



Technical Article

## Pipe Behaviour in Bottom Ash Slurry Systems

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This study presents the results of an 18-year long investigation of pipe deterioration in cyclone stag slurry transport. The goal was to study pipe behaviour in this extremely abrasive service and select an optimum piping material. Comparisons are given for high quality alloy cast steel pipes and pipes lined with cast basalt rings marketed under the name Abresist. Based on the results thoughts are offered on the broader meanings of certain findings.

The side product of burning coal in industrial size boilers is a large amount of ash which either falls down within the furnace to the bottom or travels upward with the flue gasses. The widely accepted terminology for these two different types of ash are bottom ash and fly ash (or top ash), respectively.

The bottom ash is a very abrasive substance which is usually transported in water slurry in piping to an adequately located pond. The fly ash is usually less abrasive. At large size coal burning power stations the bottom ash and fly ash transportation systems are usually separated. The bottom ash slurry lines are usually long, varying between a few hundred feet to a few miles. The installation of these pipe lines is expensive.

Rapid deterioration of the bottom ash piping is usually a serious common problem. The quality of the ash which is an individual characteristic of each boiler and ash system is one of the most important factors in the process of abrasive

deterioration. It was found that cyclone furnace ash is a particularly abrasive substance.