

Late Lala

Juggilal Singhania

























Group Businesses



- Production of 35 Million tyres / Yr
- Leading 4 wheeler tyre maker
- Major supplier to Defense & OTR
- 4000 dealers across India
- Operations in Mexico JK Tornel
- Business in 100 countries Exports across the globe



- Largest producer of branded paper
- Production of 0.45 Million tons per year from 2 plants
- 3000 dealers
- ISO 14001 certified Awarded Greenest paper mill
- Business in 35 countries



- 5 Mn tpa expanding to 8 M tpa
- Major focus on ready mix concrete (RMC) & value added products
- Awarded for National Energy Conservation
- Green Mfg Excellence & Star Brand Awards



- Industrial & Automotive V-belts and Oil seals
- Power transmission accessories (Gear, Couplings)
- The first choice of many Indian OEMs



- Produce liquid milk, SMP, dairy powder & milk products
- Major supplier of SMP to Wal-Mart, Mother dairy, Coca Cola



- An Hybrid seed R&D company
- 1st Indian company to develop and commercialize Bt. Cotton
- Seed registrations in South Asian and African countries
- Association with International Organizations





JK Tyre – Multi Location Facilities



Kankroli Tyre Plant (Udaipur)



Laksar Tyre Plant (Haridwar)



Tornel - Mexico

- 9 Plants in India
- 3 Plants in Mexico
- ***** Wide product range



Banmore Tyre Plant (Gwalior)



Vikrant (Tyre Plant, Truck Radial Plant), OTR Plant (Mysore)





Our Growth Journey so far



To launch in India Radial Technology for entire range (Passenger Car, LCV, Bus, Truck, Tractors)

To launch in India V-Rated tires, Eco-friendly tires, and high performance and Asymmetric tires



2010: New OTR

plant in Mysore

2008: **Acquired**

Mexico

1999: Started All Compania Steel Truck radial Tornel in

2012: New plant in Chennai

2013& 2014: Major brownfield

expansion undertaken in Chennai & completed in

2016: **Acquired** Cavendish Industries Ltd. (CIL)

2015-16



1991: Set up

Banmore, MP

at

1997: **Acquired** Mysore second tyre plant

Mysore Vikrant Ltd.,



First and Only tyre Super brand in India



First tyre company in Asia to receive certification and 2nd in the world



1951: Incorporated as a Private Limited company

Technology Edge - HASETRI - Asia's first and India's biggest & foremost research centre







Our business relationship – Vehicle manufacturers

Car MARUTI ** SUZUKI GM TATA Mahindra RENAULT HONDA









































OTR













Partnerships in Offing







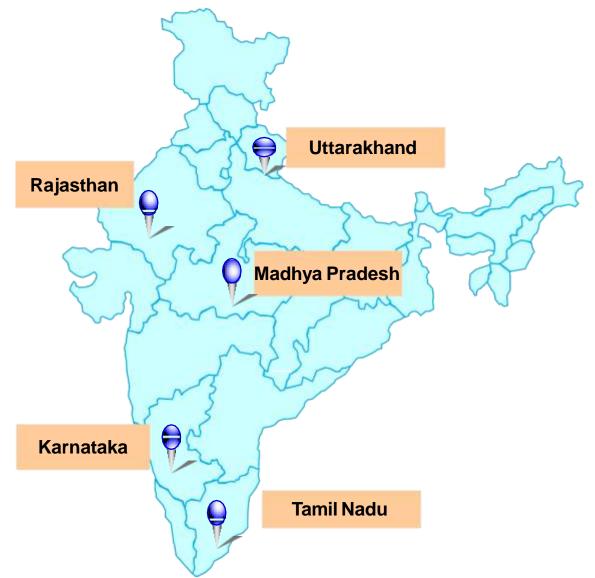








JK Tyre – Capacity Matrix (INDIA)



Plant	Capacity (Million Units / Annum)	Product Range
Kankroli, Rajasthan	2.4	Bias – Truck , Bus, LCV, Pass, Farm
Banmore, Madhya Pradesh	5.1	Radial – Pass / LCV
Vikrant , P-1, Mysore Karnataka	1.1	Bias – Truck, Bus, LCV, Farm, Radial – LCV
Vikrant, P-2, Mysore Karnataka	1.1	Radial – Truck / Bus
Vikrant, P-3 Mysore , Karnataka	0.4	OTR
Chennai Tamil Nadu	5.7	Radial, PCR & TBR
Laksar, Haridwar Uttarakhand	10.0	Truck Bias, Truck Radial, Non-Truck Bias & 2/3 Wheeler





Fact Sheet – Chennai Tyre Plant

❖Location

Sriperumbudur-Tambaram High Road (SH-110)

Kolathur Village

Sriperumbudur, Kanchipuram District, Tamilnadu

Pin: 602105

❖ Distance from Chennai City

(via Sriperumbudur)

- 49.6 k.m

❖ Distance from Port

(via Sriperumbudur)

- 52.8 k.m

❖Land Area

❖ Total Built Up Area (Phase III)

Green Belt Area

❖ Infrastructure & Expansion Area

- 101.7 Acre

- 24 Acre (1.15 Lac Sq. Mtr)

- 25 Acre

53 Acre





Milestone – Chennai Tyre Plant

- ➤ Land acquired May 2010
- ➤ MOU signed with TN Govt. Aug 2010
- ➤ Earth Breaking / Bhoomi Pooja
 Sep 2010
- Muhurrat Feb 2012

Plant completed & commissioned in a record 17months

- Phase I (2L TBR & 25 L PCR) completionJul 2012
- Phase II (Additional 2L TBR) expansionDec 2012
- Phase III (Additional 8L TBR & 20L PCR) expansion Dec 2015





Salient Features – Chennai Tyre Plant

- Location Selection Automobile Hub
- Equipment Selection for high Energy Efficiency
- Environment friendly technology considered during Plant Inception itself
- Modern Technology and flexibility for upgrades
- Zero Liquid Discharge Plant
- Usage of Maximum Day lights
- High level of automation to reduce all resources and better process controls
- Highly optimized WIP material flow
- Modular designs for seamless expansion





Mission Statement on Sustainable Growth



Sub: Mission Statement on Sustainable Growth

Being cognizant of the need of sustainable growth and dwindling stock of natural capital, we commit ourselves to the attainment of the following Ten - Natural Capital Commandments.

