The Role of Acacia in Flotation Separation of Chalcopyrite and Talc

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Abstract: Flotation separation of chalcopyrite from talc using acacia as depressant was studied and its mechanism was discussed. Results show that both chalcopyrite and talc are floatable in the tested pH range, and the flotation separation of chalcopyrite from talc can't be realized without the addition of depressant. Acacia can be adsorbed on the surfaces of both chalcopyrite and talc and depress the flotation of these two minerals. However, in the pH range of 5-7, the depression effect of acacia to chalcopyrite is weak while its depression effect to talc is strong. The flotation test on mixed minerals indicates that the use of acacia as depressant can achieve the flotation separation of chalcopyrite from talc. A concentrate with Cu grade of 29.36% and recovery of 81.82% were achieved with the addition of 100 mg/L acacia at pH 7.

Keywords: talc; chalcopyrite; flotation separation; acacia gum