Annexure 'D'

INFORMATION AS REQUIRED UNDER SECTION 217(1)(e) READ WITH COMPANIES (DISCLOSURE OF PARTICULARS IN RESPECT OF BOARD OF DIRECTORS) RULES, 1988

I. CONSERVATION OF ENERGY:

(a) Energy conservation measures taken:

Installed Super Heater for waste heat recovery, steam heating in dryer in place of kerosene heating and vapour absorption Machine to create chilled water from waste heat.*(Rayon & T.P. Sections)*. Installed gamma matrix, almag refractory, HR Separator for Cement Mill-2 and VVVF dry at Power Plant 2. Modified sepol separator feeding scrapper plate in Cement Mill-3. Increased Raw Mill in-let duct size & converted the sharp edges to smooth curve. Reduced grinding media filling in the Mill. Eliminated Screw Conveyor of 22 KW from Cement Mill-3 circuit. Connected HR Separator of Cement Mill-3 outlet duct venting to Bag House Fan. Regulated the reject material of polycom back to circuit. Interlocked reverse Air Bag House Fan start with bag house DP, Feed HR grit materials to Mill in-let and replaced gear box of Kiln-2. *(Vasavadatta Cement Section)*. Installed new Lime Stone secondary crusher of 400 TPH capacity for additional output per day. Modified operating conditions in Kiln for easy grinding and reduced cyclone pressure drop in Coal Mill-1. *(Kesoram Cement Section)*. Installed Variable Frequency Drives in various boiler feeds and utility water pumps, ID fans, high sensible air conditioners, VAM in place of compressor chiller unit, centrifugal compressors in place of reciprocating compressors. DM water heated through steam recovery from Tyre Curing presses. LP air used in place of MP air in boiler ash handling system. *(Tyre Sections)*. Modified / incorporated Variable Frequency Drives on cooling tower's water feed pumps and returned water pumps of rectifier transformers cooling circuit. Installed energy efficient lights in place of HPMV lamps. Modified capacitor bank and retained TOD meter in grid supply. *(Hindusthan Heavy Chemicals Section).*

(b) Additional investment proposals, if any, being implemented for reduction of consumption of energy:

Installation of mist cooling tower & vacuum ejectors to conserve water, application of Variable Frequency Drives in cooling tower and mist condensers for saving steam.*(Rayon & T.P. Sections)*. Installation of Roller Press and HR separator for Line-I Cement Mill, rotoscale for coal dosing for Line-II & Kiln feed for Line-I, curing tanks for temperature control, XRF and XRD for quality control and coal integration for Line-IV to Line-I to cut the shut down time.*(Vasavadatta Cement Section)*. Installation of N-2000 O-sepa in Cement Mill-3. Replacement of existing Kiln-II cooler with latest energy efficient cooler. Reduction of pressure drop in Kiln-II pre-heater and Kiln-I C-Line no.II cyclone, fugitive dust emission in Cement Mill and cool crusher and upgradation of blending silos for steady operation of Kilns. *(Kesoram Cement Section)*. Installation of Variable Frequency Drives in various utility pumps, auto on/off with line running feed back in dual extruders for chilled water supply. Increase in suction line of all utility pumps, overhead line in close loop for chilled water return from plant equipment, hot water recovery from curing presses. Condensate to be recovered from curing presses of Motor Cycle Plant and Tube Plant.*(Tyre Sections)*.

(c) Impact of measures at (a) & (b) above for reduction of energy consumption and consequent impact on the cost of production of goods :

Reduction in consumption of electricity and coal consumption per unit of production were witnessed in general having favourable impact on the cost of production.

(d) Total energy consumption and energy consumption per unit of production as per Form "A" of the Annexure in respect of industries specified in the Schedule thereto.