- Reduce specific consumption of energy and water by 2-5%every year over next ten years.
- Reduce specific generation of waste and reduce the quantum of waste going to land fills by 2-5%every year over next ten years.
- Increase use of renewable, including renewable energy by 2-5%every year in place of non-renewable over next ten years.
- Reduce specific green house gas emissions and other process emissions by 2-5%every year over next ten years and explore opportunities through Clean Development Mechanism (CDM) & other Carbon Exchange Programs.
- Increase use of recyclables and enhance recyclables of resources embedded in the product by 2-5%every year over next ten years.
- Increase the share of harvested rainwater in the overall annual use of water by 2-5%every year over next ten years.
- Incorporate life cycle assessment criteria for evaluating new and alternative technologies & products.
- Strive to adopt green purchase policy and incorporate latest clean technologies.
- Take lead in promoting and managing product stewardship program, by forging partnerships with businesses and communities.
- Reduce depletion of natural capital, which is directly attributable to company's activities, products and services by 2-5%every year over next ten years.

We also commit to demonstrate attainment of these commandments in our pursuit to certifications such as TS16949, ISO 9001, ISO 14001, OHSAS 18001, SA-8000, ISO-50001, ISO-27001, Green Buildings, Eco Labels Sustainability reporting and the like.

Date: 01.06. 2013





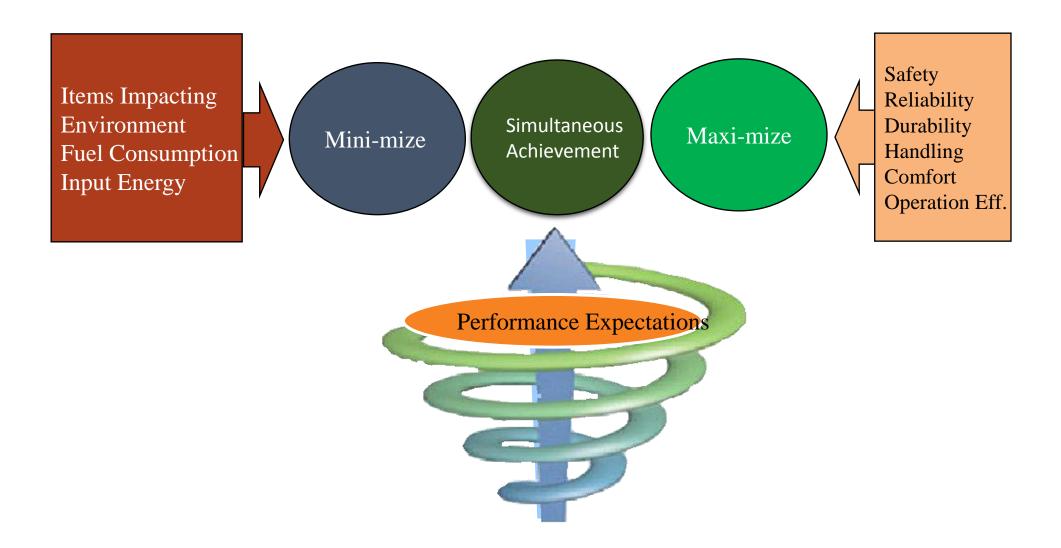
Our Philosphy

- Green Mobility
- Energy Conservation
- Renewable energy
- Design, Equipment Selection
- Monitoring Process
- Improvement Employee Engagement
- Developments By Customers ,Us & Suppliers





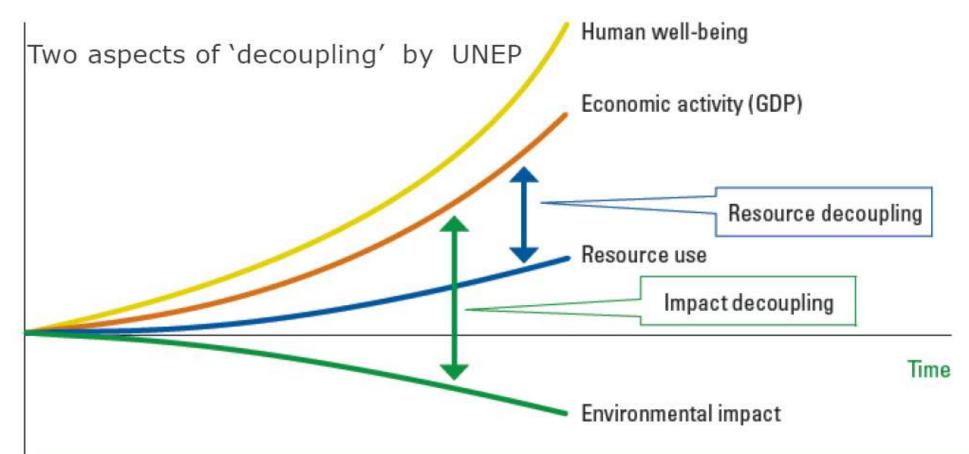
Green Mobility –Customer Needs (OEM and After Market







Green Mobility – How?



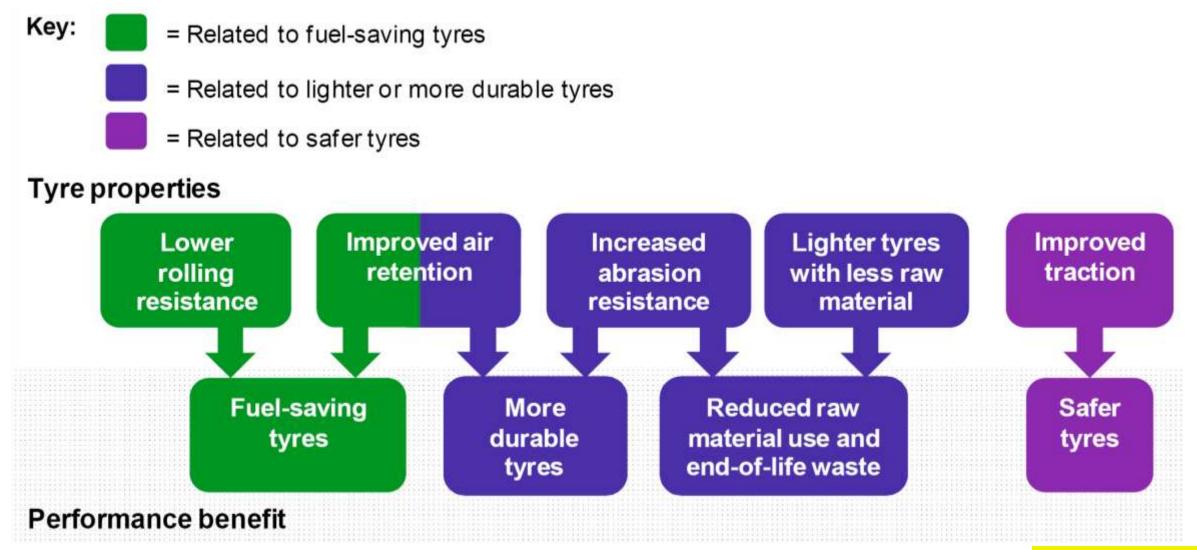
Isolation of the causal correlation between:

