

**VIKRAM CEMENT – LINE-II**  
(Unit of Grasim Industries Ltd.)  
Vikramnagar; P.O. Khor; Distt.Neemuch (MP)

**UNIT PROFILE**

Vikram Cement (a Unit of Grasim Industries Ltd.) a flagship Company of Aditya Birla Group is involved in manufacturing Gray cement and clinker. Vikram Cement (VC), the acknowledged pioneer of TPM in the Indian Subcontinent, is one of the single location highest cement and clinker producing plant with production capacity more than 3 million tons per annum. It has three production lines, & main product portfolio includes :

- Ultratech PPC (Premium Composite Cement)
- Ordinary Portland cement – OPC 43
- Ordinary Portland cement – OPC 53

Delivery mechanism for cement is direct to institutional client, govt. projects as well as through dealers & distributors. Cement is transported through road or rail depends upon economical logistic mode & geographical location of customer and response time required. The unit has broad gauge facility for cement loading inside the plant

**Vikram Cement** Vision is *“To be the world class cement plant producing, best quality of composite cement at optimum cost with Eco-friendly, safe and healthy environment”*.



**PLANT VIEW - VIKRAM CEMENT LINE-2 AT CENTER**

**VIKRAM CEMENT LINE-2**

Commissioned in 1985 Vikram Cement Line-II is one of the modern Cement Plants of Grasim Industries Ltd., of Aditya Birla Group. The capacity was enhanced to 0.90 Million Tonnes Per Annum from 0.5 Million Tonnes Per Annum in 2002. Vikram

Cement Line-II is equipped with the latest modern KHD Dry Process, Double Stream 6 stage preheater with separate precalciner for Kiln Pyro Processing, Vertical Raw Mill and Coal Mill of Loesche make and close circuit 2 chamber Cement Mill for grinding. Complete process control and instrumentation is computerized. 140.11 % capacity utilisation was achieved in year 2007-2008.



With many feathers like TPM Excellence Award, SA:8000, ISO:9001, ISO:14001 & ISO:18001 certification etc. in its cap, it is one of the most energy efficient plant of its type in the view of world standards. A list of important accreditation won by the unit is given below:

- TPM Excellence Award -1995 and TPM Consistency Award - 2001 (JIPM, Japan)
- British Safety Council Award - 1996, 1997, 1999 & 2000
- OHSAS 18001- Occupational Health & Safety Assessment Series - DNV, Netherlands – 2001
- Greentech Environment Excellence Award 2001
- National Award for Quality Excellence in Indian Cement Industry - 2001-02
- SA 8000 – DNV – 2003
- Fuller Energy Award M.P. Chamber of CMA – 2000 & 2003
- MP State Environment Award - 2003
- Manufacturing Excellence & Competitive Advantage Award - 2002
- 7<sup>th</sup> FL Smidth Energy Award (DG Set) - 2003-04
- National Award for Environment Excellence in Indian Cement Industry - 2005
- National Award for Electrical Energy Excellence in Indian Cement Industry - 2005
- National Award for Thermal Energy Excellence in Indian Cement Industry - 2005
- 8<sup>th</sup> FL Smidth Award for Energy Consumption - 2005
- Greentech Safety Award in Cement Sector – 2006, 2007
- NCCBM award for improvement in thermal efficiency-2005.

