

BRIEF WRITE-UP ON HI-TECH CARBON

Unit Profile

HI-TECH CARBON, a unit of Aditya Birla Nuvo Birla Nuvo Ltd, as the name depicts was conceived to be High Technology Venture to User Consumer Rubber Industry in to an ERA of high performing Carbon Blacks.

HI-TECH CARBON has many firsts in the country to its credit. It introduced High Temperature Technology to manufacture Carbon Black in India for the first time. It was the first company to conceive generation of Electric Power using Waste Gases from Carbon Black Manufacturing Process.

It is the first Carbon Black production facility to recover hundred percent (100%) Waste Heat from the process. The preheat level of air used for combustion of feedstock oil at Hi-Tech Carbon is 900°C (Maximum achieved any where in the World) against 650°C maximum prevalent even today in most of the Indian Carbon Black Industry. Heat Energy is recovered from the product of combustion in every conceivable way e.g.

- a) To preheat the air used for combustion
- b) To produce steam in Waste Heat Boiler (WHB)
- c) To preheat the Feedstock
- d) To preheat the Fuel Oils
- e) To burn the Waste Off gas produced in the process in the product dryer.
- f) Biggest of all to incinerate the Off gas in a specially designed Boiler to generate steam for captive use and also to supply surplus steam to neighbor Industry to meet part of its process requirement.
- g) To generate power to meet total Electrical energy requirement of Plant and Residential Colony



These measures not only contribute towards energy conservation but help in one of the most vital aspects that its protection of environment achieved due to incineration of Waste Off gas as above.

The process is licensed from Philips Petroleum Company,USA.

The manufacturing process involves the thermal cracking of high aromatic petroleum oil usually referred as carbon black feed stock (CBFS) at high temperature in specially designed horizontal reactors. The heat required for the endothermic reaction of thermal cracking is supplied by the Fuel Oil or the CBFS burnt in the presence of process air supplied by a centrifugal blower. After the cracking, the CBFS gets converted into the carbon black and gases, termed as smoke. The heat from the so-called smoke is recovered by specially designed energy conservation devices.

These devices include Heat Exchangers for heating of Process air, for preheating of CBFS and moreover to generate steam in waste heat boilers, which are unique in India. The carbon particle are separated into carbon and gases in bag filters. The separated carbon particles are conveyed and processed to make small pellets for the ease of transportation. The gases, thus separated, in bag filters are termed as off-gas.

The off-gases, which contain chiefly CO,CO₂,H₂,N₂,H₂O, have usable calorific value and if left to atmosphere are pollutants. These gases are completely burnt in boiler combustor thereby producing steam ensuring zero air pollution.

This unit received the **First Prize** in the petrochemical sector for **“Energy Conservation and Management”** for the year 1992-93 from Government of India.

Unit was also selected for the prestigious **“National Energy Conservation Award-2000”**, **“Certificate of Merit”** in Petro Chemical sector.

This unit also got the distinction of many Firsts like obtaining **ISO 9002** accreditation and **ISO 14001** accreditation and a feather in the cap in getting accreditation for **QS 9000** (3rd Edition).

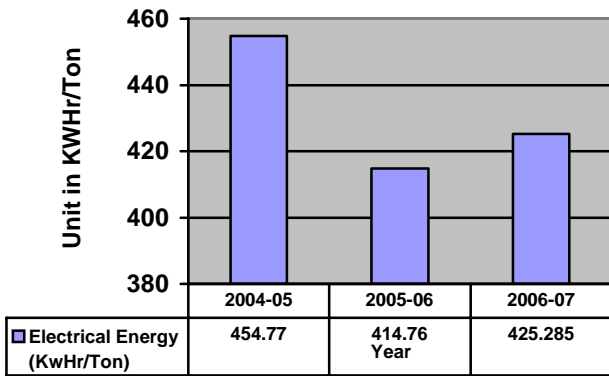
This unit is the only Carbon Black manufacturing company in Asia to get QS 9000 accreditation. The unit has got **OHSAS-18001 (Organisation Health and Safety Assessment System)** and ICMA Merit Certificate for ISO 14001 Certification.

ii) Energy Consumption

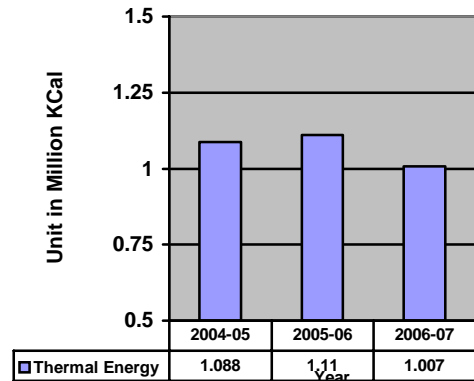
Our plant is highly energy efficient Carbon Black Manufacturing Unit and we continuously explore and work on the opportunity for energy conservation wherever found in any stage of manufacturing process.

