



## **The arsenic removal from arsenopyrite in sulfide mineral by physicochemical extraction**

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The most abundant As ore mineral is arsenopyrite (FeAsS). Arsenopyrite is present in sulfide ores associated with sediment-hosted Au deposits, it tends to be the earliest-formed mineral, derived from hydrothermal solutions and formed at temperatures typically of 100(degree Celsius) or more.

The aim of this study was to investigate the mineralogical phase change and arsenic removal from arsenopyrite as a penalty element in sulfide mineral contained Au by physical extraction (high frequency) and chemical leaching (thiocyanate).

Arsenic removal experiments for were performed under various conditions of high frequency exposure(1~35 min), thiocyanate concentration (0.1~1.0M), HCl concentration (0.1~2.0M), copper(2) sulfate concentration (0.1~1.0M), temperature (30~60 degree Celsius).

Increasing the high frequency exposure produced a positive effect on arsenic removal in arsenopyrite. The highest percentage arsenic removal of 96.67% was obtained under the following conditions by thiocyanate leaching: thiocyanate concentration = 1.0M ; HCl concentration = 2.0M ; copper(2) sulfate concentration = 1.0M ; temperature = 60(degree Celsius)

This study demonstrates the adequate performance of physical extraction (high frequency) and chemical leaching (thiocyanate) for the arsenic removal from arsenopyrite as a penalty element.