FORM 'A'

FORM FOR DISCLOSURE OF PARTICULARS WITH RESPECT TO CONSERVATION OF ENERGY

(A) Power and Fuel Consumption		Current Year	Previous Year
(1) Electricity			
(a)	Purchased Units (in lacs)	1,493.53	1,401.36
	Total Amount (Rs. in lacs)	6,291.68	5,614.60
	Rate/Unit (Rs.)	4.21	4.01

	Current Year	Previous Year
(b) Own Generation		
(i) Through Diesel Generator		
Units (in lacs)	36.77	29.54
Units per Ltr. of diesel oil	3.13	2.93
Cost/Unit (Rs.)	9.41	10.43
(ii) Through Steam Turbine/ Generator		
Units (in lacs)	7,304.93	5,649.52
Unit per Kg. of Coal	1.01	0.94
Cost/Unit (Rs.)	2.64	2.89
(2) Coal (Grade B, C, D, E, F steam/ slack, ROM, Lignite and Grade-A steam Coal used in Boiler Houses, calcining of raw meals, firing of Kiln and gas plant)		
Quantity (MT)	18,43,175	14,80,763
Total Cost (Rs. in lacs)	55,527.46	47,646.68
Average Rate/MT (Rs.)	3,012.60	3,217.71
(3) Furnace Oil		
Quantity (K.Ltrs.)	396.85	4,637.79
Total Cost (Rs. in lacs)	120.76	1,507.94
Average Rate/Ltr. (Rs.)	30.43	32.51
(4) Others		
i) HSD Oil		
Quantity (K.Ltrs.)	359.31	309.61
Total Cost (Rs. in lacs)	112.94	97.55
Rate/Ltr. (Rs.)	31.43	31.51
ii) Gas		
Quantity (MT)	2,090.84	-
Total Cost (Rs. in lacs)	900.16	-
Rate/Ltr. (Rs.)	43.05	-
iii) Diesel Oil		
Quantity (K.Ltrs.)	1,151.20	2,251.34
Total Cost (Rs. in lacs)	335.60	690.79
Rate/Ltr. (Rs.)	29.15	30.68

(B) Consumption per Unit of Production	Production Unit	Standards if any	Current Year	Previous Year
1. Electricity (kwh)				
Vis. Filament Rayon Yarn	M.T.	-	4,168	4,198 (b)
Transparent Paper (Cellulose Film)	M.T.	-	2,155	2,255 (b)
Sulphuric Acid	M.T.	-	39	41 (b)
Caustic Soda	M.T.	-	3,747	3,760 (c)
Purified Hydrogen Gas	M^3	-	0.40	0.39 (c)
Sodium Hypochloride	M.T.	-	38	37 (c)
Carbon-di-Sulphide	M.T.	-	1,065	1,111 (b)
Sodium Sulphate	M.T.	-	91	92 (c)
Sodium Sulphide	M.T.	-	285	285
Cement	M.T.	-	77	78 (b)
Tyres, Tubes & Flaps	M.T.	-	1,096	1,112 (a)

	Production Unit	Standards if any	Current Year	Previous Year
2. Coal				
Vis. Filament Rayon Yarn	M.T.	-	3.75	3.77 (c)
Transparent Paper (Cellulose Film)	M.T.	-	6.69	6.25 (d)
Carbon-di-Sulphide	M.T.	-	0.33	0.36 (b)
Sodium Sulphate	M.T.	-	0.35	0.36 (c)
Cement	M.T.	-	0.15	0.15
Tyres, Tubes & Flaps	M.T.	-	1.09	1.31 (a)
3. Furnace Oil				
Tyre, Tubes & Flaps	K.L.	-	0.004	0.02 (e)
4. Others				
i) HSD Oil				
Cement	L.	-	0.074	0.078 (e)
ii) Gas				
Tyres, Tubes & Flaps	M.T.	-	0.0114	-

Reasons of variation:

(a) Energy conservation measures taken.
(b) Better production.
(c) Difference considered normal.
(d) Inferior quality of coal.
(e) Lesser use.

N.B. : 1. Form 'A' not applicable to Spun Pipes Section.
2. Previous year's figures have been re-arranged where necessary.

II. TECHNOLOGY ABSORPTION :

Efforts made in technology absorption as per Form 'B' of the Annexure.

