CASE STUDY 11: UTILIZING MUNICIPAL SOLID WASTE AS ALTERNATE FUEL - GRASIM INDUSTRIES LTD., VIKRAM CEMENT

Project Implemented by : Grasim Industries Ltd, Vikram Cement

Project Implemented in : 2007

Company Details

UltraTech Cement Limited, a subsidiary of Grasim Industries Limited, a group company of Aditya Birla Group is a leading manufacturer of cement in India with installed capacity of about 17 Million Tonnes Per Annum (MTPA).

UltraTech's cement plants are located in Maharashtra (Awarpur), Chhattisgarh (Hirmi), Gujarat (Kovaya) and Andhra Pradesh (Tadpatri), NCCL (Jafarabad) with grinding units at Orissa (Jharsuguda), TamilNadu (Arakkonam), West Bengal (Durgapur), Gujarat (Magdalla) and Maharashtra (Ratnagiri). Grasim – UltraTech Cement combined is one of the largest cement producer in India having 21% of installed Indian cement manufacturing capacity & is the 8th largest cement producer in the world.

Group Vision

To be a premium global conglomerate with a clear focus on each business

Project Details

Vikram Cement has installed a comprehensive waste management system at its facility comprising of unloading, storage, dosing and feeding system for municipal waste, agricultural waste and tyre chips. To avoid environmental problems during storage and handling of municipal waste, a special storage silo with walking floor extraction and a closed belt conveyor system is installed. The feeding and substitution capacity of the facility is designed to replace 15 per cent of the total heat consumption of the system by municipal waste, tyre chips or agricultural waste. The waste derived fuel (WDF) compounds are stored and dosed according to their physical properties.

The walking floor extraction system consists of storage-cum-feed silo with an active bottom discharge designed for a continuous operation of 24 hrs/day with minimum maintenance requirements. The material transport takes place at a pre-determined volumetric or gravimetric rate and the move-

ment is actuated by hydraulic cylinders. The sensor located in the surge hopper senses the proper filling of the surge hopper. The feeding occurs through a set of two chain conveyors that distribute the material across the silo. Discharge is through a rotary feeder. Table indicates a summary of the waste fuels being handled by the system.

Table : Summary of waste fuels handled by this system

Sr. No.	Specifications	Waste derived fuel		
1	Material	Shredded tyre chips	Municipal waste	Agro waste (soya husk, rice husk, ground nut shell)
2	Size (mm)	30-50	0-50	30-75
3	Bulk density (t/m3)	0.25-0.50	0.15-0.25	0.10-0.15
4	Moisture (1%)	3	10-12	5-10
5	Calorific value (kCal/kg)	8000	3000-3500	4000

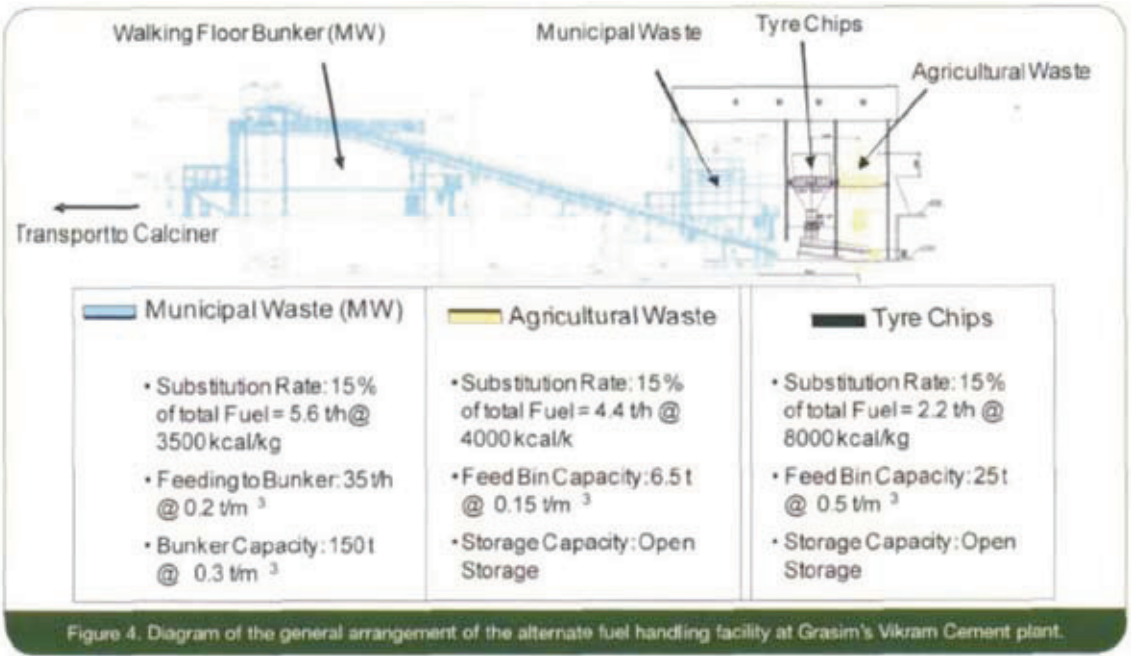

Figure 4. Diagram of the general arrangement of the alternate fuel handling facility at Grasim's Vikram Cement plant.

Results of the Project

Reduction in cost & risk of disposal of hazardous waste in nature

Replication Potential

Replication potential is very high. Similar project is possible in several cement industries or in other areas where high temperature (1200 degrees) heating is required.

Recommendation to other units

All cement plants are recommended to install alternative fuel handling system.

Contact Information of the plant

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