

The Mineral Distribution of Hsiang-Yang Mica, Taiwan

向陽雲母之礦物分布研究

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Abstract

The Hsiang-Yang mica deposit, which belongs to the sericite-pyrophyllite-quartz schist, is located at Litao Village of Taitung County, Taiwan, R.O.C. The total reserve is estimated to be about 30 million tons. Hsiang-Yang mica is one of the most economically valuable industrial minerals of R.O.C. The mineral distributions of sericite and pyrophyllite in various size ranges of the ore were investigated. From the results of contact angle measurement, XRD analysis, SEM and the chemical analysis, it is found that the average sericite content in the mica powder is about 60% and pyrophyllite is about 40%. In the >20 μm size range, the sericite content is about 18%, while pyrophyllite is about 82%. The concentration of sericite increases with decreasing particle size. In the size range of <10 μm , the sericite content is 73%. On the other hand, pyrophyllite content is 70% for sizes >10 μm .

Key words: Ore mineralogy, sericite, pyrophyllite, mineral distribution.

摘 要

向陽雲母礦位於中華民國臺灣省臺東縣海端鄉利稻村，全礦賦存量估計約有 3,000 萬噸，礦種屬絹雲母—葉蠟石—石英片岩。以過去十年之平均產量，向陽雲母礦之規模位居世界第十，是中華民國最具經濟價值之工業礦物之一。本研究探討絹雲母及葉蠟石在不同粒徑範圍之分布，由接觸角量測、X 光繞射分析、電子顯微鏡 (SEM) 及化學分析之結果顯示：雲母粉中絹雲母含量約為 60%，葉蠟石約為 40%；在粒徑 >20 μm 之範圍，絹雲母含量為 18%，而葉蠟石為 82%，絹雲母含量隨粒徑之減小而增加，在粒徑 <10 μm 之範圍，絹雲母含量達 73%，另一方面，在粒徑 >10 μm 之範圍，葉蠟石含量達 70%。

關鍵詞：礦石礦物學，絹雲母，葉蠟石，礦物分布。

1. Introduction

The Hsiang-Yang mica deposit is located at the northwest of Litao Village of Taitung County, Taiwan, R.O.C. (Figure 1) It is the only powder mica producing mine in Taiwan. The total reserve is estimated to be about 30 million tons. The ore type of this mine belongs to the sericite-pyrophyllite-quartz schist, which is associated with minor minerals of pyrite, chlorite and calcite (Chen, 1984; Bureau of Mining Affairs, 1995). The ore, which is mined by open pit, is hydraulically classified to remove heavy

101 年 4 月 20 日收件 101 年 8 月 17 日受理

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