

Green Fuel Maximisation is found to be one of the major levers that can substitute conventional fossil fuels like coal and pet coke.

Developing countries face waste management challenges in the guise of a rising population and massive production of waste, and non-availability of adequate landfill sites, in turn creating a problem for society and the environment. It is urgent for India to sustainably manage its solid waste, and as the second-largest producer of cement, the country can lead the path of utilising waste having a calorific value for its cement production (in cement kilns).

Incineration of waste in the cement kiln is one of the best methods in the world of utilising waste for cement production. As the fourth-largest cement producer in the country, with a vision to become carbon-negative by 2040, Dalmia ensures that the waste is eradicated and eliminated in the most scientific way.

Simultaneously, disposing of waste in the cement kiln requires technological intervention/improvement to consume a high quantity of waste in the kiln. The waste with calorific value can be used in a cement kiln, i.e., it can replace the quantity of conventional fuel being used. Hence, the use of alternate fuels is one of the levers for the carbon-negative commitment of the company.

On the path of commitment to becoming carbon negative and enhancing the use of alternative fuels, Dalmia commissioned the first-of-its-kind chlorine bypass system in India.

The chlorine bypass system is a unique technology that eliminates chlorine contained in the fuel, which is the main cause of coating trouble, from the kiln preheater system efficiently. This enables the kiln with a steady operation utilising a large amount of chlorine-rich waste material. As a result of the process, there has been an increase in alternate fuel consumption and a reduction of conventional fuel.

Through the bypass system, the organisation achieved approximately 16% TSR (thermal substitution rate) on a consistent basis over the months.

However, the organisation was unable to go beyond 16% TSR due to chlorine limitation in a hot meal and clinker (more than BIS prescribed limit). Thus, the chlorine bypass system is one of the solutions, where chlorine is released as a bypass gas, thus limiting the overall

chlorine in the system. As a result, the organisation enhanced AF (alternate fuel) feeding and, in the July 2022 exit figure, a TSR rate of up to 36% was attained.

Investing in the chlorine bypass system is a key step in the journey towards reducing carbon footprint of Dalmia Cement.



For the installation of the chlorine bypass system, Dalmia Cement (Bharat) Limited incurred an investment expenditure of INR29 crore. With the use of higher alternative fuel, they were able to avoid 96 kg CO2/tonne of clinker with respect to the baseline figure of 43 kg CO2/tonne of clinker production.