## **ENERGY CONSUMPTION**

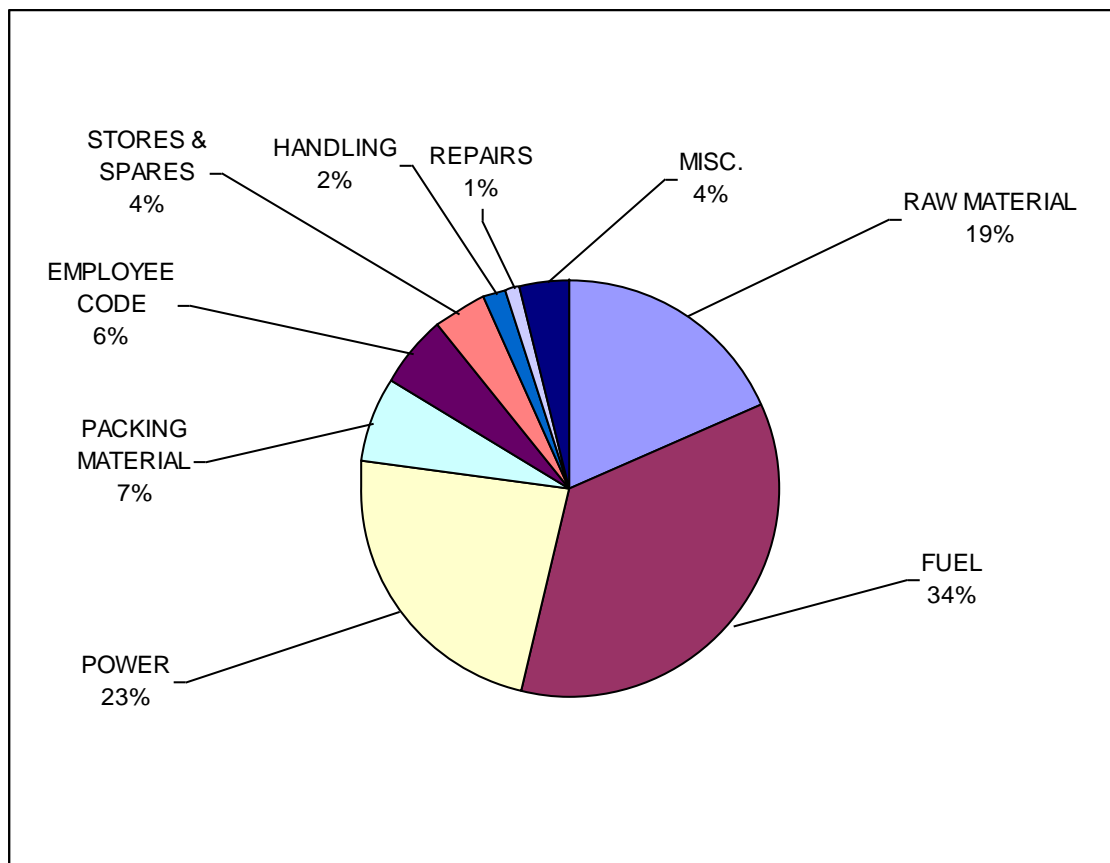
Total energy input for manufacture of cement as percentage of manufacturing cost is about 58% of total cost. The cost of coal, diesel & furnace oil and electricity (purchased and self generated) are constantly rising.

Electrical energy has been brought down from 89.67 kWh/ton Cement in 2003-2004 to 77.60 KWh/ton Cement in 2007-2008. Specific thermal energy consumption has reduced from 707 KCal/Kg clinker in 2003-2004 to 691 KCal/Kg clinker in 2007-2008.

Cement and clinker production vis a vis the cost of electrical energy and fuel for the last 3 years have been as given below:

	2005-2006	2006-2007	2007-2008
Cement production (Lac Ton)	10.35	11.14	12.61
Clinker production (Lac Ton)	10.04	10.34	10.62
Thermal energy (Kcal/Kg of clinker )	686	688	691
Elect. energy (KWh/ Ton of cement)	81.64	79.86	77.60

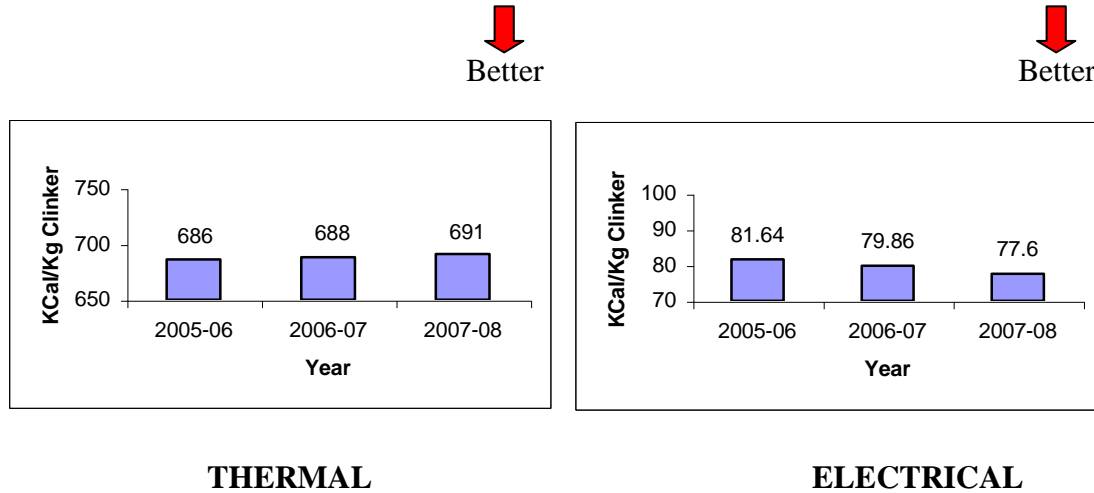
### **Cost component of production**



### **ENERGY CONSERVATION - ACHIEVEMENTS**

Energy conservation has been one of the main agenda of Vikram Cement since the commissioning of the plant.

