

Tata Sponge Iron Limited

Brief overview:

Tata Sponge Iron Limited (TSIL) was incorporated in 1982 as a joint venture of Tata Steel and the Industrial Promotion & Investment Corporation of Orissa Limited (IPICOL) for the production of sponge iron based on the TISCO Direct Reduction (TDR) technology, which was developed in-house at Tata Steel. Later during 1991, Tata Steel acquired IPICOL's entire stake and presently, TSIL is an associate company of Tata Steel.

Presently TSIL has 2 nos. of 120000 tpa kilns along with a 7.5 MW power plant. TSIL was the first Indian sponge iron company to receive ISO-9002 certification. The company has also won several prestigious national awards in product quality, environment and in safety.

A. Organizational Environment

A.1 Organization's main products and services:

TSIL is in the business of manufacturing & marketing sized sponge iron. The process of sponge iron making aims to remove oxygen from iron ore. Some of the features of the TSIL sponge iron are:

- _ High iron content and high degree of metallization
- _ Uniform and consistent quality
- _ Lower sulphur and phosphorus content
- _ Negligible tramp element
- _ Superior technical support to customers

In a recent survey of all major sponge iron consumers conducted by a reputed agency, TSIL was rated as the leader amongst all coal based sponge iron suppliers for consistent supply of quality sponge iron, besides being voted as the most preferred supplier of sponge iron.

A.2 Major technologies, equipment and facilities:

TSIL has adopted the Tisco Direct Reduction (TDR) technology for production of sponge iron. Iron ore and non-coking coal are the prime raw materials for the production of sponge iron. These are charged into a rotary kiln in requisite proportion along with some dolomite. Coal plays a dual role in the process by acting as a reductant as well as a fuel for providing heat to maintain the requisite temperature inside the kiln at 950-1050 °C. The reduction process occurs in solid state. The crucial factor in this reduction process is the controlled combustion of coal and its conversion to carbon monoxide to remove oxygen from the iron ore. The waste heat recovery boiler generates steam for the power plant and a 7.5 MW multistage condenser turbine drives the 7.5 MW generator.



Right now TSIL is undergoing a massive expansion programme 5 years down the line. Presently a 3rd kiln with a capacity of 150000 tpa is under construction along with a 18.5 MW power plant. Future plans include three more kilns along with power plants and steel making.

ENERGY CONSUMPTION

Power Consumption Details	Unit	2002-2003	2003-2004	2004-2005
Annual Production	MT	236432	216137	223686
Total electrical energy consumption per annum	Lakhs KWH	324.4	242.43	245.43
Total thermal energy consumption per annum	MKcal	157039.6	156101.5	157507.2
Total manufacturing cost in Rs. Lakhs	LAKHS	10684.39	11340.68	13383.18
Total energy cost in Rs.Lakhs	LAKHS	6654	6120.6	6891.8
Raw material cost.	LAKHS	8223.96	8859.16	10562.47
Steam Consumption per MW	MT/MW		4.245	4.185
Power Generation	KWH	29520320	29328732	33591807
Energy cost/Manufacturing cost in %	%	62.3	53.9	51.5

ENERGY CONSERVATION ACHIEVEMENTS

During the year 2004 – 2005 the energy conservation projects that have been implemented are –

- Reduction in HSD consumption by conducting trial run of 1 DG instead of 4 nos. DG's everyday.
- Control for street lights using timers.
- Stoppage of those motors in Raw Material Circuit which are running idle.
- Switching off lights,fans,Ac's etc when not in use.
- Kaizens have been implemented under TPM for better environment and working conditions.
- Substitution of wet gas cleaning system of kiln-1 with a dry system as in kiln-2 and the 18.5 MW power plant project is under progress.