

CASE STUDY 9 : EXPERIENCES OF CO-PROCESSING HAZARDOUS WASTE FUELS - ULTRATECH CEMENT LIMITED, REDDIPALAYAM CEMENT WORKS

Project Implemented by : UltraTech Cement Limited, Reddipalayam Cement works

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.

Project Details

UltraTech Cement Limited, Reddipalayam Cement works set up a system for usage of waste as Alternate Fuel in its process. The concept of utilization of waste fuels is conceived because of huge availability of alternate fuels throughout the country which otherwise is being dumped as land-filling, burning in unauthorized & unorganized way thereby creating high level of pollution in atmosphere & water. Hazardous wastes when dumped for land filling also contaminate soil.

Detailed discussions took place between representatives of KHD (OEM) & technical experts of Reddipalayam Cement Works at Corporate and Unit level. Various process & consideration of using waste fuel, its impact on operation, quality of product and emission level was deliberated at length and finally the scheme was finalized. The layout and storage of alternate fuel was finalized based on long-term planning and also considering aesthetic look of the plant. The scheme was derived based on the availability of agro-wastes & Industrial Waste like tyre chips, municipal waste, paint sludge etc in surrounding area.



Plastic shredding machine & Wood chipping machine has been installed also. With the help of this machine Reddipalayam Cement Works were able to dispose hazardous plastics and waste wood in to kiln by combustion process.

Issues faced during implementation

Since various alternate fuels have different chemical composition and characteristics like ash %, alkalis content and harmful metals / chemicals etc., it was required to adjust the chemistry of other inputs to maintain consistent quality in the output. It was a challenge to Quality Control team, which they could deliver with their in-house research. Since there was no impact on the quality, the customers were not affected.

The main hindrances in the project were the mind-set of operating personnel and the regulatory authorities. Change in Mind-set is a slow process and it has taken a long run for us to reach this level. The extensive efforts were put in for creating awareness among Regulatory authorities and other Government bodies. To take up the matter with State & Central Pollution Control Boards for obtaining their clearance for usage of the same, which was a major challenge.

Exploring the availability of different types of alternate fuels, their trial runs and subsequently plant scale trials and do process and raw material changes. Raw mix chemistry requires suitable modification to take care of absorption of ash generated & cycling of volatiles such as sulphur, alkalies & chlorides. Fuel size requires reduction to acceptable levels to ensure complete combustion in the calciner itself. Modification of material handling systems to ensure continuous & free flow of fuel to calciner.

Preparation of special storage yard with concrete flooring, concrete walls on all 3 sides & roof to prevent pollution of air, water & land.

Financing of the Project

The plant has invested about 2.5 Crores for implementation of the project. This investment is for conveying, handling equipment and storage facilities



Results of the Project

- Conservation of natural resources
- Prevents resource depletion of nonrenewable fossil fuels and hence increases life of mines
- Lowers the emissions of green house gases by replacing the use of fossil fuels thereby eligibility for carbon trading
- Maximizes energy recovery - All the available energy is used directly in the kiln for clinker production
- Eliminates the need for disposal of inorganic ashes from incinerator as it acts as a substitute to raw material in the cement kiln and completely absorbed in the cement without any adverse effect

Replication Potential

Replication potential is very high. Cement plants can install alternative fuel handling system, depending on availability of alternative fuel

Recommendation to other units

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

Contact Information of the plant

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