

Coal Flotation : The Status and Outlook*

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EXTENDED ABSTRACT

Coal is the principal source of energy for India and will continue to remain as at the onset of the 21st century. But the evaluation of coal as the major domestic energy source for the next century depends among other factors on finding solution for technical problems associated with beneficiation of coal to convert it into an environmentally acceptable fuel.

The most affective technique for cleaning coal fines is froth flotation. But most of the developments in the froth flotation technology is in the areas of metallic mineral flotation. Processing plant operators very often tend to overlook the basic differences in characteristics of coal and metallic mineral as raw material for flotation treatment.

The natural hydrophobicity of coal has been found to vary with the carbon content, carbon-hydrogen ration and relative proportion of litho-types present in coal. The other factors affecting floatability of coal are : (1) oxidation of coal surface (2) presence of various ionic species (3) porosity of coal particles & (4) presence of clay slimes.

The major variables which affect the flotation behaviour of coal be classified into the following three groups :

- (1) Chemical : (a) Coal characteristics, (b) Slurry characteristics (c) Reagent characteristics;*
- (2) Operational : (a) Size distribution & feed rate, (b) Pulp density, (c) Agitation and aeration, (d) Pulp and froth height;*
- (3) Design : (a) Cell design (b) Cell configuration, (c) Circuit configuration.*

*Full text paper was not available at the time of printing.

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Minor variation in any of these variables may result in major change in flotation performance.

Coal flotation process has gradually evolved from a state of art to a sophisticated separation technology. In future with the increased importance of coal preparation to international coal industry coal preparation engineers and researchers are expected to come out with improved flotation technology for cleaning of coal fines.

Key Words : Coal flotation, Energy, Coal hydrophobicity, Litho-types, Flotation behaviour