- ·population increase / economic growth
- resource consumption / environmental impact





Tyre Properties and Related Performance Improvements







"ECO" Friendly Silica Technology

JK Tyre - The Pioneers in "ECO" Friendly Silica Technology

"CARBON" is widely used FILLER for the reinforcement of Rubber compound. With so many compounding and processing difficulties with the trending "SILICA" filler, it improves performance properties in the end product as an output, which makes it worth all the efforts. Making use of Silica as Filler (reinforcement), 'TREAD CAP COMPOUND' is formulated targeting LOW ROLLING RESISITANCE and added advantages listed below."

Improvements in compound Properties like:

Tear Strength is higher to that of carbon.

the end product - Tyre.

Reduction of heat-build up comparatively.

Increase in compound adhesion – in multi-component products such as tires.

Improvements in PERFORMANCE of the TYRE:

Low Rolling resistance giving higher mileage per liter of fuel (Approximately 5% of LESS FUEL consumption)

Higher traction to the road than carbon (Shorter Braking distance-Safety parameter)

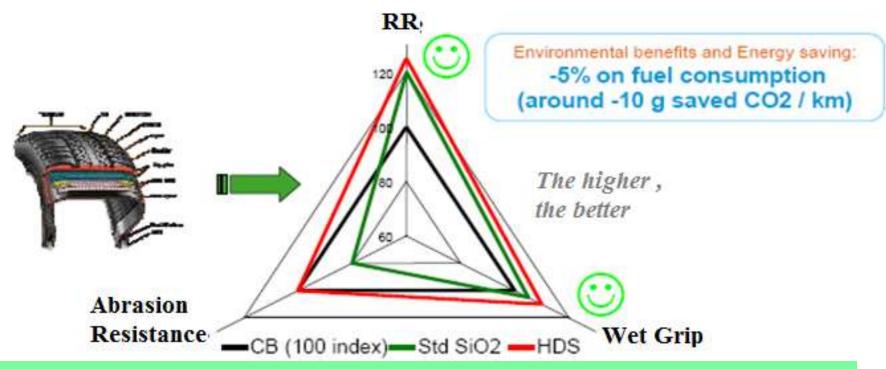
Less CO₂ emission, making it a GREEN TYRE (Environmental friendly)





GHG Emission Intensity Reduction

In the 90's, the modification of the PC Tire Tread using the combination of a highly dispersible silica, a coupling agent, a specific elastomer and an adapted rubber process technology enabled the development of the Green Tire.



Impact of Low Rolling Resistance: 5% fuel consumption reduction (10gms CO2 saved per kg) Retreadability increased for Truck from 1.8 times/to 2.2 times





EURO VENTS – in place of MICRO VENTS

INTRODUCTION OF EURO VENTS – in place of MICRO VENTS in Passenger Car Radial Tyres

Vents or spews are the formation of extra rubber which requires to bleed the air between the rubber and molding surface, without this the cured rubber surface appears with under cure, porosity or lightness.

Lot of improvements done on these vent design over the period in the Tyre Mold design, Out which **Euro Vent (spring vent) is one of the state of art engineering,** which does the job of the conventional vent without formation of extra rubber or spew. (Refer Photograph)

Vents on the tread cap, after curing has to be trimmed and collected for aesthetic appearance of the Tyre. Trimming can be eliminated by introducing EURO- vents

- ■Approximately 9 grams of trimmed rubber collected from each Tyre
- ■Avg. production per month: 2 Lacs Tyres
- ■Waste generation in the form of trimmed rubber approximately 1800 Kgs/ month can be eliminated

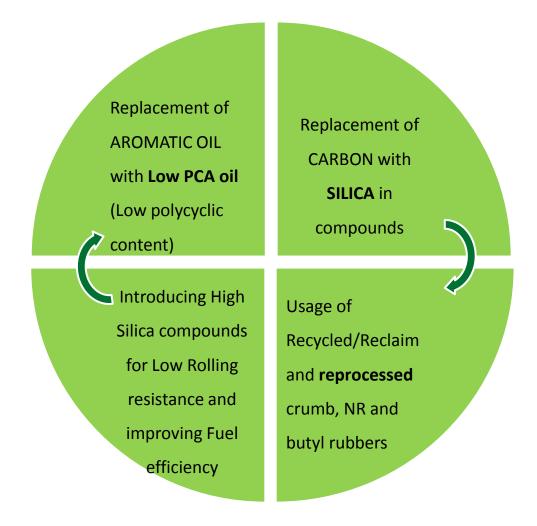








Reducing Environmental Impact (Non-Hazardous)



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Replacement of carbon with silica

Avg.Mth:2012-13 = 34 MT

2013-14 = 67 MT

2014-15 = 78 MT

2015-16 = 138 MT

Usage of recycled / crumb rubber
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Avg/Mth :2012-13 = 2713 kgs

2013-14 = 2991 kgs

2014-15 = 4219 kgs

2015-16 = 5987 kgs
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Replacement of Aromatic oil with Low PCA
Avg/Mth:2012-13 = 2450 L
2013-14 = 3320 L
2014-15 = 4130 L
2015-16 = 9600 L
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Raw Material Conservation

Reduction in Lube Consumption:



