tube boiler. Fuel consumption reduced from 83 to 74 kg/MT
2	Steam generation	1999	Condensate recovery system installed. Water reuse (recovery) is 20 KL/day
3	Boiler Chimney	2002	New chimney of suitable height (meeting statutory requirement) installed for 8 TPH Thermax boiler.
4	Refrigeration systems	2002	HIPS and GPPS systems replaced with new systems. Freon leaks reduced from 210 kg/month to 35 kg/month
5	Steam generation – New small capacity boiler instead of High capacity boiler running at low turndown. Boiler location close to major consuming plant – On going	2004	Fuel consumption reduction expected to be from 86 kg/MT to 74 kg/MT.

Safety management system

Safety management system Structure Of the committee

Safety & Environmental Organizational chart



I/C - Incharge

HOD - Head of Department

MGR - Manager

AGM - Assistant General Manager

DGM - Deputy General Manger

GM - General Manger

Sr. GM - Senior General Manger

EMR - Environmental Management Representative

S&E - Safety & Environment

A&E - Accounts & EDP

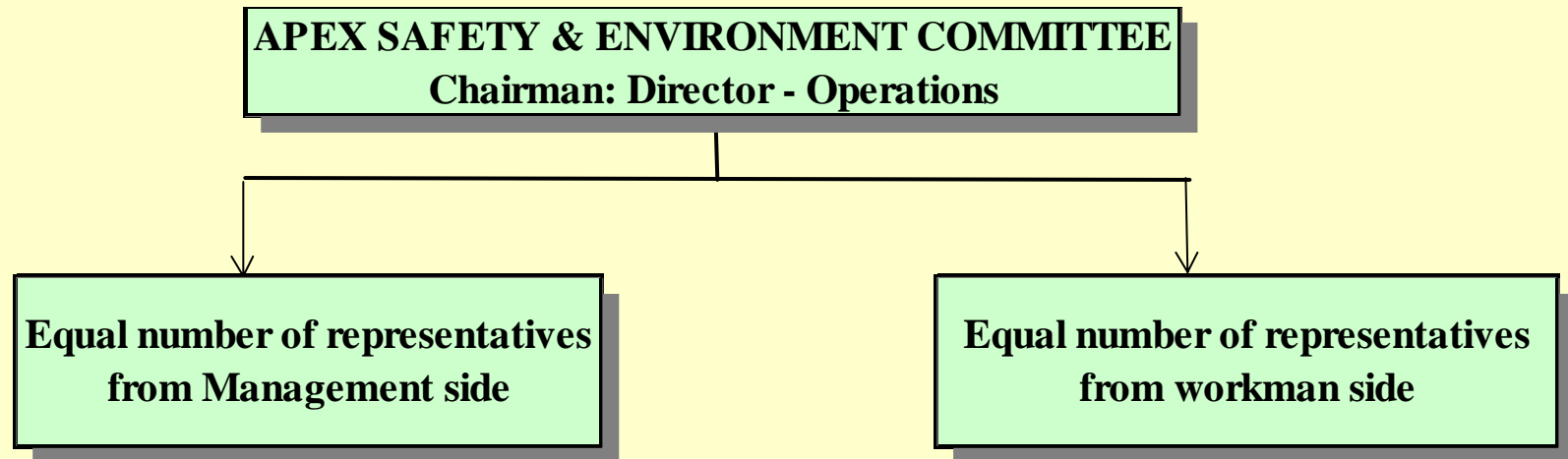
EDP - Electronic Data Processing

IR & HR - Industrial Relations & Human Resources

CS - Customer services

QA - Quality Assurance

Safety management system – Apex Safety Committee



1. Apex Safety & Environment Committee (ASEC):

A committee is constituted with equal number of members from management and workmen categories.

