



OCL India Ltd

Efficient Waste Management through Slag and Fly Ash Utilization in Blended Cements

CASE STUDY



Figure 1 Konark Brand

Summary

Clinker is an energy and resource-intensive intermediate product of cement manufacturing process. Thus, optimization clinker ratio in cement (or commonly known as clinker factor) by use of waste materials such as Blast Furnace Slag and Fly Ash reduces the energy intensity of cement. The Blast Furnace Slag, waste material sourced from steel industry, is used in Portland Slag Cement. Fly Ash, waste material being sourced from our captive power plant, is used in manufacturing of Portland Pozzolana Cement (PPC). Even though OCL Rajgangpur and Kapilas facility were producing 100% blended cements, there was potential for incremental addition of fly ash in PPC and blast furnace slag in PSC. The result of the initiatives showed clinker factor improvement by 18% in FY15 as compared to FY14. This resulted in avoidance of 260,439 tonnes CO₂ in FY15 from our Rajgangpur and Kapilas Works facility.

Objective of Intervention

Utilization of blast furnace slag (waste from Iron and steel industry): Complete utilization of the fly ash generated in own captive power plant, clinker factor optimization, and reduction of specific CO₂ emissions for per tonne of cement.

Type of Intervention and Location



Waste Management & Co-Processing Activities

Description of Intervention

The Clinker factor in FY14 was 0.52 in OCL Rajgangpur and Kapilas works which was improved to 0.43 in FY15. The major contribution in this drive was from addition of slag. In order to achieve the 0.43 clinker factor in OCL, approximately 270,558 tonnes of additional slag was bought from steel industry for addition in cement. Similarly, 15,325 tonnes of additional Fly Ash from captive power plant was utilized in PPC. The incremental utilization of slag and fly ash was done through improvement in clinker quality and changes in the cement grinding process.

Intangible or Tangible Benefit

The initiative helped in safe disposal of incremental 270,558 tonnes of blast furnace slag and 15,325 tonnes of fly ash from our captive power plant. The intervention also avoided approximately 260,439 tonnes CO₂ from equivalent cement production. The cost of Clinker Production is approximately INR1,500 per tonne. After accounting the landed slag price and handling costs, the project resulted into cost saving of INR263 million along with avoidance of 260,439 ton CO₂ in FY15. Such co-benefit projects reiterate our philosophy of Clean and Green is Profitable.

About OCL India Ltd

OCL is the flag ship company of 'Dalmia Group' of companies, set up and operating from eastern India. Dalmia Cement (Bharat) Ltd Group is one of the top five cement groups in India with total installed capacity of 24 million tonnes. We are pioneers and market leader in India for super specialty cements used for oil wells, railway sleepers, and air strips. Dalmia Cement (Bharat) Ltd Group has been in existence for more than 75 years with well-diversified geographical presence in India. KKR, a leading private equity player has partnered with us in our growth journey from regional to a national player. The geographical footprint of the group was diversified from predominantly southern India presence to eastern and north-eastern regions of India through strategic stake acquisitions. Our Greenfield capacity expansions also helped us to gain further access to new markets and strengthening our position in existing markets. The group has developed 178 MW of captive power generation capacity, which caters to almost 70% power requirements of total cement capacity. The group is one of the pioneers in developing wind farm in Southern India. The group is also developing solar wind farms to increase the overall renewable portfolio through a subsidiary DCBL Power Ventures Limited. Sustainability has always been a way of life at OCL India. Being one of the oldest leading business houses in India, our pioneering spirit recognizes the responsibility to uphold sustainable practices in our cement business. Dalmia helped Indian railways by



developing cement concrete sleepers to replace wood in 1974 when the term sustainability was largely unknown in the Indian subcontinent. Currently, our strategy is to replace conventional fuels and raw materials with alternative fuels and alternative raw materials. OCL India group is the largest producer of Portland Slag Cement in India and we are using diverse fuel mix to reduce the fuel costs for a sustainable business case. Our alternative fuel consumption is one of the highest in India. The company's green initiatives have created positive impact on the environment while optimizing the Group's business operations. We have joined Cement Sustainability Initiative (CSI), a sector project of World Business Council for Sustainable Development (WBCSD), in 2012. We have also partnered recently with International Finance Corporation to promote sustainable business in India by adoption of low carbon technologies. We are also part of the KKR's Green Portfolio Programme. Being a CSI member company, we have adopted series of measures to reduce water footprint of our manufacturing locations. Our cement plants in Southern India have achieved zero water discharge status. As a result, one of our cement plants in Andhra Pradesh is operating at water consumption level of almost 0.1 m³/tonne of cement. Our structured Corporate Social Responsibility interventions benefitted almost 0.15 million people under various programs and these benefits are being extended to communities near newly acquired plants and Greenfield cement projects.