MONO-LUBE TO MULTI-LUBE

68 % REDUCTION





Fly loss reduction Nozzle diameter from 1mm to 0.5

26 % REDUCTION



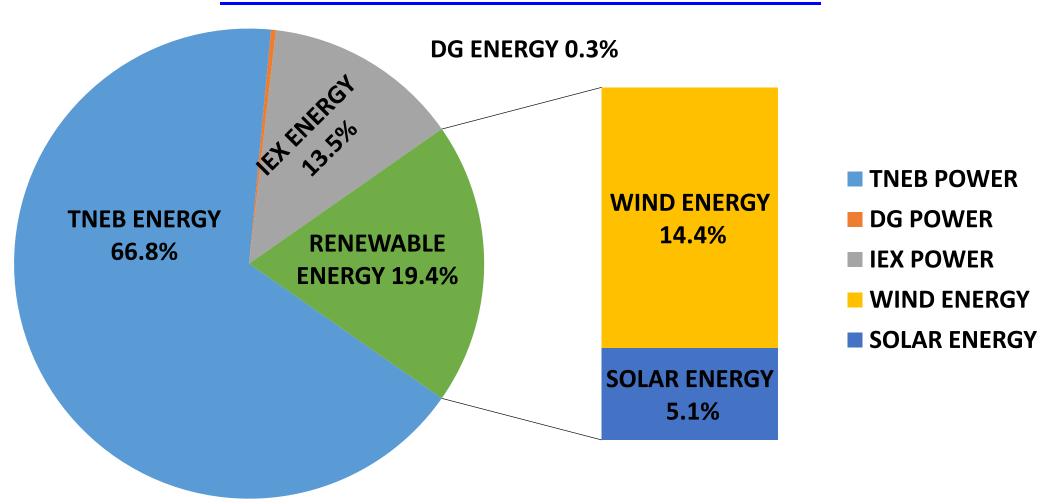
Consumption Reduction from 30gm/Tyre to 8 gm/Tyre





Renewable Energy Utilization

PLANT ELECTRICAL ENERGY CATEGORIZATION







Off-site Renewable - Wind Energy

- > 5.6 MW CAPACITY WIND MILLS SUPPLY POWER TO JK TYRES CTP, LOCATED AT TIRUNELVELI, TAMIL NADU
- > TOTAL GENERATION PER YEAR 1.28 CRORE UNITS AND STARTED FROM 27.02.2016
- WIND MILL SUPPLIES 14.4% OUT OF TOTAL PLANT ENERGY REQUIREMENT
- > 51.2 LACS UNITS ARE SUPPLIED TILL THE MONTH OF AUG16
- ONE MORE 12 MW CAPACITY WIND MILLS UNDER FINALISATION, EXPECTED GENERATION OF 2.0 CRORE UNITS/ANNUM IS UNDER PROGRESS, WHICH WILL INCREASE THE WIND ENERGY CONTRIBUTION UP TO 36.5% OF TOTAL PLANT ENERGY REQUIREMENT





On-site Renewable Energy - Solar Generation



TOTAL CONTROL



Power Less Ventilation

- > 1570 NOS TURBO ROOF VENTS FOR POWER LESS VENTILATION
- > SAVINGS OF 90000 UNITS/MONTH





Day Light Utilization - Lighting



Maximum utilization of Day light as a substitution of Electrical light in day time by installing transparent acrylic sheets.





Low / No Power Consumption - Lighting



PLANT LIGHTING LED CONVERSION

SOLAR LIGHT PIPE INSTALLATIONS AT AIR CONDITIONED AREAS





Coal Fired Boiler - Atmospheric Fluidized Bed Combustion (AFBC) with provision for Biomass, in place of Oil Fired Boiler

The AFBC Boilers are more efficient to burn the fuel than the traveling grate boilers since the fuel combustion takes place in fluidized state to have maximum contact surface area and also energy loss in terms of un-burnt fuel shall be negligible. Hence we have installed AFBC boiler for process steam and planned to horizontally implement in Captive power requirement also. The efficiency of AFBC Boilers is around 84% against 78% of that of Traveling grate boiler







Vapor Absorption Chillers (VAM) in place of Vapor Compression chiller to meet Process chilled water & HVAC chiller requirement.

In this process, the following Green advantages were obtained. It eliminates the usage of CFC & HCFC refrigerants conventionally used in electrical chillers which are having high global warming potential.

Considerable reduction in overall power consumption compared to conventional Vapor Compression chillers







Screw Compressor & Drier (Refrigerant - CFC Free)

Screw type Air Compressor IPO Reciprocating Air Compressor

We are using Screw Type compressors which are more energy efficient and require lesser overall maintenance cost than conventional reciprocating compressors.

Fan less Cooling Tower IPO Fan Cooling Tower

We have designed Fan less / Natural cooling tower in place of conventional Fan type cooling tower to permanently eliminate recurring energy consumption in CT fan motor.











Dome Type Curing Press in other Tyre Plants



Platen Type Curing Press in CTP





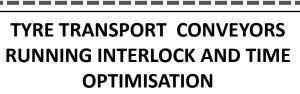




Energy Efficiency Improvements

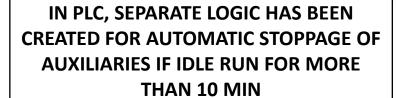
















VFD INSTALLATION FOR COMPRESSOR





Provision For Solar Drying to Reduce Moisture – Used based on Sunlight availability







Fly Loss Reduction in Coal Yard

Covering all 3 sides of Grizzly Hopper to reduce the fly loss of Coal



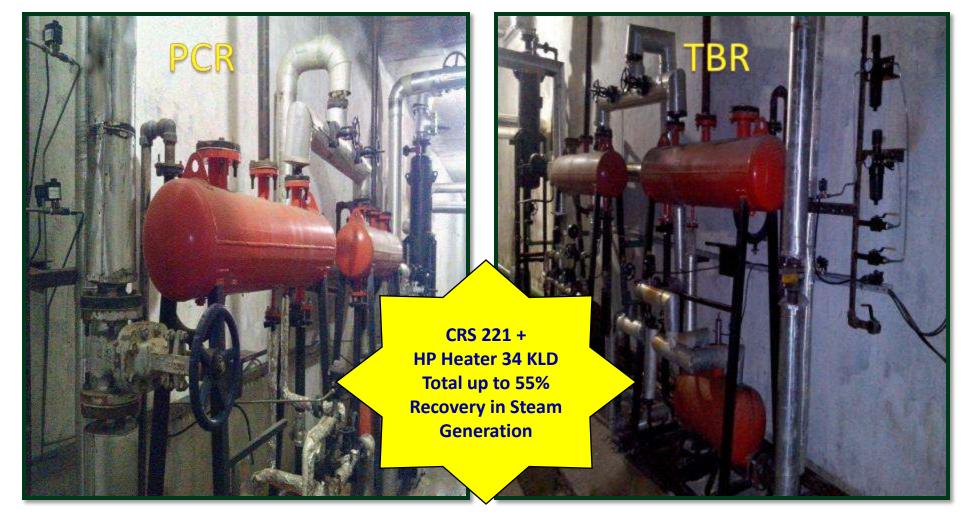
Introduction of Covered Storage Bins to follow FIFO and eliminate Fly Loss