The committee meets at least once in two months. The agenda of committee meetings includes

- 1. Review of last meeting minutes.**
 - 2. Accident Review.**
 - 3. Review of employees suggestions.**
 - 4. Contributions of members in enhancing the safety & Environment standard.**
-

Safety management system - Sub Safety & Environment Committee

Sub Safety & Environment Committee

Chairman : Sr. GM (Prod. & CS)		Chairman : DGM (Engg.)	Chairman : Tech. Co-ordinator	Chairman : GM (IR & HR)
EPS	CS	ME & CE	QCD	IR
GPPS	Logistics	EE & IE	Innovative	HRD
HIPS				A & E
5 Committes		1 committee	1 commettee	1 commetee

2. Sub-Safety & Environment Committees (SSEC):

Area wise Sub Safety Committees 8 nos. namely SSEC (HIPS), SSEC (GPPS), SSEC(EPs), SSEC (CS& LOGS.), SSEC (CE&ME), SSEC (IE&EE), SSEC (IR&HR, ACCTS. & EDP) & SSEC(QA&INNOV) are formed and involved 80 employees includes equal no. Of workmen, apart from Apex Safety & Environment committee. The committees meet once in one month. Points that merit are brought to notice of ASEC.

ACHIEVEMENT :

NATIONAL SAFETY AWARD FOR THE YEAR 2003

RUNNERS-UP UNDER CATEGORY - LONGEST
ACCIDENT FREE PERIOD



Safety management system - Accidents Record

Accidents Record: Reportable Accidents

Definition:

If the injured is not able to return to the duty within 48 hours of accident is called Lost Time Accident or Reportable accident which should be informed to statutory Authorities.

Year	No. of accidents
2000	1
2001	0
2002	0
2003	0
2004(June)	0

Sno	Year	Plant	Employee Injured	Description	Cause	Remedial measures
1	2000	EPS	Mazdoor	Foot slipped from the rung of the ladder and fell down along with ladder.	Improper positioning of ladder	Ladder grouted & rubber shoes for ladder feet to be provided.

Safety Training & Awareness for Employees

Training - Fire, Safety & First Aid

S No	Category	Subjects	Frequency
1	Non Technical (commercial dept.)	Fire and Safety (Class room Audio & Visual)	Yearly
		Mock Drills	6 months
2	Technical (Production, Engineering)	Fire and Safety (Class room Audio & Visual & Practical)	Yearly
		Mock Drills	6 months
		Plant Emergency mock drills	Monthly
3	Fire squad	Fire fighting (Class room Audio & Visual & Practical), Fire Drills	Weekly
4	Contract Workmen	Safety, Work Permit System, Usage of PPEs	Every new job

Safety management system - Safety Observation – Every one to report

Management of Hazards



Safety Observation Card System and NCR

All employees(from Mazdoors to Manager) are eligible to report any unsafe conditions/unsafe acts through safety observation card given to them in any part / location of the factory.

Immediately on receiving the card, S&E dept. will raise a NCR on the deviation department and the HOD of the respective dept. is responsible for rectifying the situation. S&E department will conduct a follow-up audit on the rectification action and after sufficient evidence, the NCR will be closed

The Observations cards will be discussed in the APEX Safety & Environmental committee meetings and the HODs are required to explain to the committee.

Safety management system - Safety Observation Card

Safety & Environment Observation Card			
			Format No: FT/6.3/670
Observer Details			
Name:	Dept:	Card No:	Designation:
Signature:			
Area affected			
Time:	Date:	Area/ Dept:	
Impact on Safety/ Environment			
	<i>Unsafe Condition</i>		
	Dust		Respiratory system
	Noise		Ears
	Leaks/ Spillages		Air
			Water
			Land
			Flora/Fauna
			Human
	<i>Unsafe Acts</i>		
	Deviation of Work Permit system		Head
			Body
			Eyes & Face
			Arms and Hands
			Legs/ Feet
Description of the Unsafe Act/Unsafe Condition(s)			
Observer Actions			
- Stop the job if required and Immediate Information to be given to Incharge S&E department by phone (470), pagers (224, 236) or in walkietalkie (EPS channel)			
- This form to be filled and hard copy to be sent to S&E dept. immediately.			
To be filled by S&E dept:			
Corrections taken		Corrective actions proposed	
Note: Please use back page if necessary			
			
			SAFETY FIRST