



Case Study: Utilization of Red Mud in Cement Industry



Confederation of Indian Industry
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Replacement of laterite with red mud for cement clinker manufacturing – ACC Limited, Kymore Cement Works

ACC Cements Limited, Kymore Cement Works is operating an integrated cement plant located at Katni district of Madhya Pradesh State. Plant uses the dry process for cement manufacture. It has two kilns. Kiln-1 is operating with a capacity of 4,800 TPD clinker and Kiln-2 is operating with a capacity of 4,932 TPD clinker.



ACC Cements Limited, Kymore Cement Works installed red mud handling and utilising system in November 2009. They started using red mud that was generated from Hindalco, Renukud aluminium refinery as an alternative raw material in cement kilns. With time, they raised their red mud consumption to 2.3% of total raw mix requirement. Presently, plant is using 400-450 metric tonnes of red mud with 14% moisture as daily consumption.

Usage of red mud in cement kiln has also accounted for enhancement in production and other economic and environmental benefits, such as neutralization of any acids generated due to the presence of sulphur in pet coke and reduction in raw material cost and overall production cost.

During operation of the new system, ACC Cements Limited, Kymore Cement Works experienced problems like coating in hopper and conveyors discharge chute due to high moisture, and which was overcome by manual poking and hammering.

Composition of major constituents in red mud and laterite makes red mud viable for replacing laterite. Alkali content in red mud adds value in terms of neutralizing SOx if plant using pet-coke as major fuel. Composition of red mud and laterite is shown below:

Particular	Red mud (%)	Laterite (%)
SiO ₂	18	10
Al ₂ O ₃	25	17
Fe ₂ O ₃	40	38
Others	83	35