Projects to Recycle Process Water – Curing & VAM

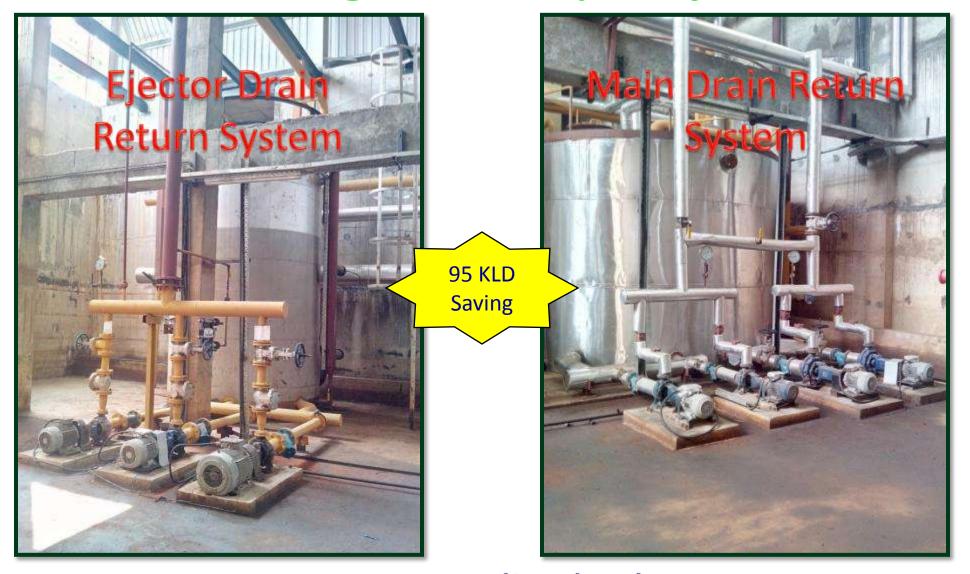


Condensate Water recycling back to Boiler





Water - Curing Recovery Projects



Excess Water recycling back to WTP





Installation of IRF & UF to Reduce Chemical Cleaning Effluent / Frequency of RO Plant (Process)



Cleaning Frequency reduced by 50%





Projects to Reduce Fresh Water Consumption



VAM CT Blow Down used as Ejector CT Make up to reduce Fresh Water Consp.





Stoppage of Cooling Tower by Interconnection







Water Conservation – Rain Water Harvesting









Water Conservation – Rain Water Harvesting









Site Location – Access to Public Transport / Shuttle Services

Distance from Chennai Tyre Plant

❖ To Kancheepuram

- 40 KM

❖ To Sriperumbudur

- 8 KM

❖ To Tambaram

- 22 KM

❖ To Oragadam

22 KM

❖ To Chennai Airport

- 26 KM

❖ To CMBT Koyambedu

- 44 KM

JK Tyres & industries limited



Local Bus stop





Site Location – Access to Public Transport / Shuttle Services

- Persons using Shuttle Bus facility
 - **88.4%**

(1180 of 1334 Nos)



Staff shuttle services

Persons with Housing facility within
6 Km radius - 68.46%



Contractors shuttle services

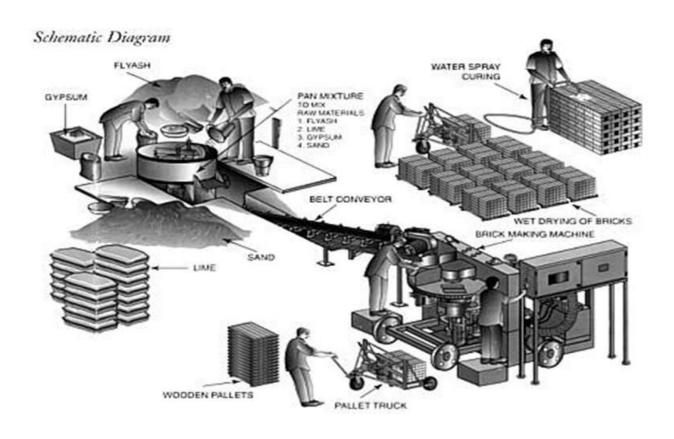




Waste Management

DISPOSAL OF FLY ASH – BOILER (GRAVE TO CRADLE)

Alternate use of Boiler Fly Ash as Raw Material in Brick Manufacturing Process (TNPCB Approved Agency)