The reducing trend of the specific thermal energy consumption shown below is indicator of achievements.



### REDUCTION OF ENERGY CONSUMPTION

Petcoke is being used in increasing percentage as fuel by Vikram Cement. Due to poor grindability and finer grinding requirements, specific electrical energy consumption has increased, but the total cost has considerably come down.

The following major energy conservation schemes have been implemented during 2006-2008.

- Installation of lube oil heat recovery module in DG.
- Installation of HT capacitor bank.
- Installation of fly ash jumbo bag unloading system.
- Installation of high efficiency water pumps & motors.

In addition to the above measures, plant up gradation and optimization has been done and many smaller energy conservation schemes have been implemented, under Kaizen, as a part of WCM implementation.

Regular heat balance studies and false air leakage monitoring help in maintaining the gain and improving it further.

The thermal energy conservation schemes implemented since 2003-04 to 2007-2008 have resulted in saving of 16 Kcal/kg clinker.

### Energy Conservation Plans and Target

Various energy conservation schemes under implementation/active consideration at Vikram Cement are given below:

- On-line free lime analyser for reduction in cement grinding power
- Enhance production of blended cement
- Installation of Captive Thermal Power Plant to reduce cost of energy generation .
- Reduction of specific electrical energy consumption by frequency & voltage optimisation.
- OMEGA plates for cooler
- Installation of low pressure cyclones at Preheater Stage-III, IV, V & VI
- Pre-grinder for Cement Mill

The target for the unit for 2007 – 2008 for specific thermal energy is 690 KCal/Kg Clinker and that for specific electrical energy consumption 84.47 Kwh/Tonne cement.

### **ENVIRONMENT & SAFETY**

Environment and safety are the priority areas for Vikram Cement. This is reflected by the list of credentials reproduced below:

We have set up our (EHS) Environment Health & Safety Policy. Vikram Cement adopted Environment Management System and got certified to ISO 14001:1996 in August 1997 and became 1<sup>st</sup> Cement Plant in India to get certified to EMS. Vikram Cement also implemented and got certified to OHSAS 18001:1999 in August 2001 and became one of 1<sup>st</sup> Cement Plant to certified OHSAS from DNV, Netherlands.

As further step in the drive to conserve environment and natural resources the unit has taken following steps:

01. Use of high Calorific Value petcoke to reduce the use of high grade limestone and increase the life of captive mines directly. Petcoke is by-product of Oil Refineries and creates disposal problems.
02. Reduction in coal grinding power and stable running of plant by installing separate grinding and handling system for petcoke
03. Installed Mechanized Flyash Handling System for the use of Flyash in PPC manufacturing. PPC is a high strength, high durability cement. This will reduce disposal problem of Thermal Power Plant and overall reduction in the use of energy for cement manufacture.
04. Large investment has been done for upgradation of plant capacity and reduction of pollution.

05. Energy conservation as well as water conservation schemes are being implemented.



### **GREEN BELT DEVELOPMENT**

Variety of fruit and other environment friendly trees have been planted over 151.35 hectares area. Vikram Cement has a separate Environmental Cell with a team of qualified engineers, scientists and well equipped laboratory for environment monitoring on continuous basis and regular environment audits are carried out by them.

Full fledged Safety Department under Senior Manager(Safety) and Fire Department under Senior Manager(Security) at Vikram Cement. It has the following functions and they are implemented religiously :

- OHSAS 18001 - 1999 implementation
- SHE Policy, Safety Manuals
- Work Permit System. Regular Safety Audits, Safety Committee
- On Site Emergency Plan
- Regular Fire Drill.
- Modern fire Fighting System
- Fire Alarm System for all vital locations
- Celebration of Departmentwise SAFETY WEEK
- Celebration of World Environment Day in Plant and School