Year	Electrical Energy KW Hr/Ton	Thermal Energy MKCal/Ton
2004-05	454.77	1.088
2005-06	414.76	1.11
2006-07	425.285	1.007

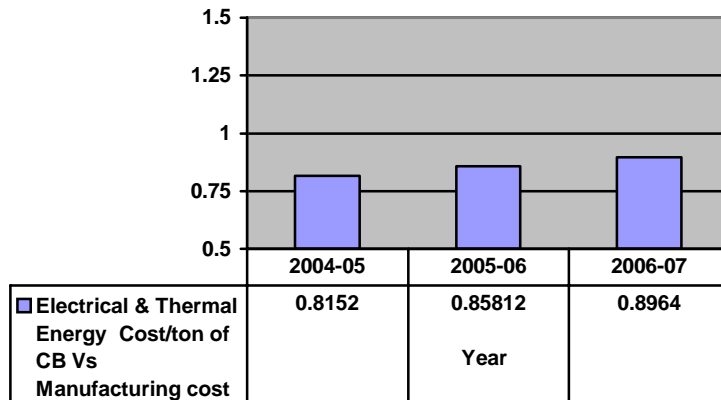
**UNIT SPECIFIC ENERGY
CONSUMPTION
(ELECTRICAL ENERGY)**



**UNIT SPECIFIC ENERGY
CONSUMPTION
(THERMAL ENERGY)**



**Energy-Oil Consumption cost to
Manufacturing cost ratio**



Ratio of Energy/Oil consumption cost Vs Manufacturing cost per ton of Carbon Black is in increasing trend due to increase in Oil prices from Avg. Rs. 10733.5 Per MT in year 2004-05 to Rs.12775.4 Per Mt in years 2005-06 and Rs.16236.9 in year 2006-07.

iii) Energy Conservation Commitment, Policy and Organizational Set up

Efficient use of natural resources and energy conservation is part of our Q-SHE (Quality, Safety, Health and Environment) Policy.



HI-TECH CARBON, INDIA RENUKOOT

Q-SHE POLICY

Hi-Tech Carbon, a leading manufacturer of Carbon Black is committed to customer and other stakeholders satisfaction and excellence in Quality, Safety, Health and Environment.

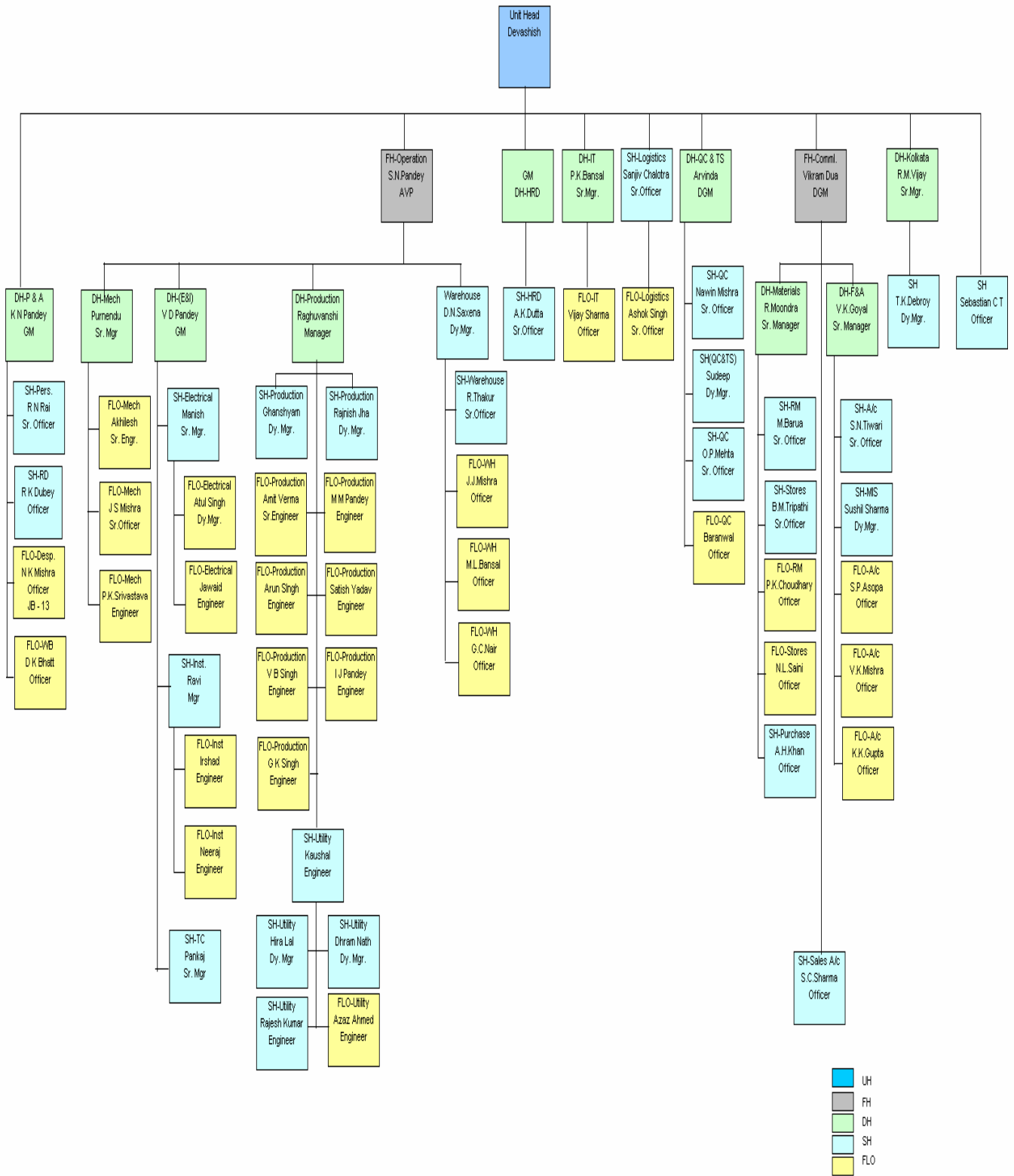
We will enhance our position and global recognition through :