Brick
Manufacturing
Machine

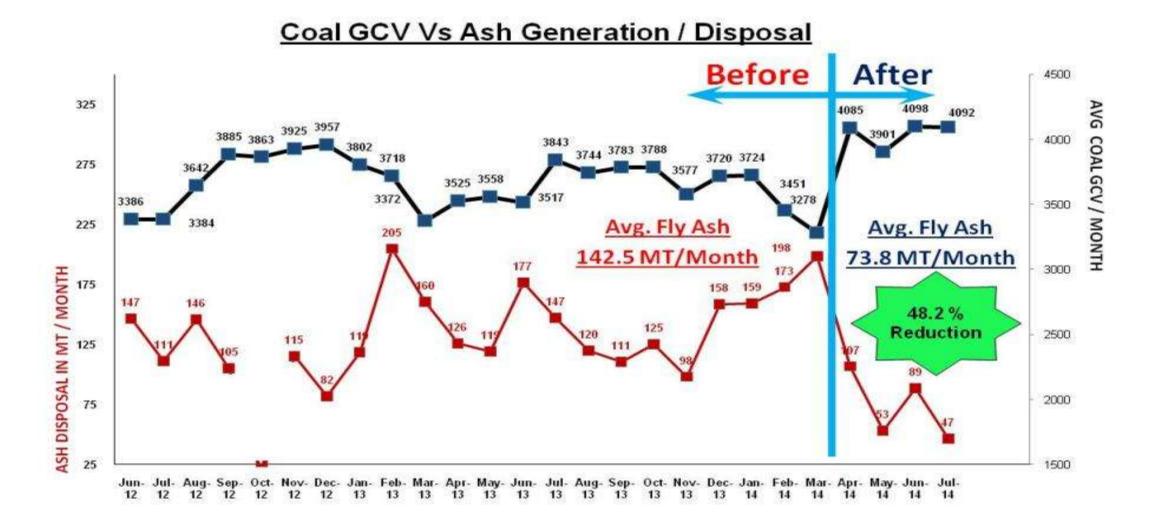


Fly Ash Brick



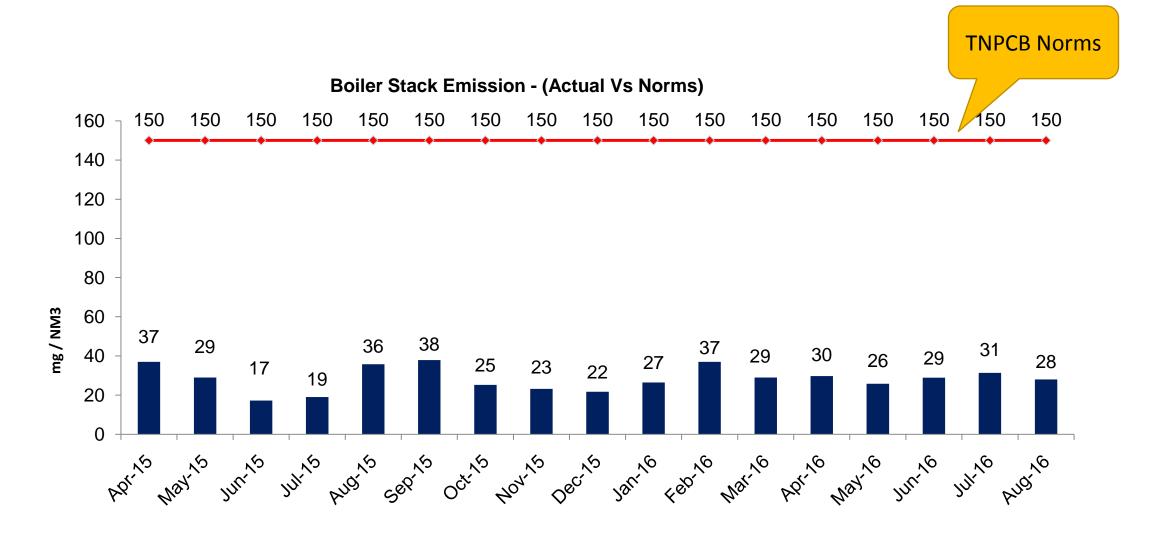


Use of High GCV Coal for Low Ash Content





Reduction in Boiler stack Air Pollution





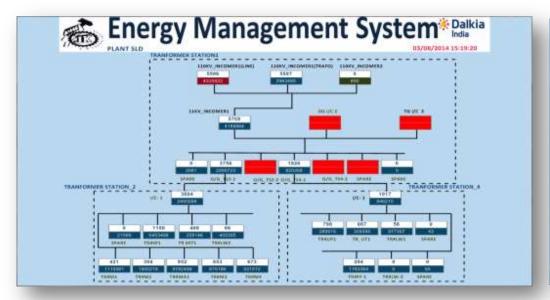


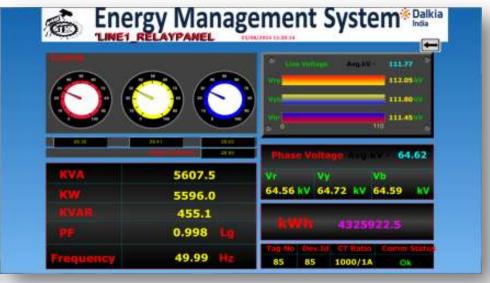
MONITORING PROCESS

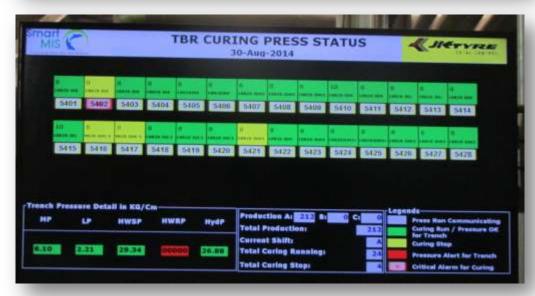




Online Monitoring Systems using SCADA





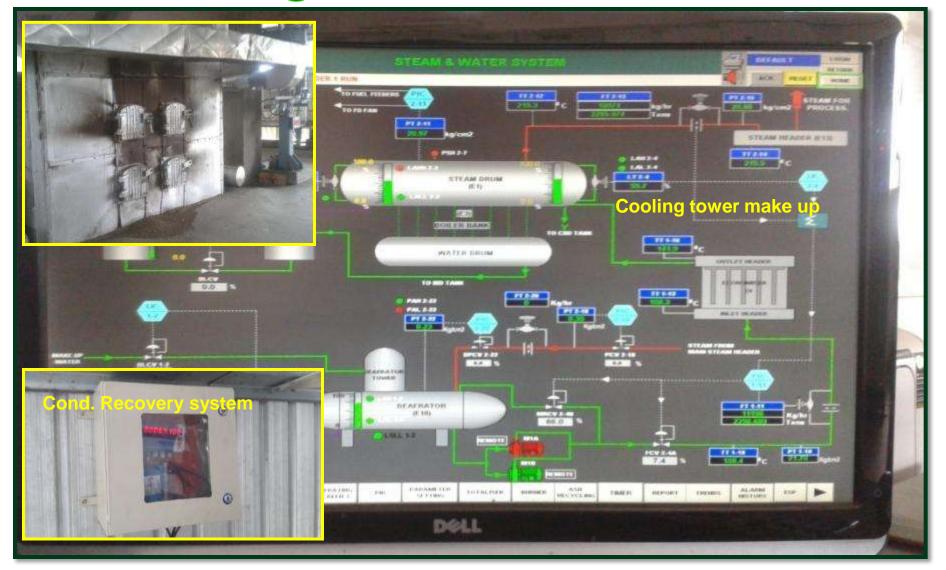








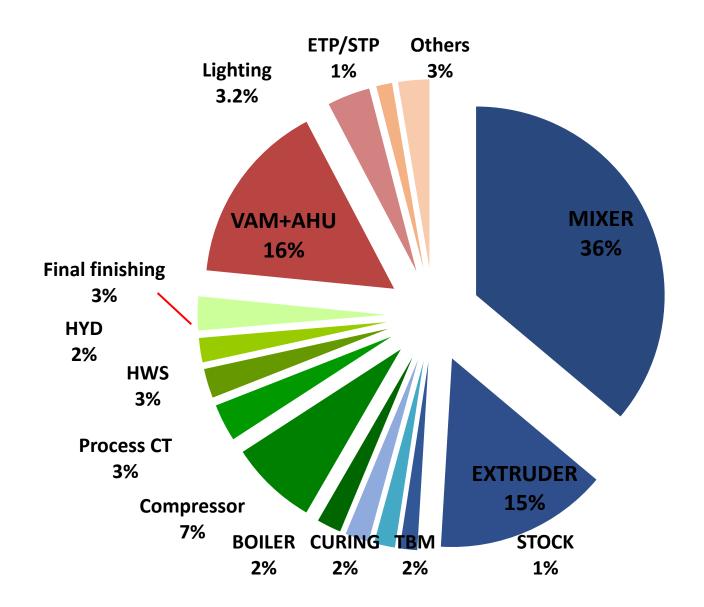
Water Metering at Boiler







Energy Monitoring – Even at 1% level



□ PLANT ENERGY
MONITORED AND
CONTROLLED AREAWISE
THOSE ARE EVEN AT 1%
LEVEL

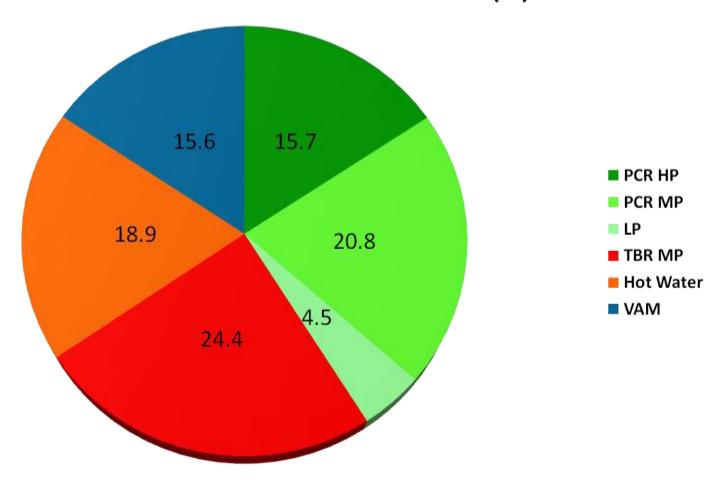
☐ PLANT ENERGY
MAJORLY DIVEDED TO 3
DIVISION AS VARIABLE /
SEMI FIXED / FIXED
ENERGY & MONITORED





Energy Use - Steam

AREAWISE STEAM CONSUMPTION (%)







Monitoring System – At High Energy Consuming Area

- ➤ Power consumption is being monitored in real time using SCADA system at machine locations.
- ➤ Idle running of the equipment can be detected by referring the production in each equipment (hourly/shift wise)
- Continuous improvement is carried to reduce specific power consumption.



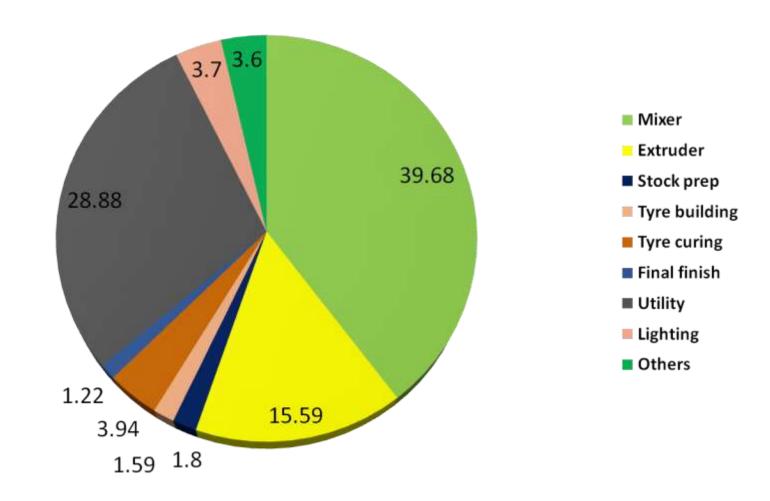






Energy Uses - Power

AREAWISE POWER CONSUMPTION IN PERCENTAGE







DEVELOPMENTS AT OUR SUPPILER END





Green Supply Chain - Procurement Guideline

- > Energy efficiency gets reflected in all Purchase documents.
- ➤ Taking measures in EMS being Proactive, innovative and cost effective including procurement of energy efficient products & services.
- For all Raw Materials, Green initiatives like packing standards etc., form part of Specifications issued to suppliers and specification forms an integral part of the Purchase contract.
- ➤ Working closely with suppliers having manufacturing plants in South also to cater to requirements of our plant. Eg. :- Carbon Black, Zinc Oxide, Bead wire, Reclaim rubber, Stearic Acid.
