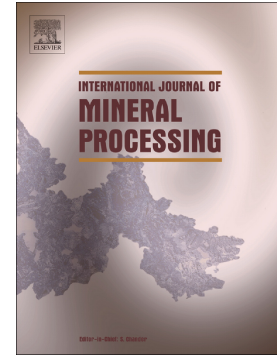


## Accepted Manuscript

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PII: S0301-7516(17)30220-X  
DOI: [doi:10.1016/j.minpro.2017.10.008](https://doi.org/10.1016/j.minpro.2017.10.008)  
Reference: MINPRO 3113

To appear in: *International Journal of Mineral Processing*

Received date: 18 March 2017  
Revised date: 14 October 2017  
Accepted date: 16 October 2017

Please cite this article as: Guosheng Li, Lijun Deng, Yijun Cao, Bo Wang, Jincal Ran, Haijun Zhang , Effect of sodium chloride on fine coal flotation and discussion based on froth stability and particle coagulation. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Minpro(2017), doi:[10.1016/j.minpro.2017.10.008](https://doi.org/10.1016/j.minpro.2017.10.008)

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**Effect of sodium chloride on fine coal flotation and discussion based on froth stability  
and particle coagulation**

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**Abstract:** In this study, the effect of sodium chloride on the flotation of a fine coal sample was investigated. The results indicated that flotation of coal was highly dependent on changes in sodium chloride concentration. An increase in the sodium chloride concentration resulted in increases in the combustible recovery as well as concentrate ash content. The froth stability and particle size distribution in the slurries with different sodium chloride concentrations were measured. The results showed that the increase in froth stability and enlargement in particle size were both favorable for the recovery of coal particles in flotation. The underlying mechanism was investigated by examining the zeta potential of pure coal particles and pulp rheology. The pulp rheology measurements clearly indicated that changes in froth stability were attributed to changes in slurry viscosity, which ultimately enhanced the recovery of coal particles. The decrease in zeta potential was responsible for the increase in particle size in slurries due to particle coagulation, which is caused by a decrease in electrostatic repulsion among the particles.

**Keywords:** Coal flotation; sodium chloride; froth stability; particles coagulation

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