FORM 'B'

1. Research & Development (R&D)

(a) Specific areas in which R&D carried out

Use of flash Deaerator at different temperatures to remove air from Viscose and setting proper angle in traverse mechanism of coning machine. *(Rayon & T. P. Sections).* R&D cell continued to work for improving the quality and productivity with special attention on energy conservation. *(Cement Sections).* Development of motor cycle tyre, truck radial & OTR tyres.*(Tyre Sections).*

(b) Benefits derived as a result of above R&D

Elimination of top edged broken filament in cones and less air in Viscose resulting in lesser broken filament.*(Rayon and T.P. Sections)*. Improvement in output and quality.*(Cement Sections)*. New range of products developed for both domestic and export markets.*(Tyre Sections)*.

(c) Future Plan of Action

Study of process chemicals in after-treatment and plan to use different chemicals to reduce broken filament in the yarn. *(Rayon and T.P. Sections)*. Installation of Waste Heat recovery system, conversion of existing ESP to Reverse Air Bag House for line I & II and utilizing alternate fuels for Kiln. *(Cement Sections)*. Introduction of variety in the range of products to cope with the ever changing market requirement. *(Tyre Sections)*.

(d) Expenditure on R&D

(i)	Capital	- NIL
(ii)	Recurring	- NIL
(iii)	Total	- NIL

(iv) Total R&D expenditure as a percentage of total turnover

No separate allocation in the company. However, the company paid a cess @ Re.0.75 per tonne of cement despatched to the Development Commissioner for Cement Industry, Government of India, who in turn assists financially to National Council of Cement & Building Materials to carry out Research & Development Programmes in the interest of the Cement Industry. During the year 2009-10 the Company paid Rs.41.69 lacs to the said authority. *(Cement Sections)*.

2. Technology Absorption, Adaptation and Innovation

(a) Efforts, in brief, made towards technology absorption, adaptation and innovation

Installed automatic Sodium Sulphate Bagging System, pyramid plate and slow speed dissolving process of Viscose.*(Rayon and T.P. Sections)*. Reduced Coal Mill cyclone pressure drop and installed secondary crusher at Kesoram Cement Section. Efforts are being made for enhancement of productivity and energy conservation. Executives/ Employees are being regularly deputed for attending seminars and workshops on Research & Development studies to keep them abreast of the latest technical developments.*(Cement Sections)*. Technology imported from M/s.Pirelli & Co.has been fully adapted to. *(Tyre Sections)*.

(b) Benefits derived as a result of the above efforts e.g. product improvement, cost reduction, product development, import substitution etc.

Improvement in viscose quality & saving of man power.*(Rayon and T.P. Sections)*. Optimum capacity utilization with reduced power consumption.

3. In case of imported technology (imported during last 5 years reckoned from the beginning of the financial year), following information may be furnished :

(i) Technology imported
(ii) Year of import
(iii) Has technology been fully absorbed ?

Not Applicable

III. FOREIGN EXCHANGE EARNINGS & OUTGO :

1. Activities relating to exports, initiatives taken to increase exports, development of new export markets for products and services and export plans.

Increased exports of VFY by about 17% by exploring new markets of Brazil and Argentina. Export of T.P. was lower by 4% due to cheaper substitute available from other Countries. Plan is to increase export by further exploring new markets. *(Rayon & T.P. Sections)*.

Exports were made to 26 countries including Bangladesh, Pakistan, Vietnam, Middle East & Philippines etc. during the year under reference and efforts are being made to explore new markets.*(Tyre Sections)*.

2. Total Foreign Exchange used and earned -

Used — Rs 78,441.26 lacs (excluding Rs.3,694.29 lacs being interest).

Earned (on F.O.B. realisation basis) — Rs 37,503.67 lacs

B. K. BIRLA — *Chairman*

K. G. MAHESHWARI
B. P. BAJORIA
P. K. CHOKSEY
G. B. PANDE
AMITABHA GHOSH
P. K. MALLIK
MANJUSHREE KHAITAN
— *Directors*

Kolkata,
28th April, 2010.

S.K.PATODIA
Secretary

DEEPAK TANDON
Whole-time Director