- Visiting Suppliers plants and evaluating green initiatives at their sites





Projects undertaken to Optimize Sustainable Logistics

Major Initiatives :-

Activity 1 - Utilizing the truck with full load and return load.

Activity 2 - Selection of Vendors near the plant.

<u>Activity 3</u> – Packaging ,Material flow, Transportation





Green Supply Chain

- ➤ Transport route optimization: Raw material supply truck used to carry our finished goods to various customers and depots.
- ➤ We minimise the transit distance by selecting the vendor which is near to our plant.

We are avoiding Transportation distance of material approx. 13 lac kms per year.







Reduction of Packaging Material in RM

Silica was received in Paper bags of 25 Kg which has been changed to jumbo bags of capacity 400 Kg











Reduction of Packaging Material in RM

> ELIMINATION OF WOOD PACKING IN Natural Rubber :

Domestic packing of NR – in form of bales as such.

➤ **USING RE-USABLE METAL BINS** in place of wooden packing for synthetic rubbers. The same bins are returned back to vendor for reuse.









Reduction & Reuse in Packaging

> 3R (Reduce, Reuse and Recycle):-

We are returning the packing material to respective vendor where ever possible to reuse the same.

For example: - we are receiving bead wire in steel pallets in place of wooden packing. We have eliminated 36 MT of wood per year (20 Kgs of wood X 1800 MT of bead wire). We are returning the cartons, seperators, skids & spools of steel tyre cord to the vendor. We have eliminated 108 MT of wood per year (20 Kgs of wood X 5400 MT of STC)









GREEN LANSCAPING





Green Belt & Landscaping























Green Belt & Landscaping

We have earmarked 25 Acres of the total area of 101.07 Acres of land exclusively for Green Belt development

We have also developed green belt of 5mt width all along peripheral boundary of our site and trees planted at every interval of 3mts and planted 400 trees per hectare



