



SAISON CEMENT

Insulation of the Kiln Burning Zone Area

SUMMARY OF THE OPTION

Sai Son Cement, a joint stock company, was established in 1958 and located in Ha Tay province, west of Hanoi. At present, the company employs 515 staff and has an annual turnover of approximately US\$ 5.4 million. The company has two identical semi-dry, vertical shaft kilns with a total annual throughput of 165,000 tons cement. The audit focus area chosen by the Team has been kiln no. 1, based upon the fact that its overall energy efficiency was found lower in comparison with the other kiln. This technology is much inferior to the modern day horizontal rotary kiln technology.

KEY WORDS

Cement, Vietnam, Furnaces and Refractories, Vertical kiln, Insulation, Burning zone

OBSERVATIONS

The burning zone is located at the top of the Kiln, just below the raw-meal feed section. During combustion, the pellets convert to clinker and ash. The hot ash bed slowly sinks downwards at the same time as fresh raw meal is fed continuously from the top. It was observed that the bare surface temperature of the burning zone of the kiln (1.6m height zone of 4.3 m diameter) was ranging from 70°C to 120°C. The Team indicated that it would be possible to reduce coal consumption by insulating this surface and avoiding heat loss.

OPTIONS

Having carried out an energy audit, the Team recommended insulating the Kiln-1 burning zone area on the outside, using ceramic pads of 100 mm thickness, in order to reduce surface heat loss. At present, the average surface temperature is around 85°C (ranging from 70 to 120°C). It is required to use two layers of these pads so that the thickness of insulation is 100mm.

RESULTS

The investment cost involving ceramic pads and civil work is US \$ 740. The average surface temperature of the kiln burning zone is 45°C. This results in a heat loss reduction of around 92 million Kcals annually, equivalent to 13 tons of coal or US\$ 338 per year. The pay back period is 27 months.

Financial benefits

- Investment: US\$ 740
- Annual operating cost: US\$ 368
- Annual cost savings: US\$ 338
- Payback period: 27 months

Environmental benefits

- Annual coal savings (3 boilers): 13 tons
- Annual GHG emissions reduction: 33 tons CO₂



FOR MORE INFORMATION

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