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Catalytic effect of pyrite on the leaching of arsenopyrite in sulfuric acid and acid culture medium

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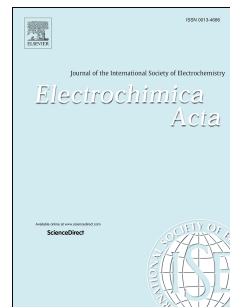
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1 **Catalytic effect of pyrite on the leaching of arsenopyrite in sulfuric acid and acid**  
2 **culture medium**

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7 Gu).

8 **Abstract:** In this study, the influence of pyrite on the leaching of arsenopyrite in  
9 sulfuric acid and iron-free 9K medium was investigated by leaching experiments and  
10 electrochemical analysis. During acid leaching, the addition of pyrite resulted in the  
11 further oxidation of arsenopyrite, for the reason that the galvanic interaction made the  
12 pH increase and redox potential decrease, and then the formation of arsenate  
13 precipitates with high crystallinity was depressed. While leaching in iron-free 9K  
14 medium, the buffer action keeping the pH stable promoted arsenopyrite dissolution as  
15 compared with acid leaching. And the addition of pyrite facilitated the arsenic extraction,  
16 but increasing the amount of pyrite added had no distinct impact on the further leaching  
17 of arsenopyrite. Electrochemical studies revealed that the presence of pyrite increased  
18 the conductivity of electrodes and electrolytes, verifying the catalytic effect of galvanic  
19 interaction on arsenopyrite leaching. Additionally, in the sulfuric acid electrolyte, the  
20 addition of pyrite also decreased the thickness of passivation layer on the arsenopyrite  
21 surface, confirming that the formation of ferric arsenate precipitates with high

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