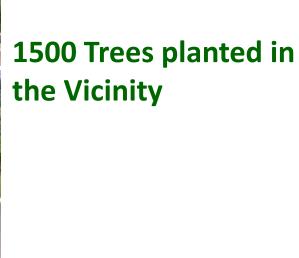




Green Belt & Landscaping







11150 Trees planted

inside JK –CTP Premises









Drip irrigation & sprinklers for Green Belt & Landscaping













People Involvement

- 1. Class room training –All Employees were trained with Green Initiatives like plant Energy consumption & Energy efficiency methodology in planned intervals
- 2. Visual aids Training has been taken with different visual aids for better understanding on Green Initiatives.
- 3. Displaying posters On shop floor stickers/posters were pasted to create awareness in every individual.
- 4. Cross Functional Team /Kaizens In shop floor, CFT Approach followed to understand the Energy consumption & process of their equipment/machine.
- 5. Motivation by Awards & Recognition Awards & recognition has been given to employee upon their performance which can be indicated as KAIZEN's etc.,













e – Bouquet – A Green Initiative







Management System Journey

	<i>'</i>					
SYSTEM	CERTIFICATION BODY	STATUS				
SYSTEM CERTIFICATIONS						
ISO/TS - 16949:2009	DNV – GL	Certified				
EMS - 14001	DNV – GL	Certified				
OHSAS – 18001	DNV – GL	Certified				
EnMS - 50001	BSI	Certified				
SA 8000:2008	BSI	Certified				
ISO 14064-2006	BSI	Certified				
NABL 17025 – 2005 – Test Centre	NABL	Accredited				
ISO 27001:2013	DNV – GL	Certified				
NABL 17025 – 2005 – Main Lab	NABL	Accredited				
PRODUCT CERTIFICATIONS						
DOT Authorization(US)	DOT	Approved				
BIS	BIS	Approved				
ECE Authorization (Europe)	ECE	Approved				
In Metro (Brazil)	In Metro	Approved				
LATU (Uruguay)	LSQA	Approved				
SNI Certification (Indonesia)	SNI	Approved				





Awards & Accolades CII -National Energy Management Award 2016



JK-Tyre Chennai Tyre Plant awarded as "Excellent Energy Efficient Unit" from CII - National Energy Management Award 2016





Awards & Accolades IGBC – Green Factory Building

JK-Tyre Chennai Tyre Plant has been certified as a "IGBC Green Factory Building Platinum" company by CII-Indian Green Building Council in July 2016. We have also achieved the distinction of becoming the "First Tyre Manufacturing Company" in India to be certified under Platinum Rating.





6

Awards & Accolades

National Energy Conservation Award 2014 & 2015







2014

2015

Chennai Tyre Plant wins the 'National Energy Conservation Award 2014' & 'National Energy Conservation Award 2015' This is the top award (First Prize) in the 'Tyre Sector'.

This prestigious award was received from Shri Piyush Goyal, Hon'ble Union Minister of State for Power, Coal and New & Renewable Energy, Government of India.

OTAL CONTROL



JK TYRE – MOST ENERGY EFFICIENT UNIT AWARD 2014 & 2015





2014 2015

Chennai Tyre Plant won the "Most Energy Efficient Unit" consecutive two year in JK Tyre Group





Awards & Accolades IEI Industry Excellence Award 2014 & 2015





2014

2015

Chennai Tyre Plant wins the 'IEI Industry Excellence Award 2014' & 'IEI Industry Excellence Award 2015' from The Institution of Engineers (India) for Business Excellence and Industry Practices in Manufacturing & Processing. CTP bagged this Award under "Excellent-A" category.

OTAL CONTROL





JK-Tyre Chennai Tyre Plant has been certified as a "Greenco Gold" company by CII-Godrej GBC in November 2014. We have also achieved the distinction of becoming the "First Tyre Manufacturing Company" to be certified under Greenco Gold Rating.



Chennai Tyre Plant has been selected for presentation of the "Golden Peacock HR Excellence Award 2014" CTP bagged this Award under "SPECIAL COMMENDATION" Category.

This Award was received by Shri K.A. Unni Nayar, VP-Works & Shri S.Rajendren, GM HR & IR, CTP from Hon'ble Chief Minister of Maharashtra Shri Devendra Fadnavis, Hon'ble Shri Nitin Gadkari & Hon'ble Shri Suresh P. Prabhu on 19th January 2015 at Mumbai.









JK-Tyre Chennai Tyre Plant has been awarded "Certificate of Merit - Believers Category" by Frost & Sullivan's Green Manufacturing Excellence Awards 2015

JK-Tyre Chennai Tyre Plant has been awarded "Certificate of Merit - Silver Category" by Frost & Sullivan's India Manufacturing Excellence Awards 2015









Chennai Tyre Plant has been selected for "15th presentation of the Annual **Greentech Environment Award 2015" by Greentech Foundation. CTP bagged this** Award under "GOLD" **Category** in Rubber Sector. This Award was received by L Ethendra Babu - Chief Manager **Utility on 29th January 2015 at Kolkata.**





Chennai Tyre Plant has been selected for presentation of the "5th Annual Greentech HR Award 2015" by Greentech Foundation. CTP bagged this Award under "GOLD" Category in Rubber Sector.





Chennai Tyre Plant has been selected for presentation of the "15th Annual Greentech Safety Award 2016" by Greentech Foundation. CTP bagged this Award under "GOLD" Category in Rubber Sector.





Quality Circle Competition – NCQC 2015





Results Achieved in Four years

- **Reduced Specific Power Consumption by 41 %**
- **❖** Reduced Specific Steam Consumption by **59** %
- **❖** Reduction in Specific Coal Consumption by **60%**
- **Reduced Specific Water Consumption by 61 %**
- **❖** Reduced Scrap percentage generation by 43 %
- **❖** Improvement in performance of Tyre Low rolling resistance to reduce 5% less Fuel Consumption and GHG emissions





Overview and Way Forward

PARAMETER	UNITS	ACTUAL 2015 -16	TARGET BY Mar 2017	TARGET IN %	Best Achieved (June 2016)
Tonnage	MT/Day	208.19	322	+ 54.81 %	263.76
Total Scrap	%	1.123	0.788	- 29.83 %	1.004
Power	KWh /Kg	0.947	0.850	- 10.24%	0.930
Steam	Kg/Kg	1.824	1.600	- 12.28 %	1.782
Coal	Kg/Kg	0.384	0.346	- 9.89 %	0.360
Water	Ltr/ Kg	3.321	2.100	- 36.77 %	2.371





Overview and Way Forward

Paramet	ter	Units	2013 -14	2014 -15	2015 -16	Target Mar 2017
Training		Man Days	4.57	5.91	6.20	5.00
New Product Development	PCR	Nos	22	10	21	25
	TBR	Nos	4	3	5	17

Renewable Energy:

Parameter	2015-16		Target - 2017	
	Capacity	Percentage	Capacity	Percentage
Wind Power	5.6 MW	14.4%	17.6 MW	36.5 %
Solar	3.0 MW	5.1%	13.0 MW	22.1%
Total	8.6 MW	19.5%	20.2 MW	40.6%