- ☛ Vibrant culture, Innovative approach and SMART actions.
- ☛ Employees Training, Motivation, Empowerment and Participative management.
- ☛ Continual upgradation of Technology, Process, Product and Suppliers.
- ☛ Efficient use of Natural resources and Energy conservation.
- ☛ Continual improvement in working conditions leading to prevention of Accidents, Pollution, Hazards and Customer complaints.
- ☛ Effective deployment of Management System.

We also affirm our commitment towards development of society and compliance for applicable statutory requirements, product and public liability.


Unit Head

15th Nov, 2006 / Rev. : 02



Organizational Set-up

Energy Conservation Achievements

- | | |
|---|------------------------------------|
| i) SB Reactor Ventury modification for productivity enhancement and Energy conservation. Modification resulted in Energy conservation with increase in productivity. Energy conservation resulted due to lesser use of oil for per ton manufacturing of Carbon Black. | 3200 Million K Cal (Annual Saving) |
| ii) Installation of Heatless refrigeration type instrument Air Dryer. This dryer now run in parallel to either of the two heating- cooling (Alumina filled tower type) Dryer. | 1.0 Lac KWHr. (Annual Saving) |

Energy Conservation Plans and Targets

Unit as per Q-SHE Policy Point No. 4 determined for conservation of Natural resources and conservation of Energy at each level of manufacturing stage. Target related to Energy conservation are set and monitored and tried to control on daily basis through our Daily Performance Review Meeting.

Environment and Safety





Green Environment

Effluent treatment plant



The company's commitment for Quality, Environment, Hygiene, Health and Safety has enabled

- To obtain **ISO 14001** accreditation from KPMG, Netherlands and **OHSAS 18001** by DNV, the only Carbon Black Company in India.
- To receive **First Prize for Energy Conservation in 1992-93** from the President of India.
- To receive **Rajiv Gandhi National Quality Award for the year 1997** from Union Minister of Chemicals & Fertilizers, Food & Consumer Affairs.
- To receive **Rajiv Gandhi National Quality Award for the year 1998** from Union Minister of Consumer Affairs & Public Distribution, and President of BIS.
- To obtain **QS 9000(2nd edition)** accreditation from KPMG, Netherlands. HTC is the First Carbon Black company in India to get the accreditation. Currently unit has got accreditation for **QS 9000 (3rd edition)**.
- To receive **ICMA Merit Certificate for ISO 14001** Certification.

Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure	Sector : Petro Chemicals			
Year to be filled by BEE	Installation of Heat Loss referegeration type Instrument Air Dryer.	Technology : Instrument Air Drying			
Description of the energy conservation measure: To install heateless referegeration type Instrument Air Dryer to run in parallel to either of the two existing (heating/cooling type) Dryer.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.: 250000/-			Year of implementation: 2006		
First year energy cost savings, Rs.: 90000/-					
First year other savings, Rs.: Nil					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	236520				
Energy consumption after	137970				
Energy tariff, Rs/ kWh/ Ton/ Nm³/ kL ...					
Company complete address: Hi-Tech Carbon, Murdhwa Industrial Area, P.O: Renukoot, Distt. Sonebhadra (U.P) Pin – 231217 Tel. No. 05446-252387/88/89 Fax No. 05446-252502/52858				We authorise Bureau to use this information for dissemination Signature Date :23.10.07	
Contact person who could be contacted for more information: V.D. Pandey					

Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure	Sector : Petro Chemicals			
Year to be filled by BEE	SB Rx. Modification for Ventury installation	Technology : Carbon Black Manufacturing			
Description of the energy conservation measure:					
SB Rx. A & B Modification to install ventury in reacciion zone to increase productivity and energy conservation.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email): HTC, Renukoot (Self)					
Total investment, Rs.: 11.0			Year of implementation: 2006		
First year energy cost savings, Rs.: 51.11					
First year other savings, Rs.: Productivity increased (Rs.300 Lac.)					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before				0.111	
Energy consumption after				0.1007	
Energy tariff, Rs/ kWh/ Ton/ Nm³/ kL ...					
Company complete address:				We authorise Bureau to use this information for dissemination	
Hi-Tech Carbon, Murdhwa Industrial Area, P.O: Renukoot, Distt. Sonebhadra (U.P) Pin – 231217 Tel. No. 05446-252387/88/89 Fax No. 05446-252